

# SDS 4HEI

HIGHER EDUCATION MISSION FOR SUSTAINABILITY

# SDG IMPACT

## BEYOND THE PAGE

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CREATING  
SDG IMPACT

REFLECTING  
ON SDS4HEI  
SUCCESS

RESOURCES  
SUPPORT FOR HEI  
SUSTAINABILITY

BEST PRACTICE  
CASE STUDIES



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# ATU Postgraduate Research Students Demonstrate Benefits to SDGs

By Juanita Blue, ATU



## The MOCHAS postgraduate research training programme at ATU

In January 2024 Atlantic Technological University (Ireland) hosted a Winter Symposium where the MOCHAS postgraduate research training programme (PRTPT) brought together researchers, industry experts, and academics to address the UN Sustainable Development Goals (SDGs) through mathematical and computational modelling, data analytics, sensor technologies, Machine Learning, and AI.

Modelling and Computation for Health & Society (MOCHAS) is an exciting interdisciplinary, cohort-based research training programme. The MOCHAS PRTPT aims to produce high-level, multidisciplinary research graduates who can develop, communicate, and exploit modelling tools for the solution of real-world problems relevant to societal needs. The individual research projects have been developed in tandem with stakeholders including hospitals, local government and industry, and address problems encompassing environmental sustainability, zero-carbon transport planning, medical devices, and health technologies.

This year's symposium, held at ATU Sligo, was officially launched by President of ATU, Dr Orla Flynn and featured keynote speakers who shared their insights on various topics. Dr Stephen O'Driscoll, the National Challenge Fund Manager at the Science Foundation Ireland (SFI), explored the theme of "Challenge Research – A New Opportunity for Impact," shedding light on how a focus on societal challenges can enhance the impact of research work. Prof Frances Lucy, the ATU Lead of EU GREEN, delivered a compelling presentation on "Sustainable Sustainability," sharing the challenges and opportunities in sustaining initiatives in the long term.

The third keynote speaker, Dr Gavin McArdle from UCD School of Computer Science, tackled the intricate dynamics of building smart city platforms in his presentation titled "Praxis, Politics, and Consequences of Building Smart City Platforms."

ATU's Dr Marion McAfee, one of the organisers of the symposium, thanked the keynote speakers for sharing their insights into research, "Their experiences highlighted the need for researchers to engage with stakeholders and communities for their work to have a real impact in addressing societal challenges."

The event featured the participation of 15 PhD students who were asked to present their research demonstrate how their contribution positively impacts specific SDGs and SDG targets. The students showcased their groundbreaking research through posters and presentations, covering a wide range of topics from disaster response radio networks, to advancements in skin grafts, and mobility-as-a-service in non-urban areas.

The event encouraged research students to consider the impact of their research on SDGs and sustainability at global level. The event also highlighted the importance of SDGs to all those in attendance, demonstrating how synergies between current research and SDG targets do exist and can be supported and enhanced to maximise impact.

The two-day symposium was officially closed by acting head of ATU Sligo, Úna Parsons who remarked that "Events like these foster collaboration and inspire the development of innovative solutions to societal challenges."

# Transformative Universities as Drivers of a Sustainable Regional Ecosystem

By **Jessica Siegel and Judith Terstriep**, Institute for Work and Technology

“Added value can be made visible through addressing challenges or existing potential in the regional ecosystem. “

For some time now, HEIs have been seen as socio-economic actors, whose core task is no longer just the production and transfer of knowledge, but also includes the transfer of technology and knowledge into the region and society (Etzkowitz, 1998). This means that HEIs in the sense of an "outside-in" perspective become more responsive to social questions and actively involve social actors in research (Scheidewind, 2014). Higher education is seen as the basis for the science system as well as for economic performance and innovative capacity and in this way plays a key role in driving socio-ecological change (German Council for Sustainable Development, 2022). With the Horizon Europe programme (2021-2027), the European Green Deal recognizes the role of research and innovation as drivers of change and places a focus on international partnerships and cooperation between universities and industry (European Commission, 2023).

