AN ERA OF CHANGE

LERU Briefing Paper for the EU Institutions
May 2014

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Executive summary

The League of European Research Universities (LERU) is an association of 21 world-renowned universities whose aim is to advocate the role of research universities and the importance of frontier research in a global knowledge society and in the European research landscape in particular.

LERU has prepared this briefing paper for the EU policy makers taking office after the elections of May 2014, in particular for the new European Commission (EC) and the new European Parliament (EP) to be installed in Brussels over the summer and the autumn of 2014. We hope it is of interest to a broader audience as well.

In this paper LERU gives its views on and recommendations for future EU research policy, taking into account the state-of-affairs based on the European Research Area (ERA), the Innovation Union (IU) and the Europe 2020 initiatives.

Europe can boast a strong and thriving research landscape. However, in the face of fierce competition from established and emerging research powerhouses, Europe needs to nourish its research prowess unabatedly so that it can harness its full competitive power as a dynamic and smart player.

Europe should acknowledge that a world class research system needs to be driven relentlessly by international competition in the pursuit of excellence and with a long-term horizon. Research universities, which are characterised by the quality, breadth and depth of their commitment to research and the advancement of knowledge, play a distinctive and crucial role in this landscape, producing very tangible and some rather intangible benefits to the economy, to society and to each and every individual.

It is critical that all relevant policies recognise the broad, pervasive and long-term benefits of university research and education and provide the support and environment that will ensure that these institutions continue to flourish. The foundational characteristics that make research universities an invaluable part of any national infrastructure must be sustained.

LERU urges the EU’s political leaders to set ambitious and concrete goals for the next legislature to use smart investment in research and innovation as a winning investment for Europe’s future, to help Europe power up economically and to build a better society for its citizens. To achieve this, we need new mechanisms, incentives and rewards to harness the strengths of the EU’s R&I policies and programmes and forge smarter links with those of the MS, including for example the use
of evidence-based growth and reform programmes, smart fiscal consolidation and contractual arrangements between the EU and MS on R&I policies. The 3% of GDP as a target for investment in R&I should be maintained.

LERU supports the goals of the ERA, IU and Europe 2020. In particular ERA, which is included in the Treaty on the Functioning of the European Union (TFEU), is a potentially powerful driver in building a successful and effective European research ecosystem of global renown. Therefore, the next EU governing period should aim to achieve a true ERA of change and progression.

To achieve real progress, ERA needs a changed and improved partnership between the MS and the EU institutions, in which the European Semester is correctly applied and observed, including corrective measures where appropriate, and leading to structural changes in research-performing and -funding organisations.

Specific legislative measures, to be proposed by the Commission, are needed in cases where the internal market for research and innovation is clearly distorted and real progress cannot be achieved only by voluntary initiatives by member states (MS) or stakeholder organisations (SHO). These could include such issues as divergent open access schemes, VAT on the purchase of research infrastructures and research content, and social security of mobile researchers.

Moreover, LERU proposes six topics that have not been ERA priorities thus far and invites the new policymakers to take them up as focus areas for ERA. They are:

1. **Anchoring ERA in a strong international strategy**
   Europe has no choice but to connect its research agenda in a concrete and effective manner to the global one. The current international ERA activities should be better aligned with existing ERA priorities and should be fully considered in the five topics we propose below. EC and MS programmes should be better aligned to achieve the best possible synergies. LERU has already undertaken action to create a global council of research-intensive universities to promote a global policy discussion forum and collaboration.

2. **Linking education, research and innovation**
   In order to optimally fulfill their unique role in the knowledge society, research universities would welcome a more coherent and interlinked higher education, research and innovation policy at the EU
level. Better links between the ERA and EHEA agendas should be built in the form of an integrated EERIA (a European Education, Research and Innovation Area). LERU is eager to work with EU policymakers to further this agenda and work on optimising the ERI linkages. For example, we will shortly issue a paper explaining our universities’ vision on online learning.

3. **Including the Humanities and Social Sciences (SSH)**
   Charged with a vital role to play in the modern research landscape, the Humanities and Social Sciences must be an integral part of building ERA. Too often the advancement of knowledge is focused on technological innovations, ignoring the fundamental contributions delivered by SSH. LERU has been and remains a staunch advocate for SSH and would welcome its broad and deep inclusion across the board of ERA policy. An EU flagship SSH initiative in this regard, for example, would be welcome.

4. **Understanding science 2.0**
   This movement, which comprises innovations in open scholarship, data-driven science, research metrics, citizen science and more, is having a significant impact on how research is conducted, disseminated and evaluated. The cumulative effects of science 2.0 on the development of ERA are not yet well understood. LERU has already included science 2.0 in its work programme and would welcome initiatives to better understand its impact at the EU level.

5. **Promoting the enhancement of research integrity**
   A successful ERA should be built on the highest standards for ethical conduct in research in all its facets. Although universities and other research performing institutions are the primary actors responsible for this agenda, the EU could facilitate the development of, for example, common principles or standards, codes of conduct, handling of misconduct allegations and authorship, which may
or may not exist to varying degrees at the national and institutional levels. Such activity should be aimed at establishing Europe’s leading role in research integrity at the global level. LERU has already included research integrity in its work programme and would welcome its inclusion as a priority topic in ERA policy building and coordination efforts.

6. **Fostering effective science and society interactions**

The ways in which science is perceived, valued and engaged with by policy makers, politicians and by the public at large have been changing considerably. The EU should review and fine-tune the way in which it engages with the science in society agenda, playing a more pro-active role in promoting a more effective and practical approach capable of dealing with new issues and demands, such as European Citizens’ Initiatives. LERU would welcome initiatives from the EU to give this topic its due consideration in the ERA policies.

We also recommend that the way in which research, innovation and education policy development is organised and coordinated in the relevant European institutions and bodies be strengthened. A comprehensive policy needs to be better aligned among the Commission services to achieve consistency of initiatives and transparency towards stakeholder organisations (SHO) such as LERU and others. This has ramifications for the organisation and coordination of activities among the Directorates-General of the so-called research family, the research Executive Agencies, the Office of the Chief Scientific Adviser and entities such as the ERC, EIT and JRC.

LERU agrees with the approach taken in the 2012 Communication on ERA: the five ERA priorities then identified are still important and should continue to be drivers for action. Although ERA will not reach the stated goal of completion in 2014, progress has been made. Continued efforts are needed both at EU and MS level for wider uptake, implementation and coordination (e.g. via roadmaps). Taking into account universities’ domains of competence, spheres of influence and potential impact, the five priorities are in order of importance to LERU:

1. **An open labour market for researchers (ERA priority 3)** and in particular, the uptake and impact assessment of the HRS4R initiatives, open and merit-based recruitment and enhanced support for Euraxess as a service to researchers and universities, eliminating obstacles to mobility (e.g. visas
and pensions) and the uptake of innovative doctoral training principles.

2. **Gender equality and mainstreaming in research (ERA priority 4)** and in particular, structural changes to attract and retain women in research, in STEM areas and in senior and leadership positions in particular, to ensure gender-balanced decision making processes and to stimulate gender-sensitive R&I content and methods.

3. **Optimal circulation, access to and transfer of scientific knowledge including via digital ERA (ERA priority 5)** and in particular, more robust implementation of open access to research publications; a specific and mandatory exception to remove text and data mining for scientific purposes from the reach of European copyright and database law; development, interoperability and fair access to e-infrastructures, training and awareness raising on research data management, specific incentives for commercialising research, further development of the EIT, connecting TTO activities at universities and RPOs at the EU level.

