



REPORT OF THE
2021
SCIENCE EUROPE
High Level Workshop on ERA

*Research Culture in the ERA:
Ensuring the attractiveness of the
research sector for current and
future generations*

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Author: James Morris

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Editors: Lidia Borrell-Damián, Iwan Groeneveld

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“*Research culture – the values and norms that uphold the system – influences all levels and aspects of research, shaping individuals’ careers, outputs and outcomes produced, and the attractiveness of the sector. The High Level Workshop was an important step in the co-creation of common understandings and a long-term vision for the research culture of the European Research Area.*”

— **Marc Schiltz**, President of Science Europe

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Introduction

The High Level Workshop on the European Research Area (ERA) is an annual meeting that offers a platform for Science Europe Member Organisations, national ministries, EU institutions, and research community representatives to discuss progress, actions, and future developments of the ERA in a topical manner.

In 2021, the 13th edition of the High Level Workshop was co-organised by Science Europe, the Luxembourg National Research Fund (FNR) and the Luxembourg Ministry of Higher Education and Research (MESR). The workshop focused on research culture in the ERA, and its influence on how research is conceived, conducted, communicated, and assessed. The goal of the meeting was to better understand the views of different ERA actors and to pursue alignment on fundamental aspects of research culture, which in turn can help to identify actions that can make the ERA a more attractive place for researchers and for high-quality research. The workshop is timely as there is increasing recognition of the numerous challenges that research systems face. These challenges include precarious career paths, a narrow and ineffective rewards and incentives system, and a continued lack of diversity throughout the research environment. It is important that these are considered from a holistic perspective that reflects the many voices of the research community.



The 2021 High Level Workshop took place as a mixed physical and online event in Luxembourg on 24 November 2021. It brought together approximately 150 research stakeholders, including heads of national research organisations, senior representatives of national ministries and EU institutions, and researchers of all career stages. This edition of the High Level Workshop was particularly special for Science Europe, as it coincided with the 10-year anniversary of the association. Celebrations of this milestone took place after the workshop.

On the occasion of the workshop, Science Europe published a statement on research culture¹ detailing a vision for research culture, which envisages an ERA that focuses on the excellent quality of research and its processes, supports scientific freedom, and promotes social diversity and inclusion. The statement also commits Science Europe to take forward this vision in the coming years, along four main lines of action, including the creation of a value framework, revising incentives and rewards systems, and committing to actionable changes with relevant stakeholders.

This comprehensive report reflects the in-depth discussions held during the workshop. The key messages and discussion points from this workshop provide a rich pool for Science Europe to reflect upon and turn to actions as part of its priority to contribute to the evolution of research culture. Science Europe will do this through the activities of its Working Group on Research Culture and all its relevant structures, and it will engage members of the stakeholder community in supporting the concerted actions needed to drive change.

1 scieur.org/researchculturestatement

Executive Summary of Workshop Outcomes

The High Level Workshop addressed the broad topic of research culture and focused on two key themes: research careers, and reward and incentive structures. Discussions began with an exploration of some core concepts of research cultures in Europe and how they are linked to the values at the foundation of research activity.

The workshop co-hosts, Mr. Claude Meisch (Luxembourg Minister for Higher Education and Research) and Dr. Marc Schiltz (President of Science Europe), welcomed participants, both online and in person, and emphasised the importance and timeliness of the discussion in the frame of the new European Research Area (ERA).²

The keynote speech, given by Professor Ulrike Felt (University of Vienna), summarised the key challenges that research organisations and research systems at large face when considering research cultures. These include the need to support a diversity of culture perspectives whilst recognising common shared values, and the importance of recognising that research is about the people involved in the research endeavour. Professor Felt urged participants to consider research as an ecosystem and asked: "what does sustainability mean for research systems?"

The first panel of the workshop provided numerous specific examples of actions that contribute to the evolution of research culture. Perspectives of research funding organisations, research performing organisations, and researchers were provided. Discussions focused on the importance of transparency, openness, trust, and equity, and the need for all stakeholders to work collectively in driving change. Examples of policy advancements were given, including new models to understand excellence, and new CV formats that open up to the recognition of broader sets of researchers' skills and competencies and their research outputs.

