CALL: SWAFS
TOPIC: Support for the Research and Innovation Dimension of European Universities (part ii)
PROJECT: European University of Technology - Experimentation to Transform Research Activities and Steering (EUt EXTRAS) www.univ-tech.eu

SCOPE OF THE POLICY BRIEF

In this policy brief, the European Universities pilot alliances report on the progress made through cooperation in selected R&I areas and provide a first set of recommendations to the European Commission for further policy development.

Policy background:

In order to strengthen strategic partnerships across the EU amongst higher education institutions, the European Commission targets the emergence of "European Universities" by 2024 by funding alliances from across Europe. The ambitious mandate aims to trigger systemic, structural and sustainable institutionalized cooperation between higher education institutions. As a complement to the Erasmus+ action geared towards supporting higher education cooperation models, Horizon 2020 support is dedicated to contributing to the research and innovation dimension of the alliances between European universities, in line with their shared, integrated, long-term joint strategy and in synergy with their education dimension.

This initiative is one of the flagships of the European strategy for universities that aims at supporting and enabling universities to adapt to changing conditions, to thrive and to take a leading role in the recovery of Europe, and in making our society greener, more inclusive and more digital. The adoption of this strategy was accompanied by a Commission proposal for a Council recommendation on building bridges for effective European higher education cooperation.

In parallel, the European Research Area Policy Agenda sets out 20 voluntary actions for the period 2022–2024, including several of which are relevant for universities. The feedback from the alliances will help co-shape the design and implementation of the ERA Policy Agenda 2022 – 2024, such as ERA actions 1 (sharing of data), 3 (reform of research management), 4 (strengthening careers), 5 (gender equality), 7 (knowledge valorisation), 8 (research infrastructures), 13 (empowering universities), 14 (engaging citizens), 15 (role in R&I ecosystem), 17 (research management capacity).

FEEDBACK ON PROGRESS (MAX 1.5P)

1. *Please describe the **challenges** your Alliance encountered regarding cooperation between universities in the field of R&I in relation to the institutional change areas (transformation modules) foreseen.*

Challenges at general level

Only a growing – but small – number of individuals at every level of the structure is aware of the value of convergence towards a European university. As deep transformation needs to be based on a deeply collaborative work, the level of efficiency has been closely linked to the actual level of awareness in the structure.

Thus, we have observed two main patterns of action:

- The tasks to be carried out at individual level. The persons (possibly in limited numbers) in charge of the tasks must be identified. There is no imperative link with the institution's policy; people are selected for their skills and interest in the initiative. The results, generally very good, have been made available to the community, which has welcomed them positively. However, integration of the said results into current research and research management activities remains marginal.
- The tasks that require in-depth collaboration at a pre-identified level. The developments were very dependent on the presence of a leader in the group able to bring the whole group or part of it together. In this second pattern, most often, the results are trajectory proposals or analyses with principled conclusions. These results reveal to be interesting, but their actual implementation, leading to an effective transformation, is not guaranteed.

We conclude that the ownership that is compulsory for the realisation of the modules (and any other transformation towards the European University) requires:

- A sufficient number of convinced and committed people. The ratio of convinced individuals must pass a "critical self-training threshold" to ensure collective appropriation,
- An in-depth work to embark enough people at different levels with clear, tangible rewards or benefits,
- A clear strategy from the institution that fully supports this ambition, and which is embodied by the various levels of management.

In both cases, we have identified a strong underlying phenomenon: a lack of overall knowledge of the supranational research ecosystem. Our researchers collaborate on an international level (generally efficiently), but this collaboration remains at the level of national systems interacting together, not *de facto* European or international operations.

This knowledge is as much technical ("operating modes") as political ("general trends in the organisation, funding and management of research") and scientific ("what types of research projects are supported on this scale, and what impact these have on scientists' careers").

This lack of understanding, at a high level, hinders integrated management and, at a low level, prevents global and widespread awareness. This unavoidably slows down the interrelated top-down and bottom-up approaches that are required to develop and transform research.