4. **More effective national research systems (ERA priority 1)** and in particular, solid MS level funding aiming at 3% of GDP, research funding allocated in a competitive way (minimum 40%), transparent application, evaluation and international peer review procedures; investing in people (not projects) by supporting them with longer term funding; supported by, at the EU level, larger shares of the EU budget to go to R&I, rigorous (annual) R&I budgets, H2020 work programmes and calls which meet the expectations and demands of RPOs; develop, approve and start post-2020 programmes in a timely fashion; continue to focus on the simplification and streamlining of processes and rules.

5. **Optimal transnational cooperation and competition (ERA priority 2)** and in particular, better alignment, interoperability of and access to national research programmes and infrastructures.
A number of principles on general processes of harmonisation, monitoring and evaluation, information sharing, behaviour-changing incentives, governance and regulation should be better adhered to or better managed if ERA is to become a reality. Clearly, universities and other actors have to do their part, but it is primarily the MS and EC that need to step up their game.

LERU will continue to support the ERA partnership process, which was first sealed by a Memorandum of Understanding LERU (and other stakeholders) signed bilaterally with the EC in July 2012 and by the Joint Declaration on ERA issued in December 2013. LERU has worked intensively with its member universities to achieve ERA progress. LERU is committed to undertake further action and expects the same of the EU, MS and other stakeholders.

Whatever approaches, processes and priorities will ultimately be chosen, it is clear that existing and new ERA priorities need resolute action by the EC, the MS and SHO. While the latter, LERU included, can and should do their share for a number of them, it is clear that the lead for action is primarily in the hands of the EC and MS. We encourage the EU institutions, and with them the MS, to do everything in their power to achieve real and practical progress, as requested by the Council at their February 2014 meeting.
Purpose of and audience for this briefing paper

In view of the May 2014 European elections, the League of European Research Universities (LERU) presents this briefing paper “An ERA of CHANGE” to the (1) to be elected European Parliament (EP), (2) to be appointed European Commission (EC), (3) Member State (MS) representatives in the European Council, and (4) others interested in European research and higher education policy.

It contains LERU’s recommendations for future European policy in the field of research, innovation and education, building upon existing leading concepts contained in the “Innovation Union” (IU), “European Research Area” (ERA) and “European Higher Education Area” (EHEA) initiatives.

Recent policy documents show that the IU and ERA have made progress but are far from realised. It is unlikely that the 2020 R&D investment target of 3% of GDP will be met, probably only reaching 2.2-2.6% by 2020 [4]. The EU as a whole and individual EU Member States have become more innovative in recent years, as a result of which the EU has closed half of the innovation gap towards the US [2]. However, the differences in the innovation performance within the EU are still very high and diminish only slowly. ERA is evidently not realised in 2014 and progress made is too modest according to the ERA progress report [5]. With regard
to Europe’s higher education system, the potential of European higher education institutions to fulfill their role in society and to contribute to Europe’s prosperity remains underexploited, states the 2011 EC Communication [11].

Clearly, there are significant challenges ahead for the incoming EP and EC.

The rest of the paper is structured as follows: first we describe our organisation and our general vision and goals for research, innovation and education in relation to the role and contributions of research-intensive universities. We then present our ideas for how the ERA concept as such should be further developed in the future and we formulate recommendations for new ERA focus areas. Next, we discuss the LERU priorities in relation to the five ERA priorities defined in 2012 and we outline the most important horizontal ERA issues that need to be addressed. Finally, we present our conclusions and recommendations.
Since its founding in 2002, LERU has emerged as a prominent advocate for the promotion of frontier research at European universities. LERU strongly believes that frontier research plays an essential role in the innovation process and significantly contributes to the progress of society. Therefore, LERU aims at furthering the understanding and knowledge of politicians, policy makers and opinion leaders about the role and activities of research-intensive universities. Drawing on the impressive academic potential and expertise of its network, LERU has a strong and significant impact on research policy in Europe.

LERU accomplishes this through direct communication and discussions within the policy community, sound proposals for further improvement and progress, and carefully considered policy papers on fundamental issues such as how to attract, train and nourish researchers by providing an attractive employment environment and working conditions at universities and how to promote and support the creation and transfer of knowledge by universities into the economy and society. Our broad spectrum of activities and our contributions to the research policy debate have established LERU’s reputation as a major stakeholder in the EU. LERU has an important and well-respected voice in the discussions about Europe’s research and higher education policies and publishes its views in a variety of papers, notes and statements.

In the years to come, LERU will continue to influence policy, and intensify cooperation among like-minded organisations worldwide to stress the importance of research universities for education, research and innovation. In October 2013, LERU and three other networks of research-intensive universities jointly produced the Hefei statement, affirming the key characteristics and values that make research universities effective, calling attention to the need for supportive environments enabling research universities to impart the major competitive advantage and global recognition that all nations seek from them, and committing themselves to work individually and collectively to uphold and promote the characteristics and values expressed in the statement.

1. All LERU papers are freely available at www.leru.org under ‘publications’.
2. The Hefei statement, issued at the annual meeting of the C9 universities in Hefei, China, in 2013, was signed by the AAU (USA), C9 (China), Go8 (Australia) and LERU. The AEARU (East Asia), Russell Group (UK) and U15 Canada signed up to the statement in the spring of 2014. The statement is available at http://www.leru.org/index.php/public/international-collaboration/.
In the current political and economic climate smart decisions are needed to secure Europe’s future prosperity and competitiveness against an extremely challenging internal and external environment. Above all, this means smart and consistent investment in European research and innovation capabilities. These are fundamental to the vibrant knowledge economy that Europe needs to drive private sector investment, human capital formation, employment and sustainable growth in a rapidly changing global economic and political landscape and in the face of the multiple challenges that confront all our societies for years to come.

Europe’s future well-being depends on world-class research and innovation that delivers both hard to fathom new knowledge and tangible, practical benefits for society. Even a small increase in R&D has the potential to translate into per capita growth and have significant and long-term effect on employment. The rate of return for publicly funded R&D usually exceeds 30 percent [12] and there are significant benefits to cross-European programmes that complement significant national investments in excellent research and innovation. In particular, EU funding enables the best researchers in Europe to work with each other, resulting in higher quality of research as evidenced by its citation impact. So investing in excellent research and innovation at the EU level should be a top priority for all who want smart, sustainable and inclusive growth.

LERU urges the EU’s political leaders to take the decisions needed, hard as they may be, to use smart investment in research and innovation as a winning investment for Europe’s future. The rationale and architecture of the EU’s multi-annual (2014-2020) R&I programme Horizon 2020, are sound. The three pillars of H2020, namely a focus on excellence in
ground-breaking research and innovation, on its industrial competitiveness and on its societal relevance, offer a good model which, even though the H2020 budget represents only a small amount compared to the total national R&I expenditure in Europe, can act as a powerful catalyst for smart R&I investment, reform and strategic alignment at the national and local levels. The 3% target should be maintained.

To increase the impact of the EU investment in R&I, we urge the EU’s political leaders to develop mechanisms, incentives and rewards for MS to link investment in R&I to a broader set of economic and societal growth and reform agendas, for example via dedicated contractual arrangements between the EU and MS on R&I policies.

The European Commission has correctly identified the need to incorporate R&I performance in the Annual Growth Survey, where the aim for R&I must be to demonstrate the impact of ambitious, growth-enhancing investments (e.g. via smart fiscal consolidation) and improve the quality of spending. We look forward to the planned EC Communication (announced for June 2014) on how R&I contribute to growth. It is absolutely crucial in this regard to properly capture the complex evidence base across the entire R&I ecosystem and make sound policy decisions on the basis of this evidence.