In a high-level address, Mr. Jean-Eric Paquet (Director-General for Research and Innovation, European Commission) summarised the actions and initiatives that the European Commission is implementing as part of the renewed drive towards the realisation of the ERA. These included the recently adopted Pact for Research and Innovation³ and an initiative for the reform of research assessment. Mr. Paquet emphasised that, at its core, the new ERA is about connecting and uniting research systems to help member states to better invest in research and shape the impact of their research and innovation. A key component of the European Commission's new activities around the ERA is the engagement of stakeholders.

The second panel of the workshop turned its attention to two vital specific themes in research, namely research careers, and reward and incentive systems. Panellists discussed the current pressures faced by researchers, and highlighted the contradictions of what is good for individual careers and what is good for research. Diversity was a central theme of the discussions, and all forms of diversity were recognised as important to both the social responsiveness of research and the reliability of research activities and outputs. The panel concluded that both research career pathways and reward and incentive structures must change to accommodate a broader understanding of what it is to be a researcher, and what comprises the research endeavour.

2 eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0628&from=EN

3 ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_pact-for-research-and-innovation.pdf

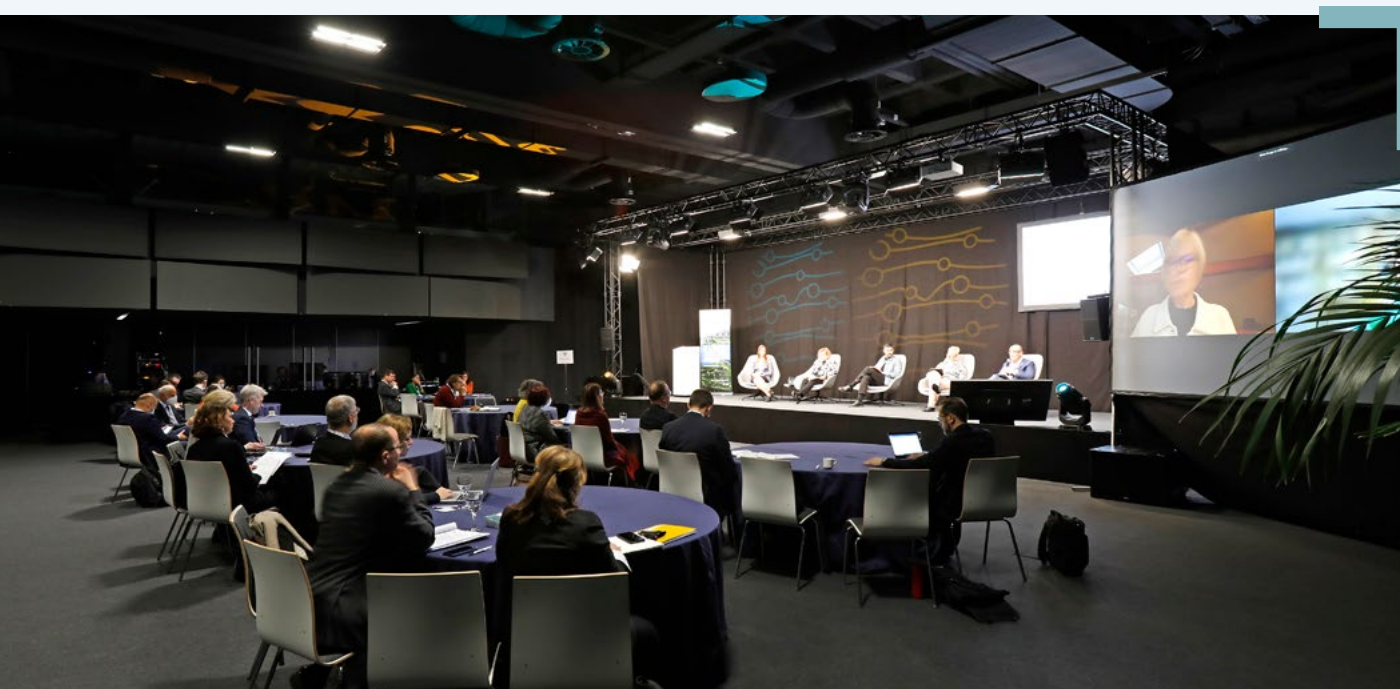
Three members of the research community, authors of a paper on empowering researchers to improve research quality,⁴ presented their perspectives on ways of improving research cultures, each providing a personal story of how current culture has affected their time in research. A vision for European research in 2030 was presented, and included calls for sustainable funding, improved mobility, support for diverse career trajectories, appropriate infrastructure, and for knowledge to be viewed as a global public good.