Due to the profound change in values, the new spheres of activity and the diverse challenges of sustainable development, HEIs are urged to reflect on themselves, their structures and organizational culture (Bassen et al., 2018). As a moral and cultural compass, the SDGs can not only support curricular and strategic development but can also influence thought patterns and ways of thinking and acting. In the sense of a "whole institution" approach, it is recommended to integrate the SDGs into all core areas, approval processes, knowledge transfer, operations and governance (Global Alliance, 2022).

This goes hand in hand with a transformation of structures and processes and a changed awareness of responsibility in the regional ecosystem. Giesenbauer and Müller-Christ (2020) describe this shift in awareness towards a transformative university by means of four different modes that need to be undergone in the individual core areas of HEIs. These include the 'traditional university' (thinking in terms of order), the 'modern university' (success thinking), the 'postmodern' (consideration thinking) and finally the 'integrative university' (systems thinking). Stakeholders in the various core areas of the HEI can be in different modes. The area of research, for example, can generally be counted to mode two (success thinking).

An integrative university is characterized by a high level of responsiveness to social issues, is open to the needs of the regional ecosystem and attempts to integrate these into its own processes (Giesenbauer & Müller-Christ, 2020). It provides the methodological infrastructure for collaborative processes that aim to gain knowledge and have a social impact. Systems thinking and the co-creative and transdisciplinary processing of social challenges guide the actions of the integrative university (ibid.).

To promote sustainable development in the long term, structures need to be changed, that often favour less sustainable decisions and actions (Hofmann, 2023). Contextual framework conditions therefore play a decisive role in addressing the SDGs effectively through impactful regional measures. Achieving visible added value in the lived reality of actors and linking it to long-term sustainable development creates incentives for a "culture of sustainability" in which motivation outweighs ignorance and fear.

Added value can be made visible through addressing challenges or existing potential in the regional ecosystem. Diaz-Sarachaga et al. (2018) recommend the development of regional SDG indices, for example, to address the achievement of goals with a lower degree of fulfilment. With regard to transformative universities and their so-called 'third mission', spin-offs are also gaining importance. They are vehicles, to transfer knowledge from research to society and businesses and work together with stakeholders in the regional ecosystem. Studies show that one of the main motivations to found a university start-up is the desire to take on social responsibility and follow a 'purpose' (Pacheco et al., 2023). Universities can promote orientation towards sustainable development and SDGs through incentive systems such as competitions and awards, and institutional bodies, such as incubators, to encourage young entrepreneurs to focus on SD in the region.



# Integration of sustainable development practices into European universities

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The integration of sustainable development practices into universities in Europe is one of the key priorities of the European Union (EU), whereas member states are recommended to integrate sustainability practice into all aspects of education and training.

**Universities as one of the key agents contribute to the sustainable development through various practices:**

- **Increasing Awareness:** Universities across Europe are increasingly recognizing the importance and addressing sustainability through their operations, curriculum, research, innovation and other initiatives. There is a growing acknowledgment of the role universities play in addressing global sustainability challenges, and European universities are at the front among world leaders.
- **Policy Support:** National governments and bodies at the level of EU have put policies in place to encourage and support universities in adopting sustainable practices . This includes learning and competence frameworks, funding incentives, knowledge sharing and similar for integrating sustainability into education and research.
- **Curriculum Integration:** Universities are leaving a positive footprint towards integrating sustainability into university curricular activities across various disciplines. This involves incorporating sustainability principles, theories, and practices into existing courses or offering dedicated sustainability-focused programs and activities.
- **Research Focus:** Universities are increasingly prioritizing sustainability-focused research initiatives. This includes interdisciplinary and transdisciplinary research collaborations aimed at finding solutions to challenges, developing innovative teaching and learning programmes, tools and instruments, increasing capacity of professional staff and students, and making other contribution in society, education and third mission domains.
- **Campus Operations:** Many universities are implementing sustainability initiatives within their own operations, aiming to embed sustainable development practices to address and contribute to the sustainable development goals (SDGs). This includes sustainable campus designs, resources management, energy consumption and renewable energy, waste management, alternative modes of transport, learning and awareness-raising activities and implementing suitability through campus experiences.
- **Stakeholder Engagement:** Universities are engaging with their internal and external stakeholders to promote sustainability inside and beyond their campuses. This may involve partnerships with external stakeholder such as governments, businesses, non-profit organizations, society, universities and research-based institutions. Internally, universities mobilize and engage with students, staff, and leadership to address sustainability.
- **Student Involvement:** Students' capacity for social innovation and development has a great impact on sustainability, if recognized and encouraged. Students can experiment and contribute through curricula co-designing, exchange and transnational partnership programmes, funding opportunities, project-based learning activities, entrepreneurship and innovation initiatives, civic engagement, and other activities and practice that support sustainable vision towards the development and establishment of a culture of sustainability.



