eua EUROPEAN UNIVERSITY ASSOCIATION

POSITION

Innovation ecosystems for a sustainable Europe: How to enhance the contribution of universities

Based on the results of the EUA survey on universities and innovation

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Introduction

Digitalisation and the quest for sustainability are world changing processes for which Europe needs to unleash the potential of its innovation ecosystems. New solutions can be found for these challenges, but they will only emerge by tapping into the resources and capabilities of all stakeholders from the innovation ecosystem, including the university sector. As established drivers of their ecosystems, universities already demonstrate the strategic attention necessary to make Europe an innovation leader in the twin transition. However, their growing focus on innovation is outpacing the availability of incentive and other support mechanisms, as well as requiring them to adjust their own institutional approaches for a more disruptive role as innovators. Aligning these support mechanisms and approaches with universities' innovation capacities and ambitions will be crucial to fostering a more sustainable and digitally connected society.

With the aim of measuring the extent of this alignment, the European University Association (EUA) set out in early 2021 to develop an evidence base on university innovation activities across Europe. Through a survey, the Association has captured the different levels of innovation capacity at European universities, as well as how these levels contribute to a wide range of impacts and social outcomes.

Based on data from 166 institutions situated in 28 European countries, EUA and its Expert Group on Innovation Ecosystems are now in a position to present a Europe-wide picture of innovation at universities, as well as to make key recommendations for universities, policy makers and funding agencies to enhance the contribution of universities to European innovation ecosystems. As such, this policy position provides an overview of how to sustain the growth of universities' innovation capacity and deepen their contributions to the twin transition in Europe.

Key results

◈ **University innovation is strongly embedded in far-reaching institutional goals.** 74% of surveyed institutions have a strategy or mission statement that reflects their innovation agenda. Many strategies address the broad sense of innovation, including the universities' contribution to building a sustainable society through all types of innovation including social innovation. The respondents also reported an increased focus on knowledge transfer and commercialisation processes (86% have a technology transfer office).

◈ **There is widely shared optimism that Europe's research and innovation capabilities will allow it to achieve a sustainable transition and a leadership position in the digital transition.** 76% of respondents agree that Europe is capable of disruptive innovation that could achieve the major changes necessary for sustainability, while 68% agree that European R&I can attain digital leadership. This positive outlook is also correlated with universities' own innovation capacity, since those that indicate agreement tend to have a slightly higher capacity than those that indicate disagreement.

◈ **Resources, in particular funding, staff and space for co-creation, play a key role in meeting university ambitions in the area of innovation.** Although 75% of surveyed institutions assess their overall strategic attention to innovation as very high or high, only 59% consider their innovation capacity similarly high, explaining this difference by limited resources. Notably, it seems that lack of sufficient funding, limited staff resources to fulfil all university missions and no official recognition of innovation activities in career assessment are important aspects hindering the university innovation capacity.

◈ **Efficient institutional governance structures and institutional autonomy are crucial prerequisites for enhancing university innovation capacity.** 92% of respondents consider that efficient institutional governance structures and institutional autonomy are necessary to allow them to develop innovative and evidence-based solutions to societal challenges, act as honest brokers in innovation ecosystems and engage with society.

◈ **While there are many ways in which universities measure their innovation success, the number of partnerships is the most widely used indicator.** 67% of respondents use it to a large or to a moderate extent for innovation in the sustainable transition, while 56% use it for digital innovation. There are also significant correlations between these responses and specific types of innovation partners: for the sustainable transition, universities tend to work more closely with similar actors from within the R&I community or with civil society organisations and national public sector institutions, whereas for the digital transition, they work more closely with small and medium enterprises.

◈ **Collaboration in the innovation ecosystems is seen as very important but partnering with some types of stakeholders remains limited**. Overall, the surveyed institutions collaborate to a larger extent with public sector institutions, other universities in their countries and research organisations in comparison to other partners, including business and civil society organisations. However, those that assess their strategic attention to innovation more highly tend to work to a greater extent with companies (in particular large ones and start-ups) and civil society organisations.