Representatives from nine European ministries provided short interventions on their perspectives on national and ERA-level priorities to support research culture change. National activities included: policies and frameworks to promote Open Science; actions to improve the attractiveness of research careers; initiatives to better engage societies in research; and efforts to provide sustainable funding. Many initiatives are currently being undertaken in Europe at national level that can contribute to the evolution of research cultures within the ERA and improve the effectiveness and sustainability of European research systems.

In the final session of the workshop, participants split into breakout groups to discuss the themes of research careers, and reward and incentive structures. Across eight groups, lively discussions covered topics such as intersectoral mobility, narrative-style CVs, incentivising teamwork and collaboration in research, and expanding the expertise called upon as part of peer-review exercises. Each group provided a set of possible actions or key considerations for Science Europe to reflect on in its future work.

After exploring core concepts of research cultures in Europe, participants agreed that it was important to recognise a diversity of approaches to research culture in the frame of a set of central values. The need to rapidly advance on topics such as research career attractiveness and the broadening of reward and incentive structures was broadly recognised.

4 doi.org/10.1629/uksg.548



Welcome Addresses

┌ **Mr. Claude Meisch**, *Minister for Higher Education and Research, Luxembourg*

The Minister for Higher Education and Research, **Mr. Claude Meisch**, welcomed participants to Luxembourg, and expressed the timeliness of discussions relating to research culture as part of the ongoing re-invigoration of the European Research Area.

The COVID-19 pandemic has brought science and scientific expertise into sharp focus over the last two years, highlighting the vital role that the research and innovation sector plays in addressing global challenges. The pandemic also shone a light on the way in which researchers go about their work. Research methodologies have become a part of the public discourse in a way not experienced before. For this reason, addressing research culture is especially relevant as it pertains to the conduct of research and the behaviours of researchers.

Research culture is important not only at a national level, but also at a European level. **Mr. Meisch** stated that Luxembourg, for its part, recognises this and welcomes initiatives to develop collaborative research cultures that, in turn, form part of a sustainable and effective European research culture. Developing common understandings of shared values and improving the attractiveness of the sector to all who are part of it are key aims of work related to research culture, and efforts to bring together the diverse voices of the research community are vital to driving change.

┌ **Dr. Marc Schiltz**, *President of Science Europe*

The President of Science Europe, and Executive Head of the Luxembourg National Research Fund, **Dr. Marc Schiltz**, also extended his welcome to all participants.

Science Europe encompasses 38 prominent research funding and performing organisations in Europe that, combined, represent an annual investment of around €24 billion. This highlights the important role that Science Europe and its Member Organisations can play in shaping the European Research Area and directing research and research priorities. Science Europe, however, recognises the importance of other stakeholders. National governments define research policies for their countries, and the European Commission develops European research policies while also significantly funding research itself. It is through joint discussions, shared visions, and policy and practice alignment that the European Research Area can thrive.

Dr. Schiltz noted that research is a broad concept, and that the workshop would introduce the fundamentals of the topic before diving into two more specific areas: research careers and reward and incentive systems. Science Europe members are concerned with these areas because one of their common core activities is the evaluation of research, research proposals, and researchers.

Keynote Speech

Professor Dr. Ulrike Felt, University of Vienna

Research cultures are both easy and difficult to discuss at the same time. **Professor Ulrike Felt** began by considering what it means to live within science and to be a scientist – from these very personal perspectives it is easy. Yet, research culture is also very broad, very messy, and very complex (something that will always hold true for research culture and the research of culture) – and this makes it a hard topic to discuss.

To have an informed discussion on topics such as research careers and reward and incentive structures, it is vital to have a basic understanding of the structures that research works within. All research stakeholders care about the health of our research systems, yet it is not clear how we can go about ensuring this health: be it through, repair, prevention, or care.

Science can be viewed as practice and culture, where 'culture' refers to the field of resources available, shared meanings, and sense-making practices, and 'practice' denotes the acts of creation that researchers perform in their areas.

Culture is not a monolithic concept, and it is vital to acknowledge the diversity of cultures in research – referencing research cultures in the European Research Area, for instance. There may be common shared values, yet this does not necessitate a single shared research culture. With this diversity in mind, a key question is "how to create inclusive research environments worth staying in?"

Research organisations, such as those within Science Europe, are in a strong position to create change, and to address the problems faced by the research system in Europe. It is important, however, to address both problems and solutions in the same frame, meaning that defining what a problem is implies considering its potential solutions, and describing a solution requires a real understanding of the underlying problem. When thinking about the policies and practices that can drive the evolution of research cultures, ask 'to whose problem do you have a solution?'