LERU strongly urges the EU to set ambitious and concrete goals for the next legislature that will enact the broader political aspirations stated above and the specific research recommendations LERU makes for the European Research Area (ERA) in the remainder of this paper.
LERU BRIEFING PAPER FOR THE EU INSTITUTIONS

The ERA concept and approaches for the future

LERU is strongly convinced of the value of the ERA, namely as “a unified research area open to the world based on the Internal Market, in which researchers, scientific knowledge and technology circulate freely and through which the Union and its Member States strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address grand challenges” as defined in [9], and of its inclusion in the Treaty on the Functioning of the European Union (TFEU, Title XIX, Article 179). For LERU a well functioning ERA is crucial. We therefore take the ERA concept as the basis for this briefing paper, while keeping in mind the links to the IU and EHEA initiatives.

To achieve “a unified research area open to the world based on the Internal Market” - aligned with the Innovation Union and Europe 2020 - it is crucial that basic principles apply at all levels and to all actors. Exceptions or differential systems are unhelpful. Europe should acknowledge that a world class research system needs to be driven by international competition, relentless in the pursuit of excellence and able to build powerful critical mass. This requires making hard choices and choosing strategies, for example, to stimulate smart specialisation and nurture pockets of excellence, wherever they are found. If Europe were to embark on the road of a two-speed ERA\(^3\), it would more likely lead to a greater R&I gap within Europe rather than eliminate it. In losing the idea of a uniform ERA, Europe would lose its ambition to be the world’s leading knowledge society.

LERU believes it is important for the European Commission to continue to work with the stakeholder organisations (SHO) and the member states towards the realisation of ERA. In particular the collaboration between the EC and SHO in the ERA platform and the ERA do-ers networks is successful and should be continued [13].

Attention to ERA has increased significantly over the past 24 months, much more than in the period

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3 Two (or multiple) speed Europe refers to the idea that different parts of the EU integrate at different levels and pace. It was suggested in Research Europe (20 March 2014, www.researchresearch.com) in connection with the recently published ERIAB report [insert ref] which, noting the growing innovation divide in Europe, recommended the use of differential place-based strategies.
2002-2012. Via the European Semester\(^4\) the national reform programmes now also have to report on the key ERA issues, and if unsatisfactory progress is made, national corrective measures may follow. The Annual Growth Survey 2014 has reinforced this approach.

It is however clear that despite the efforts of the SHO and the inclusion of the ERA priorities in the European semester, the realisation of ERA, in particular at MS level, needs another push in the right direction\(^5\).

LERU proposes that as a first resort, ERA progress be aimed at via a rigorous application of the European semester and that, in addition, specific legislative measures be taken where there is a clear need. Such measures, to be proposed by the EC (cf. Art 179,1 TFEU), should focus on issues which cannot be realised voluntarily and in a bottom-up fashion by MS and/or SHO and which will result in practical progress towards ERA. Examples where specific measures would be welcome are on open access schemes, the different VAT rates for the purchase of research equipment and variations in social security and pension schemes that inhibit free movement of researchers. Solving these problems, which are currently creating a clear distortion of the functioning of the internal market, can only be done in a top-down legislative manner by the EU institutions.

\(^4\) The European semester is a yearly cycle of economic policy coordination. See [http://ec.europa.eu/europe2020/making-it-happen/index_en.htm](http://ec.europa.eu/europe2020/making-it-happen/index_en.htm)

\(^5\) The 2013 ERA Progress Report [insert ref] showed a modest overall progress but also indicated that a lot still has to be done in the 28 MS. This led the Competitiveness Council in February 2014 to call for the development of an EC ERA Roadmap and national ERA initiatives [insert ref].
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2012. Although the February 2014 Council conclusions on ERA [1] suggest that this is the way forward, the success of that scenario would largely depend on the correct and strict application of the European Semester. However, LERU believes that this approach is unlikely to achieve real progress in the near future, would be too cumbersome, not rigorous enough, and would take too long to realise ERA in the face of established and emerging global competition.

Another alternative would be for the next EC and EP to introduce a framework directive on ERA. Such a directive (cf. Art 182, 5 TFEU) would stipulate the goals, principles, instruments, actors and actions of the EU in the field of research and innovation, and should give the right to every EU citizen to challenge domestic measures blocking the realisation of ERA. Thus, no active obligations would be imposed on MS, but only passive prohibitions: MS should refrain from domestic measures blocking the free circulation of knowledge, specifically if these concern the five key ERA priorities. Such a directive should also respect the general principles of EU action/non-action, as embedded in the TFEU: attribution, subsidiarity and proportionality. However, LERU fears that such an ERA directive would confront the EC with significant MS opposition⁶ and would thus take a lot of time to get approved and to have real impact.

Whatever final approach is taken by the new EC and EP, it is clear that at a very minimum all ERA priorities - old and new ones, as discussed below - need (further) action by the EC, the MS and SHO. LERU will continue to support the ERA partnership process agreed in the December 2013 Joint Declaration on ERA, which LERU signed with the EC. With LERU universities already performing very well on the ERA priorities [14], LERU is committed to take further actions and initiatives. It expects the same of the EU institutions and MS⁷.

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⁶ The February 2014 Council conclusions on ERA, following the ERAC opinion on the ERA Progress Report 2013, consider legislative measures only as a last resort, i.e. when there is a clear and significant need for it.

⁷ A welcome initiative in this regard is the setting up of MS initiatives such as the ERA Council Forum Austria, which will analyse strengths and future potential in existing and emerging new technologies and research fields, “aiming to come up with recommendations how Austria can position itself well in view of the opportunities offered by H2020” (http://era.gv.at/object/news/1278).
New focus areas and strengthened policy making for ERA

LERU believes ERA needs to address a number of topics which are not covered at all or not systematically enough under the 2012 ERA priorities. They should constitute new focus areas that need to be addressed (more) strongly in the future to forge a better functioning ERA. We make suggestions for six such thematic focus areas, namely: 1/ anchoring ERA in a strong international strategy, 2/ linking education, research, innovation, 3/ including the Humanities and Social Sciences, 4/ understanding science 2.0, 5/ promoting research integrity, and 6/ fostering effective science and society interactions.

We also recommend that the way in which research, innovation and education policy development is organised and coordinated in the relevant European institutions and bodies be strengthened. Doing so will allow for a better approach of the new focus areas, which are discussed next, as well as the existing ERA priorities, which are analysed further on.

Developing new focus areas for ERA

1. Anchoring ERA in a strong international strategy

LERU is in favour of a stronger focus on the international (i.e. global) dimension of European R&I policy [22, 10]. The EU’s strategic approach towards international cooperation requires strengthening the Union’s R&I excellence and attractiveness, its economic and industrial competitiveness, and requires tackling global challenges. The EC’s 2012 strategy, aiming at developing multi-annual roadmaps for cooperation with key partner countries and regions, should be fully implemented.

LERU agrees with ERIAB [13] that in line with Horizon 2020 expectations, smart strategies now need to be “further and significantly increased”. Therefore, LERU calls upon the EU institutions to further develop these objectives, particularly, by favouring the creation of win-win situations and cooperation between actors on the basis of mutual benefit.
In order to deal effectively with the grand challenges that lie ahead, the EU institutions should strongly support international cooperation initiatives among actors on the basis of shared values and interests. While Europe’s research-intensive universities on the one hand compete for talent and resources at a global level, they undeniably have global common interests as well, to collaborate and to build strategic alliances working in partnership on certain issues. In this regard, LERU plays a leading role in working with other networks of research-intensive universities. The Hefei statement, originally signed by LERU (Europe), AAU (USA), C9 (China) and Go8 (Australia) in 2013, has been endorsed by the Russell Group (UK), U15 (Canada) and AEARU (East Asia), and links have been developed with RU11 (Japan). LERU has been gradually intensifying its contacts with sister organisations worldwide aiming to create a Global Council of Research-Intensive Universities. Such a global alliance can play an important role in promoting better R&I policies that capitalise on research-intensive universities’ unique value and contributions to the knowledge society. They can be instrumental in developing common understanding, norms and standards that are crucial to the research enterprise, as well as in collaborating on fundamental/frontier research and in solving well-known and not-yet-known global societal challenges. This can happen in a complementary way to the Global Research Council.