# Integration of sustainable development practices into European universities



Overall, the integration of sustainable development practices into universities in Europe is a dynamic and evolving process, with positive momentum towards embedding sustainability across all aspects of higher education. However, differences between universities who embed sustainability practices is visible. Some universities are proactively working on sustainable development, while others are in the pilot or beginning phase.

In order to support the progress of universities, the SDS4HEI project consortium developed the Framework and 7-step process model, guiding universities through a strategic journey to implement sustainable development. Process model can be used inward-out to embark on the sustainability journey. For universities who lack experience, resources and motivation to embark on this journey start from.

**Step 1 Baseline and Vision:** Define your institutional mission and share common vision.

**Step 2 Mapping SD Activities:** Map sustainable development activities that mean to your individual, organizational and regional context.

**Step 3 Linking SD activities to SDG targets:** Select targets that can be implemented realistically and that align with the institutional vision, and connect them to the SD activity.

**Step 4 Mapping governance and capacities:** Map skills, capacities and governance modes and match them with the necessary capacities to act towards sustainable development.

**Step 5 Mapping regional challenges:** Contribute to regional and societal development by looking at the 'contextual frame', encompassing the diverse context factors within a region and align your strategic orientation with regional challenges.

**Step 6 Alignment:** Reflect on previous steps you undertook and align the core outputs and visual on your journey. For result, you can create a cohesive framework, identify synergies, bridge gaps, and ensure that the overarching vision is harmoniously realized.

**Step 7 Gap Analysis:** Conduct analysis and identify SDG targets that still lack concrete actions and realign your actions to regional targets.

# Sustainable Development – A Worthwhile Journey

By Jessica Siegel and Judith Terstriep, Institute for Work and Technology



Pandemic, wars, natural disasters as a result of climate change – if you look into the world dystopian narratives and complex challenges seem to confirm the need for sustainable transformation. However, this ignores the many positive incentives and the added value sustainable development processes for societies, regions and those higher education institutions universities that develop strategies to pursue a path towards more sustainable futures.



Against the backdrop of the importance of anchoring sustainability in HEIs holistically, the SDS4HEI project is dedicated to an opportunity-oriented approach to sustainable development. Specifically, the project is developing practical assistance for HEIs to enable them to strategically integrate sustainability and the SDGs into their respective areas of responsibility in line with a 'whole institution' approach.

In the area of research, sustainable development is seen as a driver of innovation. By working towards more sustainable solutions European HEIs have the opportunity to take on a leading role in areas such as green technology or circular economy. Accelerated by the energy crisis and the reduction of coal-fired power plants, innovations and scientific findings from basic research are finding their way into practice more quickly (Witsch & Schimroszik, 2023). Through transdisciplinary research practical solutions to overcome complex societal challenges and achieve the SDGs can be developed. With research results and scientific data, on the basis of which political decisions are made, HEIs directly and indirectly help to shape SD.

In teaching, an orientation towards the SDGs promotes the training of future skilled workers and managers equipped with important sustainability skills. Ideally, they will be capable of understanding complex systems, acting creatively, responsibly and flexible and making well-founded decisions to solve problems. By integrating the SDGs into their curricula, universities are responding to the need for new (transformative) skills, which benefits the labor market and increases the employability of graduates. At the same time such integration can contribute to the development of new job profiles by linking previously unconnected disciplines. Ideally, students are enabled to become 'agents of change' both within and outside their HEIs. The study "Zukunft? Jugend fragen! 2021" by the German Federal Environment Agency (Frick et al., 2023) shows that for young people issues such as social justice, the state of the education system and the healthcare system and environmental and climate protection are highly relevant. More than 80 percent of the 1,010 respondents between 14 and 22 rated these issues as very or somewhat important and almost half rated them as very important (ibid.). Universities' commitment to sustainable development therefore has a high potential to attract prospective students.