◈ **Universities measure their success as innovators in terms of nurturing the start-up sector, and the extent to which they use this indicator is similar for the sustainable and digital transitions.** 52% of universities use it to a large or moderate extent in the former, and 50% in the latter. In addition, the higher the degree, the higher the number of students participating in entrepreneurship activities and start-ups.

◈ **There is room for further improvement in the development of student entrepreneurial mindsets.** The results reveal that universities contribute to the development of student entrepreneurial skills in various ways, but currently relatively few students benefit from entrepreneurship training. Such courses are often not embedded in the curriculum. In many cases, they are offered as an extra-curriculum activity, but the participation rate is low, as many students do not consider them relevant for their future career paths.

◈ **National competitive funding is the most important funding source for university innovation.** 89% of respondents consider it as very important or important in financing university innovation activities. The second top-ranking response is the Erasmus+ programme with 71% institutions considering it as very important or important, which is consistent with other survey results showing high university engagement in innovation in teaching. The R&I Framework Programme remains very important or important to the majority of respondents, however with differences between the programme's components.

◈ **Universities' innovation activities for achieving the twin transition are equally reliant on their research and education missions.** Among the ways they contribute to innovation for the sustainable transition, 87% list the development of new technologies based on research, followed by improving student and staff understanding of sustainability (85%). Regarding ways to support digital technology innovation, 81% rate innovation-focused education and training as very high or high, followed by applied research (79%).

◈ **Universities pay particular attention to interdisciplinarity in accelerating the sustainable and digital transitions.** More than 70% of respondents regard the creation of interdisciplinary institutes as either very important or important for innovation in the sustainable transition, while more than 90% consider interdisciplinarity to be either very important or important as an enabler of digital innovation. This shows the transversal nature of the societal challenges related to sustainability and digitalisation, and the fact that universities are ideal environments to tackle them by bringing diverse disciplines together.

◈ **There is a myriad of university contributions to innovation for the sustainable transition.** However, there appears to be a contrast between social and technological innovation, and more generally between contributing to climate change mitigation versus adaptation. While 87% of respondents are developing technological innovations, 46% are contributing to changing consumer behaviours in society, and while 69% are helping to reduce the environmental impact of existing infrastructures, 50% are helping to improve the resilience of those infrastructures.

◈ **The specific fields of the digital transition where universities believe that Europe has global leadership potential generally overlap with those prioritised by the EU digital policy agenda.** Among them are artificial intelligence and machine learning (67%), cybersecurity technologies (60%), big data (50%), and high performance and quantum computing (45%). The university sector is therefore attuned to the global trends of digital innovation, although its ranking of priority areas suggests some divergence with the EU agenda's emphasis on the very cutting edge of digital technology innovation. Among the selected fields are also software development (43%) and microelectronics (23%), which play an established role in the overall digital transition as compared to some of the more blue-sky fields at the top.

	Recommendations for national and European policy makers and funding agencies	**Recommendations for universities**
HOW TO ENHANCE UNIVERSITIES' **INNOVATION CAPACITY**	**Support the development of efficient institutional governance structures and promote university autonomy as a fundamental value.** They are prerequisites for universities to engage with society and fulfil their role as honest brokers through the development of independent, high-quality and innovative solutions to current and future challenges.	**Strengthen strategic attention to innovation across all departments, faculties and services.** A common institutional innovation vision and strategy, as well as effective coordination, will contribute to enhancing the institution's innovation capacity.
	Support long-term oriented research, including curiosity-driven research, as one of the fundamental ways to improve the innovation capacity of universities and of the ecosystems in which they are situated. Support for research on mRNA technology, which led to the development of the Covid-19 vaccines, is one of many examples of investment in curiosity-driven research that brought about societally impactful scientific breakthroughs with significant pay off in the long run.	**Provide incentives, rewards and support mechanisms for academic staff innovation activities.** Notably, expand career development and recognise a wide range of academic staff contributions in career assessment, including innovation activities. Such activities should be considered in a broader sense, including its economic, social, cultural, ethical and environmental impacts.
	Support universities in interacting with companies and other actors of the innovation ecosystem, especially universities with lower innovation capacity, for example through a reduction of the regulatory burden, skills development, networking opportunities, funding, incentives and advice.	**Engage with other stakeholders of the European innovation ecosystem and global network.** Notably, strengthen links with companies and civil society organisations as part of long-term partnerships to better respond to societal challenges.
	Support universities in reforming their academic career assessment approaches with the aim of recognising a wide range of academic staff contributions, including innovation activities. In addition, encourage universities to consider staff innovation in a broader sense, including its economic, social, cultural, ethical and environmental impacts.	**Increase integration of entrepreneurship training into all study programmes.** This should address a broad range of entrepreneurial and transversal skills, including in interdisciplinary contexts. Such training will contribute to the development of innovative mindsets, thus bringing added value for a wide range of career paths.

