EUROPEAN UNIVERSITY ASSOCIATION

A Green Deal roadmap for universities

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European University Association asbl

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Introduction

The wide-ranging implications of climate change, environmental degradation, and loss of biodiversity and natural resources make it imperative to achieve a green transition that is holistic, swift, and fair. This presents a daunting task to both producers and users of knowledge across numerous fields. The complexity and scale of the green transition extends far beyond the spectrum of problems directly linked to climate and environment and highlights aspects of society that are not sufficiently inclusive, well regulated, or well understood. These aspects relate to the availability and affordability of energy, clean water, healthy soils, and food for individuals, communities, and industries. They also relate to a growing range of vulnerabilities which stem from the energy and cost-of-living crisis and have further ramifications related to gender, ethnicity, and health inequalities.

Universities are in a unique place to address these issues, bringing together researchers, innovators, public and private sectors, as well as their surrounding communities. Beyond their role as producers and stewards of knowledge, universities also connect existing knowledge to develop new framings on societal challenges. In fact, the long-term future of universities depends on offering programmes of study, research, and innovation that convey the necessary knowledge and skills to address such challenges at national and transnational level. No less important is universities' place at the centre of local communities and regions, which requires them to set an example as employers and civic institutions by limiting their own environmental impact and being mindful of ethics and equity.

The wide-ranging ambitions of the European Green Deal provide a policy framework to integrate the scientific, educational, and institutional dimensions of universities' contribution to the green transition. The university sector's role in the European Commission's initial plans was not adequately acknowledged, prompting the European University Association (EUA) to formulate a university vision for the European Green Deal. But turning the vision into reality also requires action on the part of the sector to transform itself. With due acknowledgment that not all institutions are well positioned to act equally swiftly or in the same way, EUA is proposing this roadmap as an outline of processes and interventions which can boost universities' impact and visibility in pursuing a climate-neutral,

environmentally sustainable, and socially equitable Europe. This pursuit is premised on the belief that regardless of changing European political priorities, the basic long-term policy orientation of the Green Deal will remain in place and ensure an adequate response to the call for action in the latest Intergovernmental Panel on Climate Change (IPCC) reports. This response should ultimately translate into a societal transition, of which universities are a key part and leading example.

The roadmap is framed around EUA's core concern with solidarity, cooperation, and sharing among its members, as emphasised in the Association's Strategic Plan and in full awareness that learning between institutions can be enabled by sharing lessons from both successes and failures. The specificity of local paths to sustainability allows for different starting and end points, as well as different timetables, in the proposed transformation. Since such differences are not adequately reflected in existing rankings and metrics of university performance, recognising this specificity is crucial as part of a long-needed challenge to the reliance on quantitative goals in academia. Indeed, an approach based on values, ethics, mutual learning, and collective reflection, rather than a continued focus on competition, could foster a more meaningful mobilisation of universities towards delivering the Green Deal.

With this in mind, the purpose of the roadmap is in equal parts promotional and remedial. Although some institutions can already showcase various achievements on the actions proposed, they are urged to share strategies and ideas to empower others. Thus, for the roadmap to speak to all institutions and set the sector on a pathway towards the future, the document deliberately eschews a reliance on prespecified targets, knowing that it cannot prescribe the ends of such a complex process when the necessary means are not readily available to the entire sector. Instead, the roadmap provides a number of good practice examples from across Europe to illustrate the range of possibilities for enacting meaningful institutional change.

EUA has selected four overarching areas where universities should aim to reconfigure themselves for the green transition, also using it as an opportunity to effect reforms and cultural and behavioural changes that go beyond strictly green topics:

1	2	3	4
Research & innovation	Education & students	Staff & operations	Public engagement & societal impact

For each of these areas, the roadmap outlines where the sector currently stands, which general direction it should follow to achieve the transition, and which actions are recommended along the way for both universities and EUA itself. The roadmap also identifies specific catalysts for the transition which cut across these areas: interdisciplinarity, collaboration, and a commitment to equality, diversity, inclusion, and belonging (EDIB).

The transition will entail varying degrees of relevance and urgency for internal optimisation (e.g. streamlined management, better leadership, skilled staff) and external interventions (e.g. improved funding, framework conditions, policy measures), as well as different levels of involvement and coordination depending on the target groups (e.g. academics, university leaders, sectoral associations). While many institutions are already reflecting and acting strategically on some or all of these issues, the green transition can galvanise a more thorough integration of different internal strategies and an alignment of incentives for the entire university community. Ultimately, the roadmap should serve as an inspiration and template for how universities can face the climate and environmental challenge over an extensive timeframe, enabling them to make both an effective contribution and serve as exemplars of sustainable communities.