“Organizations that promote SD authentically are increasingly valued by the population.”

*The (impact-oriented) entrepreneurial activities of universities also play a major role here. Education for sustainable development promotes a mindset that is geared towards innovation and problem solving and can therefore be meaningfully combined with entrepreneurial education and university start-up support. In this way, a new understanding of entrepreneurship can be promoted. Innovative ecosystems and intelligent specializations can transform the challenges of sustainability into opportunities and promote regional development. In addition, cooperation with environmentally conscious companies can open up new opportunities for research internships and joint projects. The relevance of sustainability in teaching is illustrated by the University Barometer 2022 (Burg & Hetze, 2022): 80 percent of university management stated that they had incorporated sustainability aspects into the curricula of existing undergraduate degree programs in the past three years and every second university has established new courses on sustainability.*

*Sustainable practices in university operations - e.g. in procurement, in the management of canteens - often lead to a more efficient use of resources and thus to cost savings. By setting a good example, universities become a lively field of experimentation and provide inspiration for internal and external stakeholders.*

*Organizations that promote SD authentically are increasingly valued by the population. A commitment to sustainable development can therefore improve the reputation of a HEI, attract talented researchers and students and improve partnerships. At the interface between science and politics, HEIs can support communities by sharing knowledge, identifying new ways to apply it and collaborating with businesses and civil society. Stronger international partnerships can promote dialog, unlock problem-solving skills and contribute to a more inclusive global higher education and research community.*

*Sustainable development contributes to long-term institutional and societal resilience. Universities can make more informed decisions, minimize unintended consequences for the environment and society and take on a long-term perspective. As sustainable development is a key objective of the European Union, universities reduce the risk of non-compliance with legal and regulatory requirements. An orientation towards SD further increases the chance of receiving financial support for projects from public and private donors.*

# CREATING SDG IMPACT BEYOND THE PAGE

By Anthony Carty, Momentum

In this article, we look at the SDS4HEI project's ambitious journey in aligning higher education with the Sustainable Development Goals (SDGs). This initiative represents a significant shift in how academic research is approached, transcending traditional boundaries to make a real-world impact. By embedding the SDGs into the fabric of higher education institutions, SDS4HEI aims to transform these centers of learning into catalysts for sustainable development, influencing societal and environmental change far beyond the confines of academia.

The SDS4HEI project's extensive research into Sustainable Development Goals (SDGs) represents a groundbreaking initiative in the realm of higher education. Central to this effort is the integration of the SDGs into the core functions of Higher Education Institutions (HEIs), encompassing education, research, governance, and community engagement. This research addresses a wide array of global challenges, from climate action and environmental sustainability to social equality and economic growth.

By delving into diverse topics such as clean energy, quality education, gender equality, and sustainable urban development, the SDS4HEI project aims to transform HEIs into active agents of change. This transformation is not limited to academic pursuits; it extends into tangible improvements in daily life and societal functioning. The research findings have the potential to shape campus policies, influence community practices, and guide local and regional development initiatives.

One of the key aspects of this research is its practical application. The knowledge and innovations derived from studying the SDGs are designed to be implemented within the HEIs themselves, creating living laboratories for sustainability. These applications range from developing sustainable campus infrastructures to integrating social responsibility and environmental stewardship into student curricula and staff training.

Moreover, the project's focus on collaborative and interdisciplinary research ensures a comprehensive understanding of the interconnected nature of these global goals. This approach fosters a culture of cooperation among various stakeholders, including students, faculty, local communities, and policy-makers, ensuring that the solutions developed are holistic and inclusive.