Challenges at individual level

Career patterns are one of the key drivers of academic staff involvement in activities that are not strictly related to their research activity. However, the determining factors of careers are largely national, with little recognition awarded to involvement or risk-taking in transformative activities. The international nature of the evaluation of scientific production should not hide the fact that the majority of careers take place within a national framework: except for the "top cited researchers", few researchers make the deliberate choice of a resolutely and structurally international career.

2. *Please describe how you tackled or intend to **tackle these challenges**. Based on your project's experience so far (and if applicable), briefly outline case(s) that you consider as **good practice** and of interest to other universities or to policy-makers.*

At the political level, awareness comes essentially from University Presidents/Rectors. Internal sociological analysis shows that they are the key persons to provide consistent strategic direction, identify and support

individuals who have taken ownership of the elements of transformation, convince the various internal bodies, and ensure ongoing support for the transformation.
Regular meetings with the Rectors (eight physical meetings per year) enable a close follow-up of the development of the transformation and its benefits have allowed:

- To overcome situational or essential divergences between the partners
- To guarantee action at the highest level in case of an impasse
- To re-articulate the internal political elements when necessary for the progressive transformation

Building the foundations of a solid and unanimous awareness at the level of the Rectors of the European University of Technology Alliance has been made possible through an incremental relational work over more than a year. Then, the regular presentation of results (e.g., strong increase in the number of European projects submitted and the success rate) and the regular demonstration that the trajectory pursued successfully brings first results, has consolidated this political level.

At the individual level, the only leverage is the (thin) room available to institutions for driving career development. It can only be activated with a strong involvement and conviction at the highest levels of management.
Global evolution depends on the political authorities at the country level. Even an ambitious convergence trajectory as EUt+'s (politically supported by the relevant authorities) appears to be insufficient to change the structural elements that drive careers.
A capacity-building policy is being developed to support researchers/academics at all levels: the current level of awareness seems to be sufficient for this support to be positively accepted by a significant number of people.

3. *Please describe the **tangible progress** that individual partners as well as the Alliance as a whole have made in terms of introducing changes to their entities as a result of this project. Please elaborate on whether the inclusive and integrated cooperation approach of your alliance helps accelerate institutional change of all partners (e.g., through sharing of practices from institutions with strong expertise or infrastructure in specific areas to institutions without).*

We have observed a growing awareness of the convergence process and of the transformations to be implemented. This is reflected in the evolution of the discourse and degrees of stress characteristic of evolutions and prior to situations of transitions or disruptions. Evolutions are observed sporadically in the steering modes and internal documents of the partner institutions and in the number of applications to European calls for projects, which has risen significantly. However, 18 months into the project, evidence is lacking to definitively conclude on the solidity of these first signs observed and bet on their further development. This point will be detailed in the brief at the end of the project.

POLICY RECOMMENDATIONS (MAX 3P)

In this section, the European Universities pilot Alliances make recommendations in relation to the policy topics identified below. Given the unique strengths and focus of each European University Alliances, please focus only on those aspects of most relevance to your case. Please feel free as well to expand to other policy topics you may wish to share your learnings and recommendations (other recommendations).

1. Policy topic 1: facilitating transnational cooperation

- *Knowing that the Commission proposed a Council recommendation to facilitate transnational collaboration between universities, which action should be prioritised to address the challenges you encountered as an Alliance in sharing capacities, infrastructures, resources or staff in R&I?*