Investigating research culture is essential because knowledge orders (how we think about the world we live in) and social orders (how we choose to live in that world) go hand in hand. These two dimensions are inseparable, and therefore research can be viewed as being about people and their lives. The research system is not a production line, but rather an ecosystem based on human endeavour.

Professor Felt drew upon her own work on epistemic living spaces and the way in which researchers describe their lives within research. This can be viewed as a multi-dimensional space that shapes, guides, and delimits the actions of researchers, what they study, the degree of agency they have, and how they go about their research. Researchers should feel at home within the research system, they should have a sense of shared values and common social grounding. It is, therefore, a responsibility of research organisations to consider how this 'living space' is made for researchers, and importantly, early-career researchers.

Turning to the organisational structure of research, and strong current influence on our systems comes in the form of 'projectification': the temporal packaging of knowledge production and

the implementation of accountability procedures. It is now common to consider research as a collection of milestones, work packages, and roadmaps, and this is the result of project-thinking. This has led to a disproportionate growth in early-career positions without the equivalent growth at more senior permanent levels. In turn, this leads to temporary work on a project-time basis. Ultimately, 'the project' has industrialised and temporalised the research workforce with the aim of speeding up production. Research organisations must consider the implications of this on research behaviours and research cultures.

With 'projectification' comes the need for research proposals to make big promises. Assessments judge these promises as part of what is called the 'future relevance discourse'. Grander promises are not necessarily linked to research quality, however, but instead create a market of future scenarios.

On the topic of uncertainty, **Professor Felt** said that while it may be good for research, as it makes researchers question, revisit, and search for deeper understanding, it is not good for researchers (in particular early-career ones), as it creates anxiety for those who no longer have a clear path ahead, or a clear timeline for advancement. There are now initiatives looking into research precarity, and it is an important discussion to have in relation to the attractiveness of the research sector.

On rewards and incentives, there is now a strong critical discourse around the use of metrics, driven in part by community-level initiatives such as DORA and the Leiden Manifesto. The research system needs to move away from over-simplified proxies because of the effects that they have on the ways in which research is conducted, research stories are told, and how lives are lived in academia. It is important to recognise, however, that in many ways, metrics are satisfying and play on our trust in numbers and desire for immediate feedback. This love-hate relationship needs to be factored in when considering change.

In closing, **Professor Felt** urged participants to think about how to move towards a more sustainable research system. There is no clear guide to follow in changing research culture. Therefore, care should be a central consideration – committing to continuous engagement and stepwise progress. Research must be thought of as an ecosystem, and it is from here that definitions of sustainability can arise.

PANEL SESSION 1

Research Culture: Affecting how Research is Performed, Communicated, and Evaluated

Chair: *Professor Melanie Welham, UK Research and Innovation*

- *Professor Adrian Curaj, The Executive Agency for Higher Education, Research, Development and Innovation Funding of Romania*
- *Professor Rosa Menéndez, Spanish National Research Council*
- *Dr. Diego Baptista, Wellcome*
- *Ms. Agnieszka Żyra MSc, EURODOC*
- *Professor Dr. Ulrike Felt, University of Vienna*
- *Dr. Angelika Kalt, Swiss National Science Foundation*

The first panel discussion was opened by **Professor Welham** who introduced research culture as a key priority for both UKRI and for Science Europe, particularly in addressing how research organisations can ensure an attractive and sustainable ecosystem for researchers, where a diversity of people and ideas can flourish. It is important to recognise the complexity of research culture and be open and accommodating to the idea that approaches may differ. It is the goal of this session, and the workshop as a whole, to share these different approaches and come together around common understandings.

Professor Curaj introduced three keywords to describe the functioning of the Executive Agency for Higher Education, Research, Development and Innovation Funding of Romania: anticipation, innovation, and agility. When UEFISCDI consider research culture, there are a number of key focuses: excellence, transparency, responsibility, trust, and equity. These are common across all funding programmes. UEFISCDI is a role model and engages with research performing organisations, individual researchers, and society with that in mind. The organisation functions both as a funding body and in a policy advising capacity, and can enact change in this dual role. More specifically on research assessment, UEFISCDI focuses on reducing administrative burdens, piloting new processes, and internationalisation. The organisation takes very seriously their role in providing access to a variety of funding schemes not only at a national level. Modernising infrastructure is an important element in this providing role, and UEFISCDI is developing block-chain and smart-contract capabilities that contribute to 'trust' as a component of research culture. Open Science is a key element of UEFISCDI's work within research culture, with a focus on fostering open science literacy amongst researchers. Finally and importantly, research careers are a continual point of action, with grant schemes spanning and linking a range of career stages developed, and a focus on providing attractive salaries.