1| Research & innovation

Where we are: state of play and challenges ahead

EU research and innovation programmes typically match the high-level political priorities set by the European Commission and are designed with a fixed duration of several years. These are generally attuned to large-scale societal challenges, as indicated for instance by Horizon Europe missions. However, the programmes are often not sufficiently demand-driven and adaptable to changing needs. In order to fully reflect wider scientific and societal developments, as well as often radical changes in the global context, EU policies and framework programmes must allow for more flexibility, different timescales (both short and long term), and greater alignment with national programmes.

The lack of flexibility of timescales and overall priorities can hamper the emergence of a science of implementation that draws widely on interdisciplinary insights into the possible uses of project results. The uptake and application of new insights after project funding ends is not always optimal, especially as communities of like-minded researchers and practitioners need to be maintained or further connected, as well as expanded in new directions in order to explore such uses. While research does thrive on collaboration, the paradox of having to compete even for funding that enables collaboration, and the long-standing issue of having to amass a sizeable publication output for individual career progression, do not enable a social impact culture.

Impact is of course a major political priority, as reflected in the EU's commitment to innovation. However, the tendency for this to be translated predominantly into targets for technological development and deployment is counterproductive when the purposes of innovation are not clearly communicated and explained to societies which are expected to adopt it. In addition, the perpetual quest to identify and scale up successful pilots does not always clarify why other pilots were unsuccessful and how they could have been improved with extra time and support, or been successful in other settings. The legacy of success is always partial and should not generate a cycle of ever narrower funding calls that build selectively on what has been achieved. This leaves open questions as to what else could have been tried if there was more openness to risk and failure and new approaches favouring systemic change.

Technologies are important and necessary. Yet, while some are mature and can contribute to reaching net-zero emissions, others cannot contribute even though they are mature. Even while new solutions still have to be explored, existing solutions are not always well used, and in each case implementation pathways reflecting societal needs and planetary boundaries have to be built in from the outset to facilitate extended use even beyond 2050 climate targets. Regulations are vital to enable implementation, and universities can help with a more wide-ranging reflection on the risks and limitations of new technologies and the legal frameworks allowing for their appropriate use. At the core of this reflection are people's lived experiences and the need to align governance and political systems with new social demands, grassroots organising and broader lifestyles changes. Social innovation has a distinct role to play by challenging established socio-technical systems and making them more human-centric.

A place for intellectual freedom and open-ended reflection will always be essential, especially to elaborate back-up plans in case current schemes to reach net-zero prove to be inadequate. Long-term fundamental research will enable such preparation, and this is why political, financial, and regulatory means must be found for continued support for frontier science at universities.

Where we want to be: objectives

- Aligning with the Green Deal and the Net-Zero Industry Act points to the value of broadening approaches and partnerships to be more global, interdisciplinary, and intersectoral. Taking the EU policy priorities as they are demands a certain approach to doing science and requires universities to work not only with other universities, but to develop common implementation roadmaps with a wider selection of stakeholders.

- A shift in focus from developers to users is necessary to align innovation with social perceptions, needs, and concerns about job creation or destruction. While the economic context and heightened concerns about energy security do have a role to play in upscaling technologies, this should not detract from larger questions about the social benefits or the necessary variety of

innovation. Likewise, it should not reduce innovation to inputs and outputs. Processes are equally important to achieving just and desirable social outcomes and including marginalised voices.

- Project proposals for external funding should reflect a commitment to sustainability as a value, for instance by favouring SDG-centred design and the cross-fertilisation of parallel streams of research on related topics.

How we get there: recommended actions/processes

Universities

- Taking inspiration from projects such as AGERA (Agenda 2030 and the global goals for sustainable development as a framework for collaboration) in Sweden, develop case studies of how interdisciplinary research can contribute to an interrelated implementation of the SDGs, linking economy, politics, environment, and society.

- Support the implementation of SDGs by fostering a culture where cooperation and mutual support among existing research structures can help tackle the challenge of sustainable development. This cultural change should also encourage experimentation and risk-taking, for instance within new structures such as interdisciplinary "institutes without walls".

- Promote team research and the alignment of research strategies and philosophies by allowing internal funding to move from a single principal investigator to a co-principal investigator approach (e.g. one from social sciences and humanities and one from science, technology, engineering, and mathematics).

- Develop or adopt innovation impact methodologies (e.g. SDG Impact Assessment Tool) which take account of both technical and local societal factors in the successful implementation of solutions. Translate the lessons learned into implementation roadmaps that can be co-created with innovation partners for better strategic alignment.