The IU, ERA and EU R&I funding programmes need to address the global issues pro-actively. Concretely, all issues discussed below (the ERI nexus, SSH, science 2.0, research integrity, effective science and society interactions) need to have a global dimension. EC and MS programmes should be better aligned to achieve this. Where funding schemes such as those provided by the ERC include an external dimension, measures of reciprocity should
be considered in funding international research collaborations in order to avoid losing Europe’s human capital as a competitive advantage.

**LERU recommends the inclusion of a strong(er) international dimension in the ERA agenda.**

2 Linking education, research and innovation in an EERIA (European Education, Research and Innovation Area)

Education, research and innovation are three core missions that are unmistakably interlinked at LERU universities. On a daily basis, universities educate tomorrow’s leaders, entrepreneurs, researchers and citizens in general. LERU welcomes the past efforts by the EC in the area of higher education [11] and urges the EU and the MS to unrelentingly promote, support and increase as appropriate productive public investment in education, taking into account the transformative power of education and its role in building a resilient Europe in the face of economic and other crises. To do so, better links between the ERA and EHEA agenda’s should be built in the form of an integrated EERIA (European Education, Research and Innovation Area).

LERU is eager to work strategically with policymakers to ensure that Europe’s higher education system is purposefully innovative and globally competitive in line with the new digital learning and “science 2.0” (see below) research agendas, embracing the knowledge society’s needs, whilst keeping in mind the deeper values of a university education [29].

Because research, education and innovation are inseparable for research-intensive universities, LERU would like to call upon the relevant administrations responsible for education, research and innovation actions, both at the MS and EC level, to work more closely together on specific domains relevant to higher education institutions. It will be of benefit to Europe and in particular to its universities to have a more coherently interlinked higher education, research and innovation policy.

As part of its focus on innovation policy, LERU also intends to contribute to the smart specialisation dimension of the European cohesion policy framework targeting major key growth sectors in the European economy. To this end, the open innovation and knowledge transfer competencies present at LERU member universities are considered major assets.

Research-intensive universities do not only excel in research and innovation, they excel in teaching and learning as well. The learning experience at these institutions is continually enhanced in a variety of ways, e.g. through an increased focus on research-based pedagogy or through the development of forms of embedded learning in which online and
more classic forms of education are combined to support one another. An educational system that is suited to the needs of the knowledge society and the digital native and the digital citizen requires new strategies for digitally enhanced learning and online education for learners of all ages. The best in online learning starts from a high research base. To ensure that the online learning experience is sustained as one of high educational quality, research-intensive universities must be enabled to take a leading role. LERU universities are keen to lead on an active policy of research on what is really transformative and successful in online learning. Later this year LERU will publish a paper analysing the opportunities and challenges and formulating recommendations.

We urge the EC, MS and other policymakers to develop, in close collaboration with universities, a clear vision on the common goals to be achieved in the dissemination of online learning and to work strategically on the development, review, and analysis of online learning, addressing issues such as common, open, technical standards, portals and gateways for high quality online learning materials, quality assurance and the allocation of sufficient funds to achieve these goals. Policy makers can support these developments by providing incentives to institutions for exploring them, e.g. at the EC level through Erasmus+.

LERU recommends the inclusion of the ERI nexus in the ERA agenda.

9 EC Commissioner Neelie Kroes in a recent speech on open and digital science referred to the digital citizen as “people with greater access to information, people empowered to shape the world around them. More able to both learn and participate”. http://www.google.be/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=4&cad=rja&uact=8&ved=0CDkQFjAD&url=http%3A%2F%2Fec.europa.eu%2Finformation_society%2Fnewsroom%2Fcf%2Fdae%2Fdocument.cfm%3Fdoc_id%3D4963&ei=Cno1U4nWEai7oQWt-4DADA&usg=AFQjCNEJMWzWGXM50cElHUUW7d0YSqXRvA
3 Including the Humanities and Social Sciences

The important contribution of the Humanities and Social Sciences (SSH) to society has been underestimated in recent times, at the EU level and in many European and other countries (e.g. USA and Australia). A long-time advocate for the importance of SSH [29], LERU and others have recently made the case for SSH in Horizon 2020 [17, 18, 31], pointing out the impossibility to tackle societal challenges without a firm contribution from SSH research and urging the EC to make sure that SSH topics are firmly integrated in the different H2020 funding streams and not only in a handful of specific programmes. Although the current Horizon 2020 work programmes fall short of the ideal situation for SSH research in Europe, modest progress has been made [17].

Not only in Europe but worldwide, governments and research funding organisations are tempted to invest more in technical solutions of today’s problems and challenges, losing sight of the important human factor of these problems and challenges. Therefore LERU is working with its global network partners to discuss a global SSH research agenda and the potential for creating a global SSH platform.

LERU considers this necessary since the Social Sciences and Humanities have a vital role to play in the modern research landscape, as modern society depends on the whole range and interconnectedness of knowledge rather than on a restricted number of academic disciplines. Social Sciences and Humanities research generates important new knowledge which has a deep and intrinsic value, as well as the capacity to make crucial contributions to solving global societal challenges and to build a resilient Europe. An EU level flagship initiative in this regard would be welcome.

LERU recommends that the fundamental role of the Humanities and Social Sciences in building ERA be acknowledged and that SSH be duly included in the ERA agenda.
4 Understanding science 2.0

The way in which research is conducted and disseminated nowadays is changing in important ways. Covering a number of movements - from open access to publications, to data-driven science and data management, new forms of research metrics and of peer review, to greater transparency and openness in the research process and to the engagement of citizens and civil society in science - this transformation in the way research is done, disseminated and evaluated is known as “science 2.0” 10.

LERU considers this an important topic for ERA. The research community and policymakers need to work together to better understand the concept of science 2.0, as well as the opportunities, threats and impact its various elements may be expected to have collectively on Europe’s R&I capacity. This topic also needs to be seen in light of its implications for other topics discussed in this paper, such as infrastructures, human resources and research careers, education, assessment and impact of research, research integrity and the global dimension of research.

LERU is willing to work with the EU in a number of areas to progress the debate. We encourage the EC to consult intensively with universities. The EC could make funding available to carry out research on and raise awareness of science 2.0 issues. We also invite MS to take up science 2.0 in their R&I policy agendas.

LERU recommends the inclusion of Science 2.0 in the ERA agenda.

5 Promoting the enhancement of research integrity

LERU considers research integrity a crucial element to achieve research excellence and to secure public trust and investment in science [22]. A recent survey

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10 See, for example, ERIAB [13], Royal Society [30], EC [8] and the EU-funded RIF project on new and emerging ways of doing research in universities and elsewhere (http://www.rif2030.eu/).
among LERU universities has learned there is much scope for an EU approach to research integrity, as current policies and approaches vary significantly across countries. We welcome its inclusion in the calls and in the evaluation process of Horizon 2020. However, it should also be treated as a priority topic in the policy building and coordination efforts of ERA in order to develop a more harmonised understanding of research integrity at the EU level, looking at its global dimension too.