Professor Menéndez highlighted that CSIC is the largest research performing organisation in Spain, and the only organisation with multi-disciplinary scope. From this position, it is clear that across the system the research endeavour comes at a high human cost. It is our collective work towards a more positive research culture that will reduce this human cost. People are at the core of research performance. Two conditions need to be met to improve research culture at both national and European levels: 1) the research community must be involved in all dialogues around change, and 2) a new and more attractive and inclusive system must recognise a broader variety

of contributions and outcomes, promote open science, collaboration, and societal engagement, and maintain the highest levels of ethics and integrity. CSIC has developed numerous instruments to support positive research culture, including the 'code of good scientific practice', the 'national declaration on research integrity', the 'manual on conflicts of interest', and the 'commission for women in science'.

Dr. Baptista recognised the prominence of Wellcome's activities on research culture in recent years. Key drivers for these activities were concerns voiced by the research communities signalling a poor research culture and reflections at an organisational level on accountability and responsibility towards the researchers funded and supported. Wellcome asked whether its funding goes into environments that are supportive, inclusive, honest, and open. Providing evidence of the need to change policies and practices was instrumental in pushing for change, and parallel national focus on research culture (including from UKRI and the national ministry) helped to further drive Wellcome's organisational actions.

Speaking on behalf of early-career researchers, **Ms. Żyra** introduced several key concerns that should be considered as part of discussions around changing research cultures. Firstly, research precarity and the prevalence of temporary contracts creates stress as all early-career researchers consider their futures, including future job and income security. A study performed by EURODOC in 2020 highlighted some large inequalities and differences across Europe where, giving Open Science as an example, knowledge of and use of open science practices is common among early-career researchers in Northern and Western Europe, but much less so in Eastern Europe. Channels for the dissemination of research and science communication also varied greatly. These are important considerations when discussing research culture at a European level, and efforts must be made to reduce rather than exacerbate inequalities at an international level.

Speaking on the SNSF's new model of excellence, **Dr. Kalt** explained that the model arose from a mandate given to SNSF by Swiss law to promote "excellent research projects" and the resulting need to describe what SNSF's understanding of excellence is. Excellence is viewed as a stepping stone to the ultimate purpose of research: the facilitation of knowledge gain. In this way, excellence is not only anchored on research outputs or researchers, but is also tied to scholarly practices which in turn are linked to research culture. The excellence model is a way of conveying the research culture that SNSF would like to support. The model aims to be inclusive: capturing excellence in all its diversity. It also aims to be specific, pragmatic, and usable. The model has three dimensions: research questions should be original and relevant, and the research described should be embedded (reflect the needs of stakeholders inside and outside of academia). The research methods should be ethical and rigorous, sustainable, and open. The behaviour promoted should be collaborative, engaging, and acknowledging.

Following the individual speeches, the panel of speakers was invited to reflect on what the sustainability of research systems means to them. **Professor Felt** explained that sustainability can be linked to growth and how assessment processes and the drive for quality, for instance, should consider and nurture the growth of individuals. The system as a whole should be considered as an ecosystem where a diversity of components needs to flourish. **Dr. Baptista** reflected on the lack of support for alternative career trajectories, and how sustainability must also be about supporting those that leave the standard academic route or leave academia entirely, and how that form of

support can be valuable to research and innovation as well. **Dr. Kalt** agreed that the 'up and out' structure of universities is currently an obstacle to sustainability and the fostering of broader career routes is needed. Further, sustainability is linked to the principle of openness at a global level, and an important role for Research Funding Organisations in the next decade should be to further support Open Science and better value open-science practices.