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- Promote a systematic recognition and evaluation of interdisciplinarity in research and innovation projects, for example as part of career assessment reforms.

- Provide examples of interdisciplinary research methodologies that have enabled new research and innovation projects to be developed, for instance the co-champions approach of UK Research and Innovation.

- Build on the EUA SDG brochure to develop an information pack for national and transnational policy makers highlighting the substantive contribution of universities to the research and innovation challenge of the Green Deal.

EXAMPLES OF GOOD PRACTICES

Durham University established the Durham Energy Institute (DEI) in 2009 to develop sustainable and resilient low-carbon energy systems for different contexts and with fair access for everyone. By approaching energy with a socio-technical framing ("Energy, Science and Society"), solutions are explored in a multidisciplinary environment. This promotes a whole-systems approach to energy research and education, integrating the social, environmental, economic, policy, technical, and regulatory implications of energy pathways and choices. DEI has over 200 active academics and researchers working in an enabling interdisciplinary environment to develop effective solutions to the complex challenge of the energy transition. Staff are based in different academic departments across science, engineering, social sciences, and humanities and also benefit from being members of the dynamic DEI community. DEI provides training for doctoral candidates in an interdisciplinary programme adopting best practice in innovative training for future energy leaders.

The hUB-Sostenibilitat Global is a hub on global sustainability created by the **University of Barcelona**. Based on interdisciplinarity and the perspective of competitive sustainability, it provides independent expertise and solutions to challenges outlined in different political and

social pacts and agreements, at local, regional, and state levels, as well as internationally. Justice, equity, and social challenges are also at the centre of the hUB strategy, with the aim to ensure that no citizen is left behind in achieving sustainability. The hUB is organised in nine areas, with more than 270 experts from over 100 research groups: 1) Climate change; 2) Protection of the environment; 3) Preservation of biodiversity; 4) Energy and ecological transition; 5) Sustainable management of natural resources and ecological economy; 6) Healthy life and prevention of new pandemics; 7) Safe and sustainable food; 8) Urban and territorial transformation; 9) Education, communication and culture of sustainability. Each area is coordinated by two or three experts from different faculties. The hUB reflects the university's leadership in the European alliance CHARM-EU and the resulting Master's in Global Challenges for Sustainability.

As part of the French excellence initiative, the **Université de Lorraine**'s ambition over the next 10 years is to assert itself as a major world-class research university, with a core positioning in global engineering for a healthy planet. To achieve this, it will firstly decompartmentalise education and develop a skills-based approach with *à la carte* paths for students from the moment they enter university, in research, entrepreneurship, and international careers. Secondly, it will develop a fluid and enriching relationship with society, the innovation ecosystem, and the business world, and commit to efficient operations both internally and externally. Foregrounding a project-based approach, the initiative strongly encourages interdisciplinarity in relation to the SDGs and specific socio-economic challenges such as: the circular economy, sustainable metallurgy and new materials; the ecological, societal and energy transitions; and the global challenges of health in the 21st century, including the "One Health" systemic approach. An interdisciplinary programme is expected to explore new avenues of research and training, while paying attention to scientific mediation towards the public (professionals or citizens). It also foresees the development of a range of short programmes and summer schools, focused on research and its applications.

To create a favourable environment for transdisciplinarity in environmental studies, the *Space, Environment, Risk and Resilience* initiative of the **Université Côte d'Azur** was created in 2016. Since then, it has become a hub for over 400 researchers from 17 research laboratories, covering archaeology, computer science, physics, chemistry, astronomy, marine resources, and others. It has a core interest in the relationships and interconnections between people, societies, environments, and the Earth. This encompasses a wide range of multi-disciplinary fields including physical, natural, and social sciences. The objective is to create a new paradigm of transdisciplinary science where hazards are considered holistically, and risks described globally with all their components. This initiative aims to address environmental and societal issues in line with the SDGs and foster new research approaches that overcome the current fragmentation of research, integrate scientific knowledge across different disciplines and stakeholders, and co-create scientific questions and projects together with highly specialised research groups.

2| Education & students

Where we are: state of play and challenges ahead

Drivers such as student demands and engagement with local communities are no less meaningful for climate action than regulations or targets for specific sectors. These drivers can maintain a steady process of curriculum reform, whereby universities respond dynamically to societal concerns and tailor their educational offerings for maximum impact through generations of graduates. This impact is also amplified through schemes for continued professional development and reskilling opportunities. However, while study programmes have become more digital and international, interdisciplinarity should be better implemented. Moreover, although sustainability is more widely acknowledged at institutional level, it does not always go beyond greening in daily operations and elective modules in learning and teaching. The measurement of competence and uptake of knowledge regarding sustainability also tends to be chiefly numerical, focusing on numbers of students enrolled in specialised programmes.