The main difficulty encountered in creating commons is – together with the lack of maturity – the absence of legal statutes or framework, which raises (e.g. in the creation of common research infrastructure) the question of cost sharing (e.g., equipment acquisition and maintenance, technical personnel) and, more importantly, the questions of liability, insurance, access regulations, and safety measurement implementation. In the same way, a legal statute would allow the EUt+ alliance to pool our resources, capacities and strengths concerning HR issues, e.g., allowing for shared funding of PhD or postdoc positions within the ERIs; allowing for a common HRS4R framework relevant for technical universities which until now reveals to be a difficult question. There is also the hypothesis that the observed issue of trust in the initiative and the progressive appropriation of EUt+ – like other alliances – could be speeded up by the legal certainty of a legal statute.
Within this framework, or as an intermediate step, European funding should be allocated to support the construction of such European academic objects, by considering them by default as validating the necessary international collaboration criteria. For example, a "European research institute" common to several members of a European university or other type of European Alliance, should be financed with simpler rules, as it *de facto* integrates the necessary elements of collaboration (e.g., allowing pooling of equipment, which requires coherence and unity in the research carried out on this equipment, and therefore a coherent joint research structure, with a common, supported scientific project).

2. Policy topic 2: strengthening careers

- *Is there a need to develop a model tenure-track system at European level to contribute to solving precariousness of early career researchers? If you believe so, how do you think it should be structured?*

Tenure-track processes are clearly not suited to the relevant careers in technology and engineering research.
The past and present history of technological development (e.g. discrete, integrated and then VLSI electronics from the 50's to the 70's; computer science from the 50's to the 90's; digital networks and telecommunications from the 80's to the present day; biotechnologies over the same period, etc., particularly in the USA, which has led to these developments) shows that major developments have been driven by researchers who have moved between university academic research, major public research organisations and private companies. Some of them have been very active in education, which has enabled them to train and recruit the armies of engineers needed for these developments.
This flexibility is a *sine qua non* condition for these developments, which require:

- A deep interdisciplinary approach,
- An intense connection between academic research and the private sector's development capabilities (the leverage of major corporations, the risk-taking agility of start-ups and the ecosystem of SMEs),
- The rapid education of new generations of engineers to support this.

However, tenure-track processes encourage linear careers based on an "efficient stream", and are therefore hardly favorable to this kind of research.
The necessary gain in competitiveness in technological research, the reindustrialisation and the better translation of scientific advances into marketable innovations, in the framework of a competition with US and China, require on the contrary a capacity to offer sufficient security to encourage highly flexible careers.
Therefore, policies are needed to promote these (until now) "unconventional" career paths, identify and secure potentials, provide support for mobility, recognition of all kinds of experience and forms of "excellence", with easy bridges and career compatibility between industry and academic world.

Rather, we expect to see a policy that guarantees that these deviations are positively evaluated and recognised rather than a disincentive to career progress.
These orientations require both:

- A change in policies on call for projects and projects' evaluation, which now do not encourage enough of this kind of risk
- Changes to national promotion and career systems (both in terms of career development and associated social and pension rights).

Experimenting with calls for tenders that would make it possible to finance totally mixed careers over a sufficiently long period and high-risk research and development subjects could open up these questions.

- *In light of the policy process on the reform of assessment of research and institutions, what are your recommendations on how to address academic/researcher career assessment?*

The policy process on the reform of assessment is welcome for the needed evolution of the quality of scientific production, and in this sense, we support it. It does, of course, have a significant political impact, but it mainly addresses part of the question: "how to assess?" and does not deal comprehensively with "what to assess?" or "for what to assess?"
In the field of technology, but also in order to maintain the diversity of universities and careers that is absolutely essential to the development of science, society and the European economy, two different, but equally critical elements need to be taken into account:

- A relevant type of evaluation that reflects the University's strategy. The "what to evaluate" must be linked to the contribution made to the University's strategic plan. This plan emanates from the University's governance structure. The question is thus: "How have you contributed to the development of your University's strategic plan? " Such an evaluation must, of course, be neutral and external, and not reassess the strategic plan, but the contribution to the strategic plan. As a result, a diversity of researchers can be involved in a diversity of strategic plans.
  A corollary element is the match between the researcher's vision and his/her University strategic plan: a question that comes under the HRS4R plan.
- Valuing failing attempts (which are not due to poor scientific practice). One cannot continue to applaud cultures that recognise failure as an essential stage in innovation, and not integrate it positively into our assessments. Thus, the question of evaluation must be extended to "effective contribution to a field of research", that also integrates that showing that a path is not fruitful (absence of "results" *per se*) actually is a contribution.

3. Policy topic 3: digital transition

- *What are the specific needs of the alliances to accelerate their digital transition in the R&I dimension, and how can this be addressed at the EU level?*

We are addressing here only the question of the potential of digital tools to help deepen links within the Alliance.
Practical, efficient digital tools and a fast link between all European university centres are essential to make digital use more fluid between HEIs. An essential step, with significant consequences, would be the Europe-wide deployment of a service equivalent to "RENATER" in France (National Telecommunications Network for Technology, Education and Research). It would serve the Education-Research community, offering a highly reliable and secure network, facilitating the collaboration and convergence of scientific and academic projects, with high-performance, reliable, secure and innovative service. It would integrate a portfolio of services around connectivity, identity, security, communication, collaboration and mobility, guaranteeing data confidentiality and security, where users are considered as part of a community of Education-Research, who collaborate in a secured and efficient way.

- *In particular, do you see a need for additional dedicated e-infrastructures for data storage and management that are distributed and interoperable? Please take into account progress regarding the development of the federated e-infrastructure for research outputs (EOSC, see ERA Policy Agenda), and the implementation of a digital platform for cooperation in higher education (see the European strategy for universities).*

Tools, like RENATER described above, are most welcome. However, various experience has shown that using or creating generic tools and open standards are crucial.

4. Policy topic 4: access to excellence

- *What is your advice on how to accelerate access to excellence in science and in value creation for all participants for higher education institutions across the entire ERA, through the European Universities Initiative?*

In the context of technology, the question of excellence needs to be opened up carefully. It is a question of excellence at the highest level of research, excellence in technology transfer at the highest level for disruptive innovations (deeptech) but also for continuous and general improvement support for industry. An industry cannot thrive on disruptive innovation alone if it is not supported by solid, continuously improving general know-how. This notion of excellence must therefore take into account all these levels, these impacts and the expected industrial transformation, considering the socio-economic context of Europe's reindustrialisation, and related sovereignty and soft power questions.
As a simple example, there are almost no European companies among the biggest technology firms, showing that we have not succeeded in creating an ecosystem where research and business feed off each other with the aim of high-level development and industrial solidity.
Also, it is crucial to consider the role of society in these transformations, as technological developments cannot take place without analysing societal aspirations and reflecting these values. Issues such as green transition and digital transition are current examples.
Funding must enable universities to establish effective contacts and collaboration plans with industrial networks. The aim would not be to fund research or transfer directly, but rather the effective implementation of strategic plans on the part of industry and the University, with measurable and tangible KPI targets.

5. Policy topic 5: increasing global competitiveness

- *Europe's relative weight at a global level when it comes to research-intensive universities is shrinking. In light of this, a European Excellence Initiative will be established to improve global competitiveness of Europe's universities, in synergy with the European Universities Initiative of Erasmus+. In your view, what would be key elements of such an Initiative? Secondly, could you envisage that such an initiative specifically targets EU objectives such as the Green Deal or European Missions?*

Tomorrow's challenges require society and universities to lay the playground for an original nursery of talents. These talents would not be selected only on the current basis of career evaluation or purely disciplinary research approaches; the system in place is declining relatively worldwide. The current structures need to evolve to allow less career-conformist young talents – the twin green and digital –transitions require more original profiles and aspirations: young people ready for greater thematic and geographic mobility if it is fluid and recognised, supported, both financially and structurally. Better support of young women's careers, generally less linear, through pro-active methods, should also be envisaged. More widely distributed resources would enable to expand the pool. However, with constant resources, it is important to offer greater flexibility in evaluation approaches, recognising that tomorrow's big names are largely outsiders who do not fit into current patterns today. Based on the inherent flexibility of its approach and project, European universities can be a lever for breaking out of the formal and informal framework. Calls to experiment with fluid structures for hosting researchers within European University Alliances should help retain young people who are no longer attracted by the traditional system, or who are leaving for other continents.

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