Recognising that universities and other research performing institutions are the primary actors responsible for this agenda, the EU could promote the enhancement of research integrity, encouraging and facilitating for example the development of common principles, standards or codes by the appropriate stakeholders with regard to allegations of misconduct, authorship, training and awareness raising, research data management, personal data protection, the use of human subjects, animal research, conflict of interest and more. Such activity should be aimed at establishing Europe’s leading role in research integrity at the global level. LERU has already included research integrity in its work programme and would welcome its inclusion as a priority topic in ERA policy building and coordination efforts.

LERU recommends the inclusion of research integrity in the ERA agenda.

6 Fostering effective science and society interactions

The ways in which science is conducted are changing, the ways in which the public at large perceives and participates in science are changing and the ways in which the impact of science and its contributions to society are measured and valued are changing. Set against the background of continuing pressures on research and education budgets in many parts of Europe and beyond, these changes require universities to participate actively in a policy
discussion on the role of science in society and the public understanding of and engagement in science and science policy making.

LERU considers it important for universities and researchers to actively engage with the public and with politicians about such topics as how public money invested in science creates a return on investment for society and how contested research topics or approaches (e.g. GMOs, biopiracy, personal data, animal research, embryonic research) can be discussed in an open and constructive manner with citizens and politicians. A particular case in point is the way in which European Citizens’ Initiative are dealt with at the level of the EU research policy.

LERU agrees it is of “paramount importance to continue fostering the systematic integration of the societal dimension throughout EU research and innovation policy” in line with the general Europe 2020 approach towards smart, sustainable and inclusive growth, as was stated by the Director-General of the EC’s Directorate-General for Research and Innovation in a paper [7] by President Barroso’s Science and Technology Advisory Council (STAC)\(^\text{\textsuperscript{11}}\).

In creating the position of Chief Scientific Adviser a few years ago, President Barroso stated that a fundamental review of the way European institutions access and use scientific advice was needed. LERU [24] outlined the functions and powers that such a position, which we thoroughly support, should command. We are not convinced that this mandate has yet been appropriately embraced, developed and resourced at the moment. LERU encourages the EC and EP to review and fine-tune the way in which the EU engages with the science in society agenda, playing a pro-active role in promoting a more effective and practical approach, for the benefit of universities, citizens, politicians, other actors and for better research policy making. A particular focus on how university research can be better engaged to inform the formulation of public policy more generally would be highly beneficial.

LERU recommends the inclusion of effective science and society interactions in the ERA agenda.

\(^\text{11}\) STAC is “an independent and informal group of science and technology experts from academia, business and civil society, covering a broad range of disciplines and uniting expertise from across the European Research Area. Established in January 2013, the task of the Council is to examine areas where research and innovation can contribute to Europe’s growth — with a particular focus on benefits and risks of advances in science & technology and how to address and communicate these.” STAC is chaired by the Chief Scientific Adviser. http://ec.europa.eu/commission_2010-2014/president/advisory-council/index_en.htm
Strengthening the development, organisation and coordination of research, innovation and education policy

LERU supports the recent organisational changes in DG Research and Innovation and wishes to see it continue its leading role in policy development and coordination of the research and innovation brief. The existing dialogue with DGs which have topical research-related activities (DG RTD, DG CNNCT, DG MOVE, DG SANCO, etc.) in the so-called “research family” is useful and should include DG EAC to make better links between education, research and innovation as we suggest above. This method of working, with DG R&I as the lead DG, should be well structured, well coordinated and transparent. To achieve a better global overview of R&I related dossiers, LERU would find it useful if, for example, a website could be created where research stakeholders can see at a glance which research dossiers are handled by which DG.

LERU agrees with the division of labour between DG R&I and the related Executive Agencies. However, we have noticed signs that this system is at risk of losing the simplification and coordination agenda. This is an issue to be addressed by the next Commissioner.

LERU supports the existence of the role of Chief Scientific Adviser, as stated in the previous point. Wherever the role is situated, for example at DG R&I, at BEPA or elsewhere, it must command enough responsibility and authority in all research-related branches of the Commission if it is to be used to its fullest potential, as explained before in this paper.

LERU wishes to see improved links with certain entities whose role is likely to further grow in importance, in particular the ERC, EIT and JRC (cf. below).

The European Parliament should make more effective use of all available scientific expertise to feed into the legislative process on a wide range of issues but in particular on societal challenges in the broadest sense (i.e. not only those identified in H2020). The remit of the EP’s STOA committee (Science and Technology Options Assessment) should be reviewed to achieve this.

LERU recommends strengthening the way in which R&I policy development is organised and coordinated in the relevant European institutions.
The five 2012 ERA priorities

As stated above, the 2012 EC ERA Communication identifies five ERA priorities: 1) more effective national research systems, 2) optimal transnational cooperation and competition, 3) an open labour market for researchers, 4) gender equality and mainstreaming in research, and 5) optimal circulation, access to and transfer of scientific knowledge including via digital ERA.

LERU considers these five priorities still to be important. As stated earlier, LERU will continue to support the ERA partnership process, agreed in the December 2013 Joint Declaration on ERA, which LERU signed with the EC. With LERU universities already performing very well on the ERA priorities [14], LERU is committed to take further actions and initiatives and expects the same of the EU institutions, MS and other SHO.

Below, we analyse the state of affairs on the five current ERA priorities, taking into account the available progress and other reports. The priorities are ordered according to how important they are for LERU and to what extent universities are in the driver’s seat to effect change.

1 An open labour market for researchers
(ERA priority 3)

On recruitment, LERU agrees with the 2013 EC progress report [5] that a coordinated effort is needed by MS and institutions to ensure that all research positions are subject to open, transparent and merit-based recruitment practices. LERU also agrees with the prioritisation of this issue in the 2013 ERA expert group report [6].

The Euraxess job portal, which is being used increasingly to advertise research positions, should be further developed by the EC and supported and promoted by the MS, RPOs and RFOs, and selection panels should include international members as appropriate.

On HR strategies, while LERU agrees with the need rigorously to evaluate results and impact of HR strategies at universities and elsewhere to support attractive research careers and employment conditions, assessment/evaluation exercises do not call for separate initiatives but should be incorpo-
rated in existing HR strategies. We do not believe that an HR certification exercise, as proposed in the ERA expert group report, would be the right approach in this case.

Mobility opportunities for all researchers (from the very junior to the very senior) should be promoted and more needs to be done to remove legal, administrative and practical obstacles, taking into account the respective EU and MS competencies [25, 13]. Moreover, MS should be more strongly encouraged to remove barriers preventing the implementation of access to and portability of national grants and RFOs. LERU calls upon the EU institutions to support and stimulate the MS in this regard. Other forms of mobility should also be more commonly recognised and practiced. We agree with the inclusion of fostering mobility of researchers across different sectors, in particular between academia and industry, in the EU ERA roadmap to be developed by mid-2015, as stated in the Competitiveness Council conclusions of 21 February 2014.

On doctoral training, LERU agrees with the EC 2013 progress report [5] that RFO/RPOs should be encouraged to promote a wider uptake of the innovative training principles, including, where appropriate, through the use of European Structural and Investment Funds. We support the inclusion of this item also in the EU ERA roadmap to be developed by mid-2015, as stated in the Competitiveness Council conclusions of 21 February 2014.

Because LERU wishes Europe to be known as the most innovative and efficient region for doctoral training, it calls upon the EU institutions to support and stimulate the MS in this approach to stimulate the uptake of the innovative doctoral training principles, to support programmes that encourage intellectual risk-taking and creativity and to ensure that funded programmes demonstrate their effectiveness in developing skills, at the national and at the EU levels, as has been proposed in the 2010 and 2014 LERU papers on doctoral training [15, 25].

2 Gender equality and gender mainstreaming in research (ERA priority 4)

LERU agrees with the recent EU reports that there is a need to step up systematic and multi-faceted policy efforts on gender equality and gender mainstreaming aimed at producing structural change in RPO/RFOs.
LERU calls upon the EU institutions to support and stimulate the MS in this approach.

The EU should promote gender equality across a broad front with MS, RPOs, RFOs and others to achieve structural change. This should be focused on attracting and retaining women in research (in particular but not only in the STEM disciplines\(^{12}\)), on ensuring gender-balanced research decision making processes and on stimulating gender-sensitive research and innovation content and methodology. This requires significant institutional/structural commitment (e.g. through the development, implementation and assessment of gender action plans) and individual/behavioural changes (e.g. though unconscious bias awareness raising and training), and strong partnership between governments and institutions (e.g. via an EU Recommendation to MS).

LERU is willing to work in partnership with other stakeholders in a continuation of the ERA SHO Platform (as stated in [14] and [6]).

LERU also supports the inclusion of a gender indicator at the EU level, notably in the IU score-board (as recommended by ERA expert group report) and the improved collection in the MS and comparability at the EU level of sex-disaggregated statistics in R&I as a tool to gain greater insight, especially in time series. Although we are acutely aware of the difficulties with selecting robust, reliable and internationally comparable indicators (as we have experienced in our own network) and of the potential pitfalls attempting to link such monitoring to policy interventions, gathering reliable data is a valid tool for benchmarking. This still needs to be complemented by practice-based evidence and an adequate evaluation tool which takes into account the legal and institutional circumstances.

LERU regards the suboptimal recruitment, retention and career progression of women in research careers as a loss of talent for the workplace, a loss of diversity for society and a loss for universities’ pursuit of excellent research and new knowledge creation. In 2012 LERU published a paper with a commitment to promote structural and cultural changes and with recommendations on what universities and others can do to make research careers attractive – for women and for men.

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\(^{12}\) Women obtain on average almost half of all PhD degrees awarded in Europe, but less than 20% of senior professors are women and even fewer are heads of higher education institutions. In particular the STEM disciplines (but some others too) do not attract sufficient women at the early career stages. On the other hand, in some disciplines men are underrepresented at the doctoral and earlier degree levels.
[20]. The paper expresses LERU universities’ commitment to promote gender diversity among their academic staff with strong leadership, in conformity with institutional, national and other regulatory frameworks and in partnership with the LERU universities. It demonstrates our commitment to develop, implement and refresh gender equality strategies and/or action plans, to share them and jointly to monitor their development and implementation, as well as our commitment to engage with EU policy makers, funders and other actors to promote the cause of gender equality at universities. The LERU paper makes recommendations addressed at universities, governments and policy makers and funders.

3 Optimal circulation, access to, and transfer of, scientific knowledge including via digital ERA (ERA priority 5)

On open access (OA) to publications and data, LERU agrees that much more work is needed to enable the development of coordinated OA policies at the national and European level. LERU strongly believes that publicly funded research should be openly available for the social and economic benefit of the public [23].

While acknowledging the progress that is being made, LERU would like to see a more robust implementation and monitoring of open access to research publications. The EU should create a level playing field for open access to publications across the MS, which could be done by transforming the current Recommendation to a Directive.

LERU favours a revision to the EU Copyright and Database Directives which includes a text and data mining (TDM) exception for all educational and academic research purposes. LERU and LIBER agree that it would be unacceptable for universities to have to buy additional licenses to mine the data of which they are already the legal owner [13]. As stated in LERU’s response to the EC’s Copyright Consultation, all exceptions regarding research and education should be mandatory at Member State level and should not be subject to override by contract or technological protection measures. Furthermore, the list of exceptions and limitations should be non-exhaustive and the use of access to and re-use of content (both commercial and non-commercial content) should be regulated in a transparent way. LERU agrees with the EC Expert Group on TDM that a specific and mandatory exception should be drafted to remove text and data...

mining for scientific purposes from the reach of European copyright and database law [3].

LERU invites the relevant parties to implement the recommendations of the LERU Roadmap for research data [16], with an emphasis on access to (OA where possible) and management of research data.

The development of university-based OA infrastructure for OA publishing, for journals, monographs, conference proceedings and innovative publication types needs to be promoted and supported at the EU level.

Initiatives are needed to help unify resources such as national e-infrastructures and to help build research data e-infrastructure, and to ensure interoperability at the European and global level and to provide fair access, as recommended in [6]. MS should adopt a common Acceptable Usage Policy (AUP) for e-infrastructures. LERU calls upon the EU institutions to support and stimulate the MS in this approach.

On all aspects of open scholarship and research output in the age of open, digital and data-driven science, LERU foresees a great need for awareness raising and training for current and future generations of researchers and therefore urges the EU fully to integrate this aspect in its policymaking.

On knowledge transfer and open innovation, LERU agrees with the EC that national strategies are needed and would like to support this at the EU level with better coordination where possible, taking into account both the local and global

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14 This should be regarded as a short-term improvement. As stated in the Expert group report [3], “the best approach to reform, aimed at securing a competitive legal framework for European research, is to establish a durable distinction in European law between copyright’s long-standing and legitimate role in protecting the rights of authors of ‘expressive’ works and copyright’s questionable role in the digital age of presenting a barrier to modern research techniques and so to the pursuit of new knowledge”.
dimensions of KT and open innovation. LERU calls upon the EU institutions to support and stimulate the MS in this approach.

LERU supports the further development of the European Institute of Innovation and Technology (EIT) and the existing and planned Knowledge and Innovation Communities (KICs). LERU regards the EIT with its entrepreneurial approach as an innovative concept and wants to contribute to the realisation of its Strategic Innovation Agenda 2014-2020. In its further development, the EIT should be fully aligned with the modalities of the research framework programmes, relying as a smart investor in innovation more heavily on competitively won bids and external funding than on ring-fenced income, whilst avoiding excessive bureaucratic control.

The TTO Circle of the Joint Research Centre, a network of leading technology transfer offices\(^\text{15}\), is another potentially valuable vehicle and partnership to boost innovation. LERU, which has participated in its meetings as an observer, appreciates the collaboration between networks of universities and RTOs and wishes to see such intersectoral activities supported and strengthened. A closer research collaboration between LERU members and JRC institutes will be further stimulated and facilitated as well.

LERU has previously argued\(^\text{22}\) that providing incentives that reduce the risk to European companies of collaborating with universities is critical. Specific measures can include patent boxes, well-managed patent pools, targeted tax incentives and leveraged funding for commercial development of academic origin technology. In this regard, LERU agrees with ERIAB’s analysis\(^\text{13}\) that in Europe young, high growth companies (so-called ‘gazelles’) lack funding to support the latter stages of venture, at the growth phase, at pre-IPO and at IPO itself, leading to early sell outs and moves elsewhere. We support ERIAB’s recommendation to increase support for European high growth enterprises ('gazelles') to attract ‘equity’ financing rather than ‘debt’ financing.

\(^\text{15}\) The TTO Circle of the JRC gathers the technology transfer offices of 25 leading research and technology organisations (RTO) in Europe, whose goal it is to collectively “boost innovation in Europe through a set of initiatives, including: fostering the use of their knowledge portfolio; sharing best practices, knowledge and expertise; performing joint activities; establishing informal channels of communication with policymakers; organising training programmes; and developing a common approach towards international standards for the professionalisation of Technology Transfer.” See http://ec.europa.eu/dgs/jrc/index.cfm?id=6480
4 More effective national research systems (ERA priority 1)

Competitive funding and performance-based institutional assessments should be at the core of research funding decisions in Member States, where the balance between competitive and non-competitive funding is a matter of national choice. An important element is the application of core principles of international peer review.

LERU calls upon the EU institutions to support and stimulate the MS and their research funders in this approach.

In particular, LERU wishes to see:
• the amount of research funding increase at MS level, and larger shares of the EU budget to go to R&I. Various mechanisms are possible to achieve this, for example by taking higher education and research out of the 3% GDP deficit limit calculation or by supplementing the economic criteria laid out in the Maastricht Treaty by a minimum national investment in research, education and innovation16, by making the 3% of GDP investment in R&I a binding EU target to be realised via a burden sharing agreement with individual MS targets, or by working with “place-based strategies” to complement a 3% target “as a necessary long term direction of development” [13].
• research funding, embedded in national research and innovation strategies, be allocated in a competitive way to the largest extent possible, with the current EU average of 40% of funding allocated competitively through grant funding as an absolute minimum.
• the allocation of research funding happen on the basis of transparent application and evaluation procedures.

LERU also calls on the EU to invest strongly and continuously in the EU level research and education programmes, to ensure unwavering support for open-ended frontier research, in particular (although not only) for the European Research Council, which has become a hallmark programme for funding world class research, and for the Marie Skłodowska Curie Actions. Both programmes are the single most important contributions Europe makes to attracting and retaining the best talents in(to) research. It cannot be emphasised enough how crucial it is for Europe to invest in people by supporting them with longer term funding that will bring out the best in creative ideas and new knowledge, offering the most promising prospects for the ultimate return on investment.

16 As advocated by Horst Hippler, president of the HRK, Germany’s association of university rectors, in Research Europe (20 March 2014).
LERU also urges the EU to propose and consolidate rigorous (annual) R&I budgets that are subject to thorough mid-term EU budget evaluation and review, to develop and implement work programmes and calls which meet the expectations and demands of RPOs, and to develop, approve and start post-2020 programmes in a timely fashion. We also urge the EU to continue to focus on the simplification and streamlining of processes and rules, as LERU has called for repeatedly in the past [21, 26].

5 Optimal transnational co-operation and competition (ERA priority 2)

It is clear that insufficient commitment of financial resources combined with MS’ reluctance to align and coordinate national resources continue to prevent true integration of ERA. National research programmes should be better aligned in order to implement commonly agreed strategic research agendas in the context of joint programming. Moreover, interoperability between national programmes should be improved in order to facilitate further cross-border research cooperation.

LERU calls upon the EU institutions to support and stimulate the MS in this approach.

In particular, the EC and MS should:

• Step up efforts to implement joint research agendas addressing grand challenges, sharing information about activities in agreed priority areas, ensuring that adequate national funding is committed and strategically aligned at European level in these areas and that common ex post evaluation is conducted;
• Ensure mutual recognition of evaluations that conform to international peer-review standards as a basis for national funding decisions;
• Remove legal and other barriers to the cross-border interoperability of national programs to permit joint financing of actions including cooperation with non-EU countries where relevant;
• Agree on common funding principles - eligible costs, reporting requirements, etc. to make national research programs compatible, interoperable (cross-border) and simpler for researchers;
• Further develop and deploy the Lead-Agency, Money-Follows-Cooperation Line, Money-Follows-Researcher and other models for cross-border cooperation, as presently tackled by Science Europe17;

• Pilot the use of synchronised calls with, where possible, single joint international peer review evaluation of proposals as a basis for funding decisions, as presently developed by the EC.

On infrastructures, LERU agrees with the EC that there is a need for more transparency in the conditions for transnational access to research infrastructures, and MS should address financial, management and political barriers to the development and implementation of research infrastructures. They should align research infrastructures roadmaps and coordinate their development. LERU calls upon the EU institutions to support and stimulate the MS in this approach. As already stated in the ERA Communication, and supported by the ERA Expert Group, the EC and MS should:
• Confirm financial commitments for the construction and operation of ESFRI, global, national and regional RIs of pan-European interest, particularly when developing national roadmaps and the next Structural Fund programmes;
• Remove legal and other barriers to cross-border access to RIs;
• Support through Horizon 2020 access to RIs as well as the on-going overall integration of EU RIs, particularly those awarded ERIC status.

LERU particularly encourages the EC to develop non-regulatory principles and guidelines for access, taking into account the diversity of Europe’s research infrastructures and the different access regimes arising from them; access should be granted on the basis of scientific merit, and should be affordable but cannot be free.
Horizontal issues for ERA

In this part of the paper we discuss five horizontal issues for ERA, which we suggest should be an agreed basis for the further development of ERA. These issues, which were put forward by the ERA Expert Group in their 2013 report [6] are harmonisation, monitoring and evaluation, information sharing, use of funding and incentives, and governance and regulation.

Firstly, with regard to harmonisation (to have common approaches or principles for action, synchronisation of decision cycles), LERU agrees with the report this is desirable to achieve a better functioning ERA on the understanding that harmonisation does not lead to an inflexible one-size-fits-all approach. Compatibility of approaches and interoperability of systems are crucial elements to achieve harmonisation.

When it comes to monitoring and evaluation (i.e. “improving the measurement of the ERA progress, evaluating existing practices and supporting mutual learning between actors”), LERU agrees that these are necessary and useful elements as a means to achieve progress although we would like to stress that we need to focus on better rather than more monitoring and evaluation18. Governments and other relevant agencies need to ensure that the information required from universities is collected in a consistent manner which allows reliable comparisons to be made between universities nationally and within Europe (and ideally

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18 ERA progress is monitored through the ERA survey, which has been carried out twice, in 2012 and 2014, and is intended to continue on a two-yearly basis. See http://ec.europa.eu/research/era/eraprogress_en.htm.
internationally beyond Europe) and which does not overburden the institutions themselves. There needs to be a clear understanding of the objectives as well as transparency in the indicators used. The pursuit of measurement focused on indicators alone tends to generate undesirable as well as desirable behaviour changes in those who are being monitored or evaluated. Therefore, in addition to reality checks and feedback loops to ensure that the results are believable and make sense, we need to also develop more sophisticated approaches to complement monitoring and evaluation, for example through case studies and good practice evidence. We are currently a long way off from being able to do so successfully in Europe\(^1\). For universities, this needs to take into account the broader role they play in society and long-term benefits they bring to it.

As for information sharing (i.e. “greater and more effective sharing of information about national and organisational initiatives and provision of infrastructure to support this” according to the ERA expert group report), we agree that this is also an important aspect of achieving a better ERA in line with the points we made under (1) and (2). There is a lot of scope for the EU to promote and support this\(^2\).

Another cross-cutting issue in the report is the use of funding or other incentives to change behaviour (i.e. “funding the actions needed to progress the ERA or linking existing funding sources to compliance with core ERA principles”). LERU agrees that this is also an important element in realising ERA progress, especially in times of economic constraint at all levels (EU, national, regional), when the competition for funding and the pressure to make hard choices is great. Regional diversity across the EU is such that different “place-based” strategies are needed to boost investment in R&I more and less developed regions \(^{13}\).

As for governance and regulation (i.e. “achieving progress via agreed mandates and embodying key principles in charters and codes for good practice”), LERU agrees this is a desirable action area although it has to be weighed carefully in which areas a more top-down, directive or legislative approach at the EU level should be or not be chosen, as stated above. These cross-cutting issues must be carefully considered. SHO can and should do their share for a number of them, but it is clear that the lead for action is primarily in the hands of the EC and the MS. And until recently, a certain reluctance could be noted for that, primarily within the MS.

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19 While other places around the world face similar challenges, Europe as a collective of independent member states faces the additional challenge of ensuring intra-European comparability.

20 For example via the European Monitoring Mechanism (EMM) which is to support ERA progress linked to the European Semester or via JPI platforms addressing societal challenges.
Conclusions and recommendations

In this briefing paper for the incoming EU policy makers, LERU has taken stock of the state-of-affairs of the European research and innovation policy agenda in light of the ERA, Innovation Union and Europe 2020 initiatives, and we have indicated what is needed for further implementation from the perspective of research-intensive universities.

LERU urges the EU’s political leaders to set ambitious and concrete goals for the next legislature to use smart investment in research and innovation as a winning investment for Europe’s future, to help Europe power up economically and to build a better society for its citizens. To achieve this, we need new mechanisms, incentives and rewards to harness the strengths of the EU’s R&I policies and programmes and forge smarter links with those of the MS, including for example the use of evidence-based growth and reform programmes, smart fiscal consolidation and contractual arrangements between the EU and MS on R&I policies.

For LERU the next EU governing period should aim to achieve a true ERA of change. An ERA of change is an ERA which includes the following:

- A real progression in ERA should be the aim, in which specific legislative measures are proposed by the Commission in cases where the internal market for research and innovation is distorted and real progress cannot be achieved only by voluntary initiatives by member states. These could include open access, VAT on the purchase of research infrastructures and research content, and social security of mobile researchers.

- The European Semester should be rigorously adhered to, so that it will lead to a changed and improved partnership between the MS and the EU institutions and to structural changes in research-performing and –funding organisations, with corrective measures to be taken where appropriate.

- The following should be taken up as new ERA focus areas:

  1. **Internationalisation**: ERA should be anchored in a strong international strategy. The international agenda should be harmoniously integrated with all other ERA priorities and focus areas. EC and MS programmes should be better aligned to achieve this.

  2. **The education-research-innovation nexus (ERI)**: A more coherent and interconnected higher education, research and innovation policy would be beneficial for universities, at the EU
and at other levels. Better links between the ERA and EHEA agendas should be built at the EU level in the form of an integrated EERIA (a European Education, Research and Innovation Area). We urge the EC, MS and other policymakers to develop, in close collaboration with universities, a clear vision on the common goals to be achieved in online learning.

3. **Humanities and Social Sciences**: Charged with a vital role to play in the modern research landscape, the Humanities and Social Sciences must be an integral part of building ERA. A EU flagship SSH initiative would be welcome.

4. **Science 2.0**: This movement is transforming in various ways how research is conducted, disseminated and evaluated but its combined effects on the development of ERA are not well understood. Therefore, it needs to be taken up as an ERA priority.

5. **Research integrity**: this should be treated as a priority topic in ERA policy building and coordination efforts. The EU could promote the development of common principles, standards, or codes of conduct with regard to authorship, misconduct allegations, conflict of interest, etc. by universities and other research performing organisations.

6. **Effective science and society interactions**: The EU should review and fine-tune the way in which it engages with the science in society agenda, playing a pro-active role in promoting a more effective and practical approach capable of dealing with new issues and demands, such as European Citizens’ Initiatives.

   - In addition, research, innovation and education policy should be better organised and coordinated among the Commission services and various EU bodies to achieve consistency of initiatives and transparency towards stakeholder organisation such as LERU and others.

   - The five existing ERA priorities should continue to be drivers for action. Taking into account that progress has been made, continued efforts are needed both at EU and MS level for wider uptake, implementation and coordination (e.g. via roadmaps). The five priorities are in order of importance to LERU, taking into account universities’ domains of competence:

     1. **An open labour market for researchers (ERA priority 3)** and in particular, the uptake and impact assessment of the HRS4R initiatives, open and merit-based recruitment and enhanced support for Euraxess as a service to researchers and universities, eliminating obstacles to mobility (e.g. visas and pensions)
and the uptake of innovative doctoral training principles.

2. Gender equality and mainstreaming in research (ERA priority 4) and in particular, structural changes to attract and retain women in research, in STEM areas and in senior and leadership positions in particular, to ensure gender-balanced decision making processes and to stimulate gender-sensitive R&I content and methods.

3. Optimal circulation, access to and transfer of scientific knowledge including via digital ERA (ERA priority 5) and in particular, more robust implementation of open access to research publications; a specific and mandatory exception to remove text and data mining for scientific purposes from the reach of European copyright and database law; development, interoperability and fair access to e-infrastructures, training and awareness raising on research data management, specific incentives for commercialising research, further development of the EIT, connecting TTO activities at universities and RPOs at the EU level.

4. More effective national research systems (ERA priority 1) and in particular, solid MS level funding aiming at 3% of GDP, research funding allocated in a competitive way (minimum 40%), transparent application, evaluation and international peer review procedures; investing in people (not projects) by supporting them with longer term funding; supported by, at the EU level, larger shares of the EU budget to go to R&I, rigorous (annual) R&I budgets that are subject to thorough mid-term EU budget evaluation and review, H2020 work programmes and calls which meet the expectations and demands of RPOs; develop, approve and start post-2020 programmes in a timely fashion; continue to focus on the simplification and streamlining of processes and rules.

5. Optimal transnational cooperation and competition (ERA priority 2) and in particular, better alignment, interoperability of and access to national research programmes and infra-structures.

- A number of principles on general processes of harmonisation, monitoring and evaluation, information sharing, behaviour-changing incentives, governance and regulation should be better adhered to or better managed.

Whatever approaches, processes and priorities will ultimately be chosen, it is clear that all current and any new ERA priorities need resolute action by the EC, MS and SHO. While stakeholder organisations such as LERU can and should do their share for a number of them, it is clear that the lead for action is primarily in the hands of the EC and MS. We encourage the EU institutions, and with them the MS, to do everything in their power to achieve real and practical progress.
References


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Glossary

AAU  Association of American Universities
AEARU Association of East Asian Research Universities
AUP  Acceptable Usage Policy
C9  Alliance of nine Chinese universities
EC  European Commission
EERIA European Education, Research and Innovation Area
EHEA European Higher Education Area
EIT European Institute of Innovation and Technology
EMM ERA Monitoring Mechanism
EP  European Parliament
ERA  European Research Area
ERC European Research Council
ERI Education, Research and Innovation
ERIAB European, Research and Innovation Advisory Board
ERIC European Research Infrastructure Consortium
ESFRI European Strategy Forum on Research Infrastructures
EU  European Union
FP7 Framework Programme 7
GMO Genetically Modified Organism
Go8 Group of Eight
GDP Gross Domestic Product
H2020 Horizon 2020
HRS4R Human Resources Strategy for Researchers
IPO Initial Public Offering
IU Innovation Union
JPI Joint Programming Initiative
JRC Joint Research Centre
KIC Knowledge and Innovation Community
MS  Member State
OA  Open Access
R&I Research and Innovation
RFO Research funding organisation
RI  Research Infrastructure
RPO Research Performing Organisation
RTO Research and Technology Organisation
RU11 Research University 11 association
SHO Stakeholder organisation
SSH Social Sciences and Humanities
STAC Science and Technology Advisory Council
STEM Sciences, Technology, Engineering and Mathematics
TDM Text and Data Mining
TFEU Treaty on the Functioning of the European Union
TTO Technology Transfer Office
U15 U15 Group of Canadian Research Universities
VAT Value-added tax
LERU publications

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LERU publications are freely available in print and online at www.leru.org.

About LERU

LERU was founded in 2002 as an association of research-intensive universities sharing the values of high-quality teaching in an environment of internationally competitive research.

The League is committed to: education through an awareness of the frontiers of human understanding; the creation of new knowledge through basic research, which is the ultimate source of innovation in society; the promotion of research across a broad front, which creates a unique capacity to reconfigure activities in response to new opportunities and problems.

The purpose of the League is to advocate these values, to influence policy in Europe and to develop best practice through mutual exchange of experience.