Professor Welham asked the panel to reflect on practical actions to change recognition structures in research, for example through the 'narrative CV' approach or qualitative forms of assessment that UKRI are implementing. **Ms. Żyra** emphasised the importance of qualitative approaches to assessment for early-career researchers and the movement away from oversimplified quantitative metrics: supporting, from an early stage, the broader contributions of research such as public engagement and societal relevance. **Dr. Baptista** introduced a similar narrative approach that Wellcome takes in its assessment approaches but emphasised that this shift should be supported by clear guidance that applicants are encouraged to focus on the specific qualities of their research and skills and not try to address all possible contributions. Training and guidance for reviewers and panel members is also key to the effectiveness of these new qualitative approaches. **Dr. Kalt** explained that SNSF have also incorporated narrative elements into certain assessment processes in recent years; following positive feedback from applicants this approach will now be rolled out more broadly. Feedback from evaluators was less positive than from applicants, and thus a cultural change is needed in this regard. **Professor Curaj** explained the difficulty in the contradiction of recognising the flaws in many current quantitative metrics whilst also understanding the role that some quantitative elements play in assessment processes. A mix of functional metrics and qualitative elements may be an effective approach currently.

Asked about how research funders can ensure that recipients comply with research integrity and ethics guidelines/rules without being interventionist or over-imposing, **Dr. Baptista** explained that rewarding and incentivising such behaviours is key, but may not be enough in isolation. He emphasised the importance of collaboration between research funders and research performers, and the importance of research funders engaging with the research community directly, making space for researchers to approach funders when issues arise.

The panel were then asked about the concept of excellence and similar high-level criteria, and how research organisations can make sure that the reviewers and panellists that they engage in their assessment processes follow the same understanding when assessing, thus safeguarding the quality of evaluations. **Professor Felt** acknowledged that the peer-review aspect of assessment is a particularly fragile element of the process, being time- and effort-intensive and under a lot of strain. Research organisations and publishers should consider when and where peer review is necessary and how it is conducted with the aim to reduce the burden placed on researchers. **Dr. Kalt** emphasised the importance of research funders considering the breadth of their programmes and the places where expert peer review is most needed – citing review of student travel costs as an example of where scientific review may not be necessary. Broadening the reviewer pool by career stage and geography can also reduce the burden on the system.



From the audience, **Dr. Marc Schiltz** posed an open question to participants, asking whether early-career researchers should be more prominently involved in the peer-review processes of research organisations. **Dr. Baptista** agreed, but noted that care must be taken not to over-burden young researchers at the important early stage of their careers. **Professor Welham** mentioned that at UKRI, early-career fellows are invited to observe assessment panels as a form of training, with very positive feedback collected on the scheme.

To close, **Professor Welham** asked the panellists for single-phrase suggestions for the priority area that Science Europe should take forwards as part of its work on research culture:

- **Professor Curaj** *Researchers' careers*
- **Professor Felt** *Timing*
- **Dr. Baptista** *People*
- **Professor Menéndez** *Collaboration between funders and performers*
- **Ms. Żyra** *Broadening careers, and mobility*
- **Dr. Kalt** *Rewards and careers*

High-level Address

Mr. Jean-Eric Paquet, *Director-General for Research and Innovation, European Commission*

Hosted by Dr. Marc Schiltz, President of Science Europe

The session was opened by **Dr. Schiltz**, who highlighted the importance of collaboration between Science Europe, its Member Organisations, and the European Commission in fostering the European Research Area (ERA).

Mr. Paquet began by introducing the new, almost finalised, framework for the European Research Area through a 'Pact for Research and Innovation' and EU Council conclusions on the ERA (both adopted shortly after the workshop, on 26 November). A policy purpose of this new framework is to support research across Europe and aim the research agenda towards enabling the green and digital transition that is needed and is underway. This clear directionality is valued by European societies and acknowledges the key role that scientists and researchers must play in this transition – highlighted by their central role in the collective response to our current pandemic. This directionality emphasises that funding research is an investment in the future, not a cost.

The renewed ERA highlights, that despite its complexity, connecting and uniting 27 national research ecosystems with the addition of a European layer (the Horizon Europe programme) is core to the principle of this area. It is now well understood that what is happening in one country should inform and be informed by what is happening at ERA level. There is increasing appetite and understanding for such an ERA: one that is anchored in national realities. The new ERA will help member states to better invest in research and shape the impact of their research and innovation. In the same way, all member states benefit from collective actions where critical mass is needed; these may include quantum, artificial intelligence, and energy systems – which are all priorities in the context of the ERA.

It is important to note that during the process of defining this new ERA, the European Commission has engaged with stakeholders, including Science Europe, and looked back at both the successes and lessons learned from the past 20 years. One key lesson learned is that scientific autonomy and academic freedom need to be further discussed and supported as central features of all national European research systems. A second lesson pertains to the promotion of research careers, which under the new ERