

Introduction

Norway is strongly in favour of better links between research, innovation and education as a means for tackling global, European and even national challenges. Therefore, we have promoted the link between research and innovation on the one hand, and education on the other, in our position papers to FP9 and to the next education and training programme.

Future policies and instruments should strengthen the emphasis on connecting even stronger all three sides of the knowledge triangle. *Hence, FP9 should include educational dimensions, the education and training programme should further integrate research and innovation instruments, and FP9 and the education and training programme should be designed to facilitate and promote synergies between the two programmes.*

The Lamy report, “Lab – Fab – App”, settles that education, research and innovation are crucial drivers to enhance productivity and boost competitiveness. Moreover, the report recommends that the new research programme should have actions to modernize higher education institutions, when it comes to teaching and learning systems, promote cross-disciplinarity and entrepreneurship, and that the knowledge triangle model should be enhanced in the new programmes.

The Commission’s communication on a renewed EU agenda for higher education from May 2017, and the Council conclusions from November 2017 also emphasize the importance of strengthening collaboration and synergies between higher education and research.

Further, the communication of 14 November, *Strengthening European Identity through Education and Culture*, proposes to work towards truly European universities that are enabled to network and cooperate seamlessly across borders and compete internationally. In order to obtain this, the follow-up must attend to all parts of the universities’ mandate, including education, research and innovation.

This *non-paper* addresses some of the structural challenges that exist today and proposes some practical solutions for strengthening the interplay between education, research and innovation in general, and particularly in the next European education, research and innovation programmes.

Challenges

Although there is a broad agreement today on the close links between research, innovation and education, there is a long tradition for considering these issues separately, and this is deeply embedded in policies, organisation and funding structures both nationally and on European level. Recognizing that there are obstacles also on the national level that should be discussed, this paper will concentrate on the European level.

The EU competences and the Commission’s powers in the areas of research and education are not the same. The responsibilities are located in at least three different DGs in the Commission. The committee structure is similarly divided between research and innovation on the one hand and education on the other.

The organisation is one reason for the low degree of coordination in activities and instruments in the educational framework programme and the research and innovation programme. The focus has so far mainly been on complementarity and not on real synergies. When it comes to the coordination of calls and deadlines that eases for parallel proposals in the programmes, there are no incentives or structure.

The programmes have the potential for linking research and education. There are unifying policies for both programmes and in terms of objectives and activities there are potential synergies. Still, few beneficiaries are able to exploit these synergies. The potential synergies are not explicitly communicated in the calls of either programme, and the set-up of the actions makes it challenging for applicants and beneficiaries to exploit these. Beneficiaries are not provided with any guidance on how to include an educational component to a research project or vice versa. Therefore, being able to fully exploit potential synergies between various actions in the two programmes places too high requirements on the level of competence and administrative capacity on beneficiaries.

Although some target groups are the same for Erasmus+ and Horizon 2020, the amount of funding for similar purposes is much lower in Erasmus+ than in Horizon 2020. For cooperation projects (KA2¹) the limited funding for innovation and development in education makes the programme less attractive to certain target groups, both within the education sector and outside. Hourly costs for innovation and development in education are compensated with fixed rates that are very low compared to real costs.

Synergies between innovation, research and education

The EU framework programmes are an indisputable success as a means to improve the quality of research and education in Europe. However, European policies and instruments for a knowledge based economy have been focusing heavily on links and interrelationships between innovation and research, not truly promoting synergies between research, education and innovation. One of the aims with this development is to bridge the gap and establish well-functioning instruments for interplay between these areas.

Student and doctoral student participation in FP9 projects can enrich the education process with aspects related to current scientific research. This will also enable universities to educate a generation of modern scientists, able to conduct independent research in the future, as well as helping students with their future careers either in academia or industry.

There is a particular need to bridge the gap between student/master level and Ph.D. level, so that those who would like to pursue a research career easily can see the funding opportunities available to them.

Bachelor and master students should be introduced to and included in research and innovation projects early on. This would allow them to start thinking in a scientific methodical manner at an earlier stage.

¹ Key Action 2: Cooperation for innovation and the exchange of good practices. The actions under KA2 make it possible for organisations from different participating countries to work together, to develop, share and transfer best practices and innovative approaches in the fields of education, training and youth.

For researchers and academics, on the other hand, there should in general be an incentive to communicate their research, through tutorial activities and teaching. These are tasks that should be encouraged in calls, not as a condition for the application, but rather as an opportunity. It could also be considered whether Erasmus+ grants could be directly connected to research projects. This implies that such activities are funded, and that such activities, where relevant, are included in evaluation and the measuring of impact of the projects.

Proposed remedies

The following 12 points are concrete examples on how it would be possible to better link the future programmes on research, innovation and education and create interplay and synergies in the whole knowledge triangle.

Organisation and policy development:

- A more open environment for cross-programme thinking in the DGs in the European Commission.
- Increased cooperation and information flow between steering committees and working parties at different levels across the research and innovation and education sectors.
- Arrange conferences, mutual learning exercises and seminars addressing the topic of linking research, innovation and education.