	Recommendations for national and European policy makers and funding agencies	Recommendations for universities
HOW TO ENHANCE UNIVERSITIES' CONTRIBUTION TO THE **SUSTAINABLE TRANSITION**	**Pursue a holistic approach to the sustainable transition in which innovation activities contribute equally to climate change mitigation and adaptation.** The potential for closer collaboration between universities, civil society organisations and local public sector institutions should also be explored as a means to acquire a better understanding of societal and non-technological concerns in the transition.	**Deepen commitment to interdisciplinarity as a driver of research, education and innovation for the sustainable transition.** Closer alignment with comprehensive frameworks like the UN Sustainable Development Goals could mobilise fields which, according to the survey, are less often in the lead in terms of innovation for the sustainable transition (e.g., agriculture, architecture, medicine).
	Support a more widespread use of citizen science in innovation for the sustainable transition. Citizen science is a relatively little used research and education activity; its potential to contribute to the transition needs to be better understood and translated into concrete methodologies for university application, as well as into legal and financial support.	**Streamline internal processes to deliver on the institution's environmental commitments.** The current division of roles and responsibilities among central university administration and other staff members risks causing a fragmentation of knowledge regarding these commitments. For instance, environmental impact studies are conducted for some or all innovation activities at more than half of surveyed universities, yet more than a fifth indicated not knowing if their institutions do so.

	Recommendations for national and European policy makers and funding agencies	Recommendations for universities
HOW TO ENHANCE UNIVERSITIES' CONTRIBUTION TO THE **DIGITAL TRANSITION**	**Ensure that funding programmes and policies for the digital transition reflect the precedence of digital capacity building over pursuing technological leadership.** Support needs to prioritise the adoption or upgrading of one's technologies, the hiring of digitally skilled staff, and the uptake of digital skills among current staff. Without this, universities' capacity to innovate will be hampered and so will the EU's pursuit of technological leadership.	**Foresee a clearer role for the digital transition when defining the institution's innovation mission.** At present, the digital transition at universities is implemented primarily in learning and teaching and research activities. In the future, institutional strategies and mission statements should also explicitly relate the digital transition with universities' innovation mission.
	Develop digital policies that acknowledge the various impacts of digitalisation on society. While the adoption of digital tools is proceeding apace, universities share concerns over the environmental, ethical and social impacts of the digital transition. Achieving the effective buy-in of universities in the EU digital agenda, as well as the ultimate success of the digital transition, depends on addressing such concerns and the wider impact on student and staff wellbeing.	**Boost the preparation of the next generation of digital innovators.** Universities should enhance digital knowledge and skills in the high priority areas of the digital transition for the benefit of students, research and teaching staff, as well as for lifelong learners. Beyond using digital tools in the learning environment, universities should also tap into national and European support schemes, such as the Digital Europe Programme, to devise specialised training and promote upskilling.

Conclusion

As Europe seeks to accelerate its transition to a sustainable and digitally connected society, EUA remains committed to supporting universities as core drivers of this process. Its survey findings showcase the vast potential for multi-faceted innovation that universities can offer. EUA believes that its recommendations can substantially contribute to fostering the vibrant innovation ecosystems that Europe needs to fulfil its commitment to the twin transition.

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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.