Implementing interdisciplinarity at universities follows different timelines and this should be respected. Interdisciplinary programmes and collaborations provide a breadth of thinking and holistic perspectives, but this is not only related to, or directed towards, sustainability. Nevertheless, when the latter is the key concern, some minimum expectations will need to be defined in order to raise the sense of urgency about interdisciplinarity's role as an enabler for the green transition. For example, discussions about interdisciplinarity have often been about knowledge, without also sufficiently defining interdisciplinary skills and thereby challenging longstanding notions of expertise. This underscores several recurring questions, such as whether every graduate should be an interdisciplinary graduate, whether the training of specialists is equally relevant across all fields, and whether the average student is expected to leave university with a core set of skills, regardless of the field. The emergence of new employment opportunities due to renouncing fossil fuels and wider shifts to circularity and the bioeconomy adds impetus to the preparation of graduates who can take up jobs in green sectors and devise effective solutions by viewing challenges from multiple perspectives. As many people go back to university to weather socio-economic crises or to adapt to other ongoing transitions, this offers an opportunity to pursue the necessary changes while also highlighting the value of lifelong learning and different course formats, for instance micro-credentials.

This process touches upon the nature, purpose, and role of universities in modern society, and both the SDG framework and more typical market demands and developments can only partially guide it. While it is up to each institution to integrate specific skills into the curriculum, the university sector needs a joint process of reflection that draws on bottom-up organising.

Where we want to be: objectives

- A minimum set of interdisciplinary skills can and should be defined and integrated into existing material without necessarily leading to a new curriculum. Strong analytical skills can be complemented by interpersonal skills such as communication and teamwork (for comprehensive collaboration) or thinking outside the box (for sectorial coupling). Students should also gain the critical capacity to use evidence-based approaches when verbalising their opinions and distinguish between disinformation, unfounded opinions, populism, and greenwashing.

- Education for sustainable development should be available to all staff and students, with different modules allowing them to understand governance and decision-making processes, socio-cultural phenomena, and economic systems. A balance should be found between specialisation and generality so that graduates have more agility within the workplace and learn to appreciate the value of other views.

- Study programmes should be based on challenge-based learning, living labs, and other experiential learning opportunities. Intercultural and intersectoral aspects could be further added by jointly operating such programmes with EU and global partners across industry, public administration, and the non-profit sector. More flexible accreditation processes will also facilitate and guide the development of new programmes.

How we get there: recommended actions/processes

Universities

- Examine curricula for necessary changes, for instance by bringing staff and students from different departments together, running workshops with stakeholder analysis, and identifying topics of shared interest in the green transition and how to develop them into learning objectives. This could be integrated with ongoing processes of pedagogical innovation and boosting inclusivity in learning and teaching.

- Sustainability is a powerful vehicle to develop interdisciplinary programmes, but robust governance of such programmes is needed, for example by appointing an institutional lead and champion to define activities that bring together all parties with a shared interest. This should also help clarify when interdisciplinarity is either preferrable to, or can exist side by side with, monodisciplinarity.

- Scan the horizon in terms of labour, industrial, and societal transformations that will soon impact the local and national context. Align the horizon scanning with emerging interests and demands from students and faculty to offer and optimise degree programmes and optional study modules on sustainability. These should include research, innovation, education, and an appropriate emphasis on skills development. They should also allow, wherever possible, student-driven personalised journeys so that course takers can develop their own study package.

- Promote international cooperation by defining education programmes which are jointly operated by partners in different countries, especially those heavily impacted by climate and environmental issues. Erasmus Mundus can serve as a model for international, interdisciplinary, and intercultural programmes, alongside other networks and alliances such as the European Universities Initiative.

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- Identify key prerequisites for the success of interdisciplinary programmes that can be adopted by members according to their local context. Organise information sharing events to discuss lessons learned about new curriculum structures and graduate profiles that reflect ongoing transformations across relevant sectors.

- Carry out advocacy towards national and transnational university funding agencies to provide more abundant and flexible funding for new interdisciplinary and experiential learning programmes across all study cycles.

- Support universities in carrying out strategic analysis of individual capabilities in relation to topics and developments in sustainability, for example by looking at megatrends and relevant Green Deal policies. The analysis could chart interactions between such developments and long-term patterns of student enrolment, study choices, career outcomes, and socio-economic status.

- Promote good practices of foresight exercises that have enabled universities to anticipate institutional transformations focused on sustainability. These can be integrated into a more sustained use of scenario methodologies, as outlined in EUA's Pathways to the future report, and inspire debate about the university sector's place in various geopolitical, technological, and societal constellations.