As the SDS4HEI project progresses, its impact on HEIs and their wider communities is becoming increasingly evident. The project is not only enhancing the educational experience but is also contributing significantly to the broader societal and environmental well-being. By linking academic research with real-world SDG applications, SDS4HEI is demonstrating how HEIs can be pivotal in achieving global sustainability objectives.

The SDS4HEI project's research into the SDGs is a testament to the power of higher education in driving substantial, real-world change. It underscores the role of HEIs as not just centres of learning but as active contributors to a sustainable future, making a significant difference in the lives of their communities and beyond.

# BEST PRACTICE CASE STUDIES

Seeking the Best

Real Life Experience

By **Anthony Carty**, Momentum

The integration of the United Nations Sustainable Development Goals (SDGs) into the fabric of Higher Education Institutions (HEIs) represents a pivotal step in global efforts to foster sustainable development. The "Best Practice Case Studies" within the SDS4HEI project illuminate this integration by presenting real-world examples of SDG championing in HEI settings globally. These case studies are designed to identify and appraise current best practice approaches to sustainability education and the practical implementation of SDGs across HEIs, serving as a beacon for those in the academic sector seeking to enhance their sustainability strategies.

The guide on the SDS4HEI website, a comprehensive resource focusing on sustainable development within HEIs across Europe, features enlightening case studies that showcase excellence, innovation, and the profound impact of sustainability strategies on real-world outcomes. By highlighting these success stories, the guide aims to inspire and guide the academic community and its stakeholders, encouraging the adoption of new approaches to sustainable development in higher education and fostering a culture of continuous improvement and shared success. Available for download as a PDF and as a SWAY presentation, it offers an engaging and informative exploration of best practices in implementing SDGs in higher education.

As critical players in our journey to achieve the SDGs, HEIs face the complex task of integrating these goals into their educational, operational, and cultural systems. The SDS4HEI framework provides a structured approach to embedding sustainable development within these institutions, aligning their efforts with the global sustainability agenda. The project's Best Practice Case Studies demonstrate the framework's adaptability and relevance in various contexts, from enhancing campus operations to transforming curricula, and illustrate the practical application of SDS4HEI. These cases highlight the framework's effectiveness in addressing regional challenges, aligning activities with SDG targets, and engaging stakeholders in sustainability efforts.

By combining a showcase of effective practices in different HEIs with a guide to the most successful strategies for implementing sustainable development actions, these insights reinforce the idea that a structured framework like SDS4HEI is an effective way for HEIs to integrate sustainable development into their core functions. This contributes significantly to the global SDG efforts, encouraging HEIs to make more strategic decisions about implementing sustainable development systematically throughout their campuses and classrooms.

Atlantic Technological University's waste reduction initiatives showcase how operational changes can align with the SDGs, resonating with SDS4HEI's mission of deeply integrating sustainability into higher education sector operations.

Manchester Metropolitan University's strategy to address societal and environmental issues through a comprehensive approach of environmental conservation, social justice, and resilience mirrors SDS4HEI's holistic view of sustainability. It highlights the importance of tackling complex, real-world issues in an educational context.

Western Sydney University's focus on addressing climate change and social inequality through sustainable water management and skill development for environmental stewardship underscores the need for graduates equipped to handle future sustainability challenges, a key objective of SDS4HEI.

Collectively, these practices and their learnings are pivotal to the SDS4HEI framework. They offer tangible evidence of how sustainability can be effectively integrated and practiced in higher education settings. The overall impact of these initiatives is profound – they not only serve as blueprints for other institutions but also advance the broader SDS4HEI goal of embedding sustainable development into the core of educational institutions, thus shaping a more sustainable future for the academic world.



# A FRAMEWORK FOR SDS4HEI

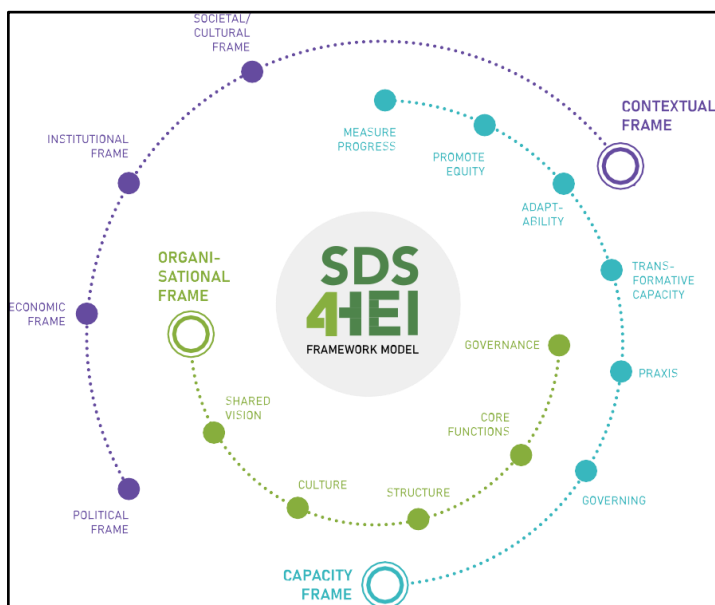
By Anthony Carty, Momentum

The SDS4HEI framework is a pivotal component of the SDS4HEI project, designed to seamlessly integrate sustainable development into the fabric of higher education institutions (HEIs). It is a comprehensive blueprint that aligns educational, research, and operational practices with the global sustainability agenda.

The adaptability and transformative capacity of the SDS4HEI framework is a key feature, ensuring its flexibility and relevance across diverse institutional contexts. This design enables institutions to customize their sustainability strategies to their specific needs and challenges, an essential factor in the long-term success and relevance of these initiatives. Such adaptability allows for a dynamic approach to sustainability, accommodating evolving environmental, societal, and technological landscapes and ensuring that institutions remain at the forefront of sustainable practices.

The SDS4HEI framework strongly advocates for a collaborative approach, emphasizing the importance of partnerships and outreach activities. These collaborations, extending beyond the academic community, are crucial in pooling knowledge, resources, and best practices from various sectors. This collective effort not only broadens the scope and impact of sustainability initiatives but also ensures a more comprehensive and effective implementation of sustainability goals. By fostering such partnerships, the framework aims to create a robust network of support and cooperation, enhancing the efficacy and reach of sustainable practices in higher education institutions.

The holistic development focus of the SDS4HEI framework ensures that sustainability is integrated into all facets of higher education institutions. This includes academic and research aspects, where sustainability principles are woven into curricula and scholarly work, as well as operational and community engagement elements. By doing so, the framework guarantees that sustainability is not an add-on but a core component of HEI operations influencing everything from teaching



SDS4HEI Framework Model

The SDS4HEI framework is a pioneering approach designed to integrate Sustainable Development Goals (SDGs) into Higher Education Institutions (HEIs).

methodologies to campus management and stakeholder interactions. This comprehensive approach is crucial for creating a deeply rooted culture of sustainability in the academic world.

The SDS4HEI framework is more than a set of guidelines; it is a roadmap for transforming HEIs into leaders of sustainable development. By aligning educational practices with the SDGs and promoting a culture of sustainability, it paves the way for HEIs to make a significant and lasting impact on global sustainability efforts. The implementation of this framework is a critical step towards ensuring that the academic community is at the forefront of addressing the sustainability challenges of our time.



Packaging

Waste

Reduction

## **Bursa Uludag University (BUU) Sustainability Coordination and Waste Management Centre organised an event on the occasion of the European Waste Reduction Week in December 2023.**

*BUU Rector Prof. Dr. Ferudun Yılmaz, Vice Rector Prof. Dr. Cafer Çiftçi, academic and administrative staff, institutional representatives and students attended the opening ceremony of the programme entitled "Packaging Waste Reduction" at Prof. Dr. Mete Cengiz Cultural Centre.*

**This system is not sustainable with the current production and consumption cycle.**

Speaking at the event, Rector Prof. Dr. Ferudun Yılmaz emphasised that the issue of waste is a special topic that concerns the whole of humanity. Pointing out that waste should be dealt with comprehensively in terms of consumption of natural resources and sustainability of daily life, Prof. Dr. Ferudun Yılmaz said, "There are different opinions and solutions to the current problem. If we insist on our current production and consumption cycle, it is not difficult to understand that things will get worse after a while. It does not seem possible to maintain the system in this way. The academic environment, the business world or social responsibility groups offer different solutions. We see that some of the measures to be taken in these solutions are already being implemented.