Activities and instruments in the new framework programmes:

- Calls converging towards either the higher education or research activities should give potential proposers an option to consider overarching activities. Work programmes should include references to themes, topics or programmes in the other sector.
- In relevant FP9 sections (H2020: Excellent Science/Societal Challenges/Industrial leadership) both undergraduate, graduate and of course PhD involvement should be incentivised.
- Researchers funded through Marie Skłodowska-Curie Actions (MSCA) and the European Research Council (ERC), for example, should be permitted to engage in high-level teaching activities and to have the work hours related to this covered by the grant. Researchers in general should be encouraged to disseminate their research findings of H2020 projects in high level teaching activities. This should be linked to a widening of the concept of “impact”, considering not only economic and societal impact but also education impact, e.g. in form of excellent and innovative teaching programmes/courses.
- Make Erasmus+ mobility funding easily available to H2020 projects. The mobility funding should in this context open for shorter term mobility also for students in order to facilitate their participation in research activities. This could include training and study mobility, as well as internships for students and researchers. Information on how Erasmus+ training and student mobility can complement H2020 activities should be made more readily available to H2020 beneficiaries. Also consider introducing stipends for higher education students that

prove their abilities in the participation in research activities. Hence, Principal Investigators should be allowed to grant stipends to Master students doing their thesis as a part of the EU-project.

- Consider to launch separate calls under Erasmus+ that specifically emphasise involving students in research activities. While Erasmus+ emphasises the structural level in Erasmus+ KA2, a new action could focus more on an institutional level and the recruitment and development of talented students. Typical activities in such calls could be: involving students in research activities such as workshops, seminars, intensive programmes, data collection, lab work and more. The focus could be specifically on master and PhD students. (see attachment)
- Consider funding researcher courses on Master level to bridge master and PhD and help recruiting young talents into an academic career. Researcher courses aimed at talented Master students motivated for research could be part of the higher education for certain professions.
- Bring Erasmus Mundus Joint Master Degrees and EIT labelled programmes closer in line with each other.
- Strengthen links between Sector skills alliances in Erasmus+ to skills calls under H2020/FP9.
- Open up for participation from research and higher education institutions within a project partnership in calls under Erasmus+ Key Action 3.

Improving existing instruments

In addition to the new initiatives mentioned above, the current programmes have instruments which already link all three sides in the knowledge triangle, and that could be further strengthened. As an example, the EIT Knowledge and Innovation Communities (KICs) are already at the heart of the knowledge triangle with a strong focus on entrepreneurial master and PhD-courses within the themes selected (and corresponding to societal challenges in Horizon 2020 and ICT). However, many of the other relevant instruments are underutilised or not well known. The following existing measures could be adjusted and to a much larger degree link education, research and innovation in the next programme period:

- **Erasmus+ Knowledge alliances** are one of two EU funding mechanisms which exclusively addresses the knowledge triangle. The other mechanism is EIT (the KICs) which are limited to specific fields. It would be very positive to increase the funding for instruments supporting the knowledge triangle. Knowledge alliances have been very successful, but the action is underfunded.
- Increase the funding for **Erasmus+ strategic partnerships**. Consider earmarking parts of the funding specifically for linking research and education (specific calls).

- **Jean Monnet Activities** are designed to promote excellence in teaching and research in the field of European Union studies worldwide. Based on the concept of Jean Monnet one could consider a new or similar instrument, European Centre of Excellence in Education, within the framework of Erasmus+. Here all fields should be included. Linking education and research, as well as cooperation with non-academic partners and demonstrating excellent quality and innovative practices in education should be a central task for the European Centers of Excellence.
- The focus in **Innovative Training Networks (ITN)** is early stage research training/PhD-training in structured networks. Established educational networks can be starting points for early stage research training networks and vice versa. Many of today's activities in Erasmus+ converge to the research framework programme. Still, there is an "invisible wall" that makes it hard to see the programmes in connection to each other, as opposed to the idea of finding synergy from a more holistic view of the use of the programmes. MSCA ITN is thus a natural starting point in the research framework programme as it is very close in the educational ladder to the Erasmus+.
- **MSCA Research and Innovation Staff Exchange (RISE)** is an activity to stimulate cross sectoral and international mobility and exchange. To look at the educational aspect would not be far-fetched as this activity expects a high degree of participation from the non-academic sector.
- Another instrument is **MSCA COFUND**, which possibly could be expanded to include co-financing of regional, national and international stipend and fellowship at bachelor and master level. Or if more appropriate, use the COFUND instrument for the same use from the education framework programme.

The above-mentioned schemes under H2020 and Erasmus+ should be combined. Networks created under the mobility schemes could serve as stepping stones for applications to other parts of H2020 and Erasmus+, like the societal challenges under H2020. One could also consider linking Erasmus+ calls to H2020 priorities (in the area of societal challenges) and have coordinated/joint calls within related areas, such as MSCA ITNs and Knowledge Alliances in Erasmus+. The use of complementary funding mechanisms in both programmes should be promoted and rewarded.