EXAMPLES OF GOOD PRACTICES

Air pollution, food and water insecurity, expanding ranges of infectious disease, extreme temperatures and natural disasters are all urgent issues affecting the health of the global population. In order for health professional curricula to address these challenges, a team at the **Royal College of Surgeons in Ireland (University of Medicine and Health Sciences)**, in conjunction with Irish Doctors for the Environment, formed the Climate and Health in Medical Education (CHIME) network in 2020. The group is comprised of representatives from the seven university medical schools across the island of Ireland. Two workshops were held using the nominal group technique to, firstly, identify barriers and

facilitators to new content, and secondly, to outline content that could be developed into a curriculum. The main barriers included a crowded curriculum, lack of staff expertise, and uncertainty of the relevance of the subject to clinical practice. The network subsequently developed a curriculum that each school could use as a framework to integrate planetary health (PH) into teaching. Three main topic areas are now included: implications for clinical practice, the role of the physician as a health advocate, and clinical leadership in decarbonising the health sector. Implementation has included integrating PH into case-based learning, development of a climate and health module, and incorporation of Sustainable Quality Improvement (SusQI) proposals. Next steps include integrating health professional learning, introducing PH to postgraduate training, and integrating SusQI projects within the clinical setting.

Global Challenges University Alliance 2030 (GCUA 2030) is a network of 20 university partners from across the globe with a common vision of contributing to sustainable, global development. GCUA 2030 offers a global learning forum for doctoral students and young researchers, providing a range of learning and networking activities. The overall goal of GCUA 2030 is to enhance the capacity of its partners to contribute to Agenda 2030 and the SDGs through international collaboration. A key objective is to equip the next generation of researchers, teachers, and academic leaders with knowledge, tools, and networks that will strengthen their capacity to work across disciplines and to conduct translational research. In a global setting, with a focus on sustainable development, and mostly virtual interaction, the network offers different types of learning activities designed to accommodate and attract students from different educational systems, e.g. a mentorship programme, online courses, and a climate action challenge.

EU GREEN (responsible GRowth, inclusive Education and ENvironment) is an alliance of nine European universities: the University of Parma, Wrocław University of Environmental and Life Sciences, the University of Extremadura, Otto von Guericke University Magdeburg, the University of Évora, the University of Angers, the University of Gävle, the University of Oradea, and Atlantic Technological University. Its mission is to empower society and develop the capabilities, opportunities, and cooperation for a better and more viable environment in the long run. EU GREEN's four-year strategic objective is the creation of a European hub for education, research, and innovation in sustainability that goes beyond the consortium's borders and acts globally to provide solutions to local or regional challenges, which can be replicated at a global level.

3| Staff & operations

Where we are: state of play and challenges ahead

University autonomy should provide wide scope for strategy conception and goal setting by the leadership team. At the same time, receiving formal endorsement from governing bodies is often made easier when strategies promote institutional growth through the attainment of numerical milestones. Such common practice can of course reflect the dynamics of day-to-day governance at specific institutions. However, there is also a distinct possibility that numerical milestones are not always appropriate or needed, for instance when seeking close, systemic collaboration between all members of the university across extended time periods. Approximately half of university employment is in professional services, and if universities are to be more energy efficient and green, the focus of strategies should be broadened beyond academics and leaders. Professional staff members perform various roles which allow the whole university community to thrive, thus an inclusive framing is needed that speaks to this community. Moreover, even where quantitative goal setting is the norm, goals and measurements need be aligned so that trade-offs (e.g. between higher student numbers and less reliance on transport) are well understood and addressed.

The majority of respondents to the EUA Survey 'Greening in European higher education institutions' already relate their institutional strategies to the SDGs. This can provide the basis for a comprehensive commitment to sustainability and for defining a new value set and purpose for institutional development beyond the achievement of key performance indicators. That said, departing from established practice requires a reframing of the strategic planning process to nurture a community around ethics and values that matter more than institutional growth. Transformational leadership by rectors is needed to firmly promote such a reframing. Yet, strong sources of internal, bottom-up change also have to be identified and encouraged to maintain a new dynamic centred on universities' civic role. The various dimensions of this role are typically developed by different epistemic communities within the university, some focusing on the institution's position within the wider locality, and others on the intra-university community and issues of wellbeing and inclusion. Through sustained synergistic work on all relevant dimensions, performing this civic role can foster 'universities without walls' so that society participates in the university and vice-versa.

Where we want to be: objectives

- For the Green Deal to be part of the vision of what an institution should be, structure is imperative to encourage, enable, and occasionally cajole. Sustainability strategies need to outline clear roles and assign responsibilities across the whole institution, with a broad indication of what is expected in practice on a day-to-day basis.