**Recycling, waste management and sustainability are priorities at Bursa Uludag University.**

Rector Yılmaz pointed out that Turkey accounts for 1 per cent of the world's gross national product: "We can assume that we produce the same amount of pollution for the world. Of course, we know that there are countries that produce pollution at a much higher rate. Ultimately, this situation has become a global and vital problem. It affects the whole of humanity and therefore action should be taken immediately. As a university, we are fully aware of our responsibilities. First of all, we have established a Sustainability Coordinatorship to address this issue and to develop projects to make our university and campus a more liveable environment. Our coordinatorship has done an exemplary job so far. We are carrying out activities to create a better campus environment and its sustainability. We appreciate today's programme in terms of environmental awareness, waste management and individual awareness. We would

like to thank everyone who has contributed and participated".

**Per capita packaging waste in Europe increased by 173 kilos in 10 years.**

BUU Sustainability Coordinator Prof. Dr. Arzu Çahantimur said in her speech that the aim of the event was to raise general awareness about waste management. Prof. Dr. Arzu Çahantimur explained that many programmes were organised this year on the topic of packaging waste: "According to the latest research, 40 per cent of plastics and 50 per cent of paper used within the borders of the European Union are reserved for packaging. If we look at the last stage of the life cycle, packaging waste accounts for 36 per cent of municipal solid waste. Packaging waste, which amounted to 66 million tonnes in 2009, will increase to 78.5 million tonnes in 2019. This equates to around 173 kilograms per person. In other words, one person produced more than 173 kilograms of packaging waste in 10 years. These numbers are very important. We need to think carefully about how we as individuals can contribute to society and how societies can contribute to the world.

**Waste management activities of municipalities and universities explained.**

After the opening speeches, Assoc. Prof. Dr. Selnur Uçaroğlu of the Environmental Engineering Department of BUU's Faculty of Engineering, Prof. Dr. Şükrü Ada of the Faculty of Education, Serkan Karakaya, coordinator of BUU's Waste Management Centre, Çağlar Eksi, head of the Metropolitan Municipality's Zero Waste and Climate Change Department, and Dilek Yosun, head of the Osmangazi Municipality's Zero Waste and Climate Change Department, presented information on their environmental and waste management activities.



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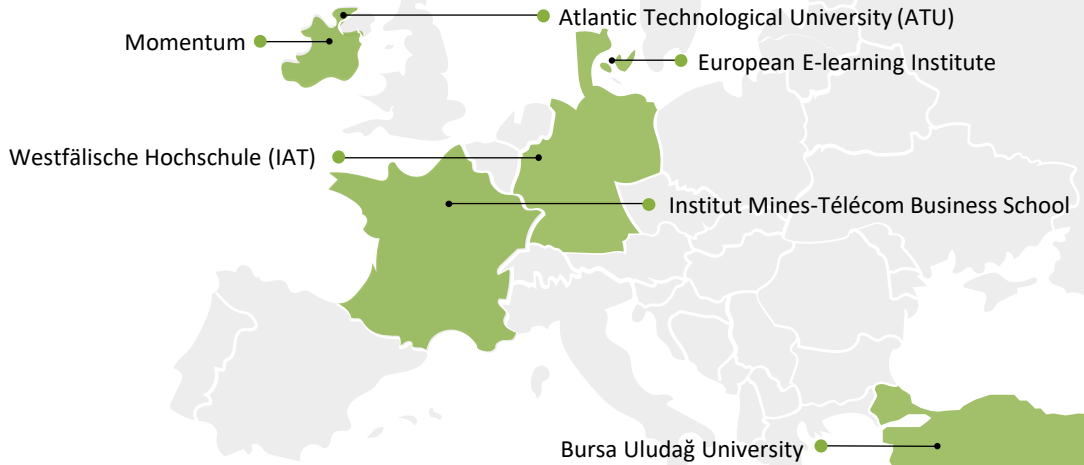
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