- The commitment to sustainability as a value and to tackling the climate emergency as a common cause is essential to nurturing an inclusive, equitable, and supportive culture within universities. It also enables the whole sector to collaborate and speak with one voice. Universities should be considered as a holistic community whose members are all empowered to contribute to the aims of the Green Deal.

- Reputational benefits are already noted by universities as a result of their greening activities. An ethically consistent positioning on the climate and environmental challenge will further allow institutions to become attractive for students, academics, and professional staff.

- Institutional growth and higher student numbers may be aligned with political discourses and funding models in certain countries, but this should be balanced with an awareness of the impact of expanding campuses into surrounding communities. Alternative growth patterns that privilege refurbishment and redesign of existing facilities or shared use of off-campus facilities should also be proposed.

- The ongoing evolution from the lower bidder principle to an "enhanced value" principle shows that social and environmental criteria are being considered in university procurement. Purchasing goods and services that have a reduced environmental footprint throughout their life cycle should be further encouraged.

How we get there: recommended actions/processes

Universities

- Address the challenge of sustainable operations in synergy with a commitment to equality, diversity, inclusion, and belonging (EDIB) in the institutional strategy. Through a sustainability committee that reports to senior management, the strategy should tackle issues related to managing the building stock and surrounding green spaces, food supply and canteens, procurement etc. Examples such as the Green Office Movement also show that direct student involvement in managing the strategy can facilitate and enrich the university's green transition.

- Examine the rationale for high-carbon travel and mobility and develop codes of conduct that can guide staff members in choosing lower-emission alternatives.

- Rethink the institution's internal processes, involving both leaders and staff. Pursuing the Green Deal is not just a question of costs and financing, but of optimising what universities already do. Moreover, even abundant funding for much needed capital investment can be wasted when processes, incentives, and cultures remain unchanged.

- Assess the need for both sector-specific and interdepartmental staff training on sustainability in order for the university community to act as a multiplier and facilitator for the Green Deal beyond the campus. Human resource policies can be key instruments to embed sustainability in an institution's identity, starting with induction procedures for staff at all levels.

- Implement measures to make laboratory research more sustainable, as exemplified by 1point5 lab initiative in France, Green Labs in Ireland, and Green Lab Associates in the UK.

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- Identify examples of institution-wide approaches to effective sustainable operations and engagement with the full university community. Complement this with data on perceptions of positive and detrimental effects of ongoing or expected institutional transformations.

- Develop resources to support university leaders with responsibility in sustainability to deliver a successful transition of operations in their institution.

- Raise awareness about the role of procurement in steering the green transition at universities.

- Develop evidence of the holistic impact of greening initiatives based on the 'Greening in European higher education institutions' survey and further quantitative and qualitative data gathering. Convey this in advocacy campaigns that counter existing funding models' overemphasis on performance indicators at the expense of holistic impact.

EXAMPLES OF GOOD PRACTICES

With seven schools and 21 departments in five cities, the **University of Western Macedonia**, Greece, aims to cover all its energy needs for heating, cooling, electricity, and transportation from renewable energy sources. Located in a region where 40% of the local GDP is derived from activities related to lignite power plants, the university embarked on a path to net zero emissions due to the planned phasing out of lignite by 2028. An important step is participation in an energy community together with the regional authority and the 13 municipalities of Western Macedonia. This energy community will develop and implement actions aimed at promoting energy sustainability in order for its members to meet their electricity needs by self-production of energy and net-metering, and fight the energy poverty of economically vulnerable individuals and groups. An additional step is the construction of a green data centre on a new university campus in Kozani, covering all computational and storage needs of the academic community, as well as similar needs of other public and private entities. Power will be sourced from a 3 MW photovoltaic park that will also be built on campus.

4| Public engagement & societal impact

Where we are: state of play and challenges ahead

Although national and European Green Deal policies draw on the notion of a twin (green and digital) transition rather than separate transitions, the policy design is not always sufficiently holistic, as shown by the typical portrayal of digital as a tool for green. While this instrumentalisation is warranted up to a point, it also poses a dilemma of what will replace digital tools once their usefulness for the green transition is exhausted or proves partly unwarranted due to their negative environmental impact. A truly holistic transition must reach across all sectors and spheres of society. For this reason, innovation risks being insufficient if its long-term possibilities are limited to the optimisation of transport and administration, or of production and consumption patterns. Societal transitions are also enabled by values and ethics, which are reflected in the adequacy of consultation and co-creation processes that bring citizens and civil society into policy making.

If there is too much focus on outcomes in national or European policy design, and if the very locus of design and formulation is not accessible enough to stakeholders, cross-sectoral mobilisation is required to steer the green transition in a socially just and desirable way. Given their role as honest brokers and points of reference to which all of society can turn for advice and mediation, universities can be facilitators of this mobilisation at the nexus of politics, economy, and society. However, while academics are engaging with citizens and different stakeholders, this facilitation can be ineffective without proper incentives and rewards which allow for more than the occasional provision of ready-made solutions via ad hoc consultancy. As such, academics may often be more accustomed to presenting their research without necessarily incorporating how it translates at the level of a community, business, or government agency. Lack of specific training in citizen engagement that draws on social sciences and humanities will also hamper their civic role beyond sharing information and knowledge or managing research and innovation processes.

Additionally, as argued in the EUA Green Deal vision paper, the structure of both the European Commission and the civil service in many EU member states suggests that much could still be done to address siloed thinking and streamline interdepartmental collaboration for sustainability goals. Some policy makers are willing to act on scientific advice or even to move faster than science, while others remain sceptical about climate change or disengaged from such discussions. This means that universities and their sectoral associations are often confined to thinking in terms of the official framing of the Green Deal and struggle to promote issues which are not sufficiently reflected in current policies or framework programmes. Furthermore, advocacy is a two-way process and not a one-way transfer of what one sector or stakeholder believes is important. Hence, a balance between concrete demands and broad scientific narratives needs to be found when approaching policy makers, even those who are generally open to scientific advice. Successful outcomes will only be achieved when scientific knowledge is considered alongside societal perspectives and requirements.

Where we want to be: objectives

- As organisations with broad, detailed knowledge of the potential of the Green Deal, universities should articulate a clear vision of its successful implementation. Moreover, staff members who are vocal about the necessary measures and actively engaged in sometimes highly contentious public discussions should enjoy the support of their institutions and the university sector's commitment to reasoned debate.

- Universities are locally embedded as enablers of just transitions. This can make them highly influential, and local partnerships can often be more feasible than national or international ones. However, this requires relations of trust with various communities and indigenous groups, businesses, and policy and decision makers, rather than a purely instrumental, funding-driven mindset.

- Training in knowledge brokerage should be widely available so that researchers can co-create, transfer, and valorise knowledge at the science-policy interface using the most appropriate techniques. As exemplified by the Horizon Europe and UKRI-funded SSH Centre, such training can include modules on the integration of knowledge from different epistemic communities and the co-production of evidence to drive complex local transitions.

- Study programme accreditation, by either state or independent bodies, should provide an additional framework to promote community outreach and sustainability.

How we get there: recommended actions/processes

Universities

- Value public engagement and policy input alongside research and education activities in career assessment. This can encourage staff to apply for membership of advisory panels, working groups, and other policy input bodies, and can also enhance the communication skills of doctoral candidates. Furthermore, it can boost the institution's media presence in cases where only some faculties or individuals are visible.

- Develop citizen science projects on topics of local interest where urban innovation is necessary to reach sustainability goals. These should reflect a commitment not just to promoting and demonstrating new solutions, but to facilitating a broad understanding of how large-scale climate and environmental challenges can have specific localised effects. With nearly 70% of the world population expected to live in cities by 2050, partnering with initiatives such as the Covenant of Mayors could be particularly valuable in this context.

- Mobilise and exert collective influence by joining stakeholder networks focused on advocacy at either local and national or EU and global levels. Consider partnering with think tanks and NGOs that have a strong track record as intermediaries between academia and policy, and ensure that governance and support structures allow the liaison role to be shared among several staff members.

- Develop stronger links with alumni as part of a joint commitment to amplify the social impact of the university. Draw on their experiences to pursue new initiatives, for instance in support of groups and individuals affected by climate and environmental issues.

EUA

- The strength of universities' links to local communities varies across Europe, depending on governance systems and their degree of centralisation. More learning and exchange of experiences should be facilitated between universities, for example around programmes such as the UKRI's Enhancing Place-Based Partnerships, where geographically defined communities are engaged in the co-development of socially relevant research and innovation projects.

- Policy makers should be encouraged to brief universities about the challenges they face, for instance as part of fellowships for civil servants like the Mercator Science-Policy Fellowship Programme at the Goethe University Frankfurt. Additional examples of programmes with joint learning journeys for early career researchers and policymakers should be identified and promoted.

- The global nature of the green transition makes it imperative to promote partnership and exchange across hemispheres and facilitate mutual learning between institutions in the Global North and South.

EXAMPLES OF GOOD PRACTICES

The Swedish University of Agricultural Sciences (SLU) has established four interdisciplinary Future Platforms – Future Food, Urban Futures, Future Forests and Future One Health – with the purpose of integrating different scientific fields across the university and providing a forum for collaboration between academia and society. Platform activities are characterised by an inter- and transdisciplinary approach. The work spans across faculties and takes place in collaboration with relevant stakeholders in society. The Future Platforms are intended to be a living, interactive interface between academy and society, and aim to: identify needs for knowledge, through projects based on synthesis and analysis, and generate scientifically based decision support; identify and develop, through collaboration with relevant actors in society, new questions for research to support solutions to future challenges; and develop interdisciplinary working methods by coordinating cooperation across disciplinary boundaries. All four platforms offer seed funding and co-financing of collaborative projects, as well as arranging meetings in various formats.

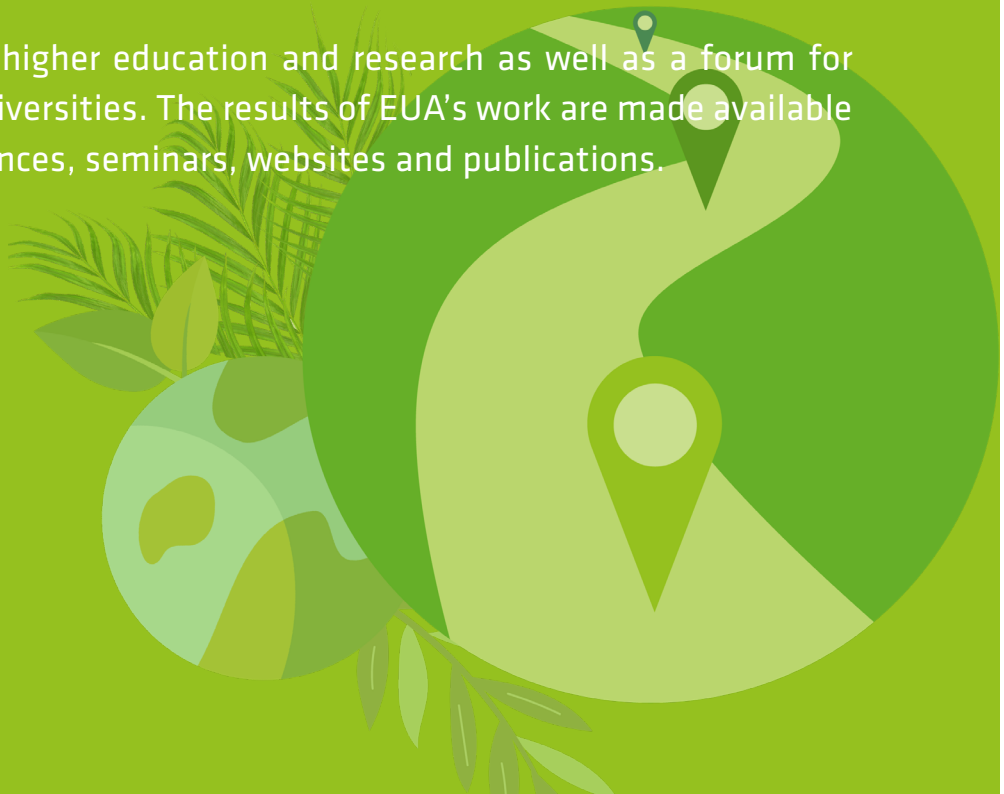
Next steps

In view of the different actions and processes required to meet the challenge of the Green Deal, this roadmap defines a horizon of possibilities for the university sector. The latter must not just be a part but an exponent of the societal transition to sustainability. EUA is committed to ensuring wide dissemination and uptake of the roadmap, as well as to facilitating systematic dialogue regarding the sector's needs and expectations in working towards the objectives outlined above. Through specific activities aimed at, and co-created with, universities and their partners as well as decision makers and other stakeholders, the Association will pursue a comprehensive enhancement of universities' role across the many areas of the green transition in the coming years. This process will be closely monitored with a view to updating the roadmap at regular intervals.

EUROPEAN UNIVERSITY ASSOCIATION

The European University Association (EUA) is the representative organisation of universities and national rectors' conferences in 48 European countries. EUA plays a crucial role in the Bologna Process and in influencing EU policies on higher education, research and innovation. Thanks to its interaction with a range of other European and international organisations, EUA ensures that the voice of European universities is heard wherever decisions are being taken that will impact their activities.

The Association provides unique expertise in higher education and research as well as a forum for exchange of ideas and good practice among universities. The results of EUA's work are made available to members and stakeholders through conferences, seminars, websites and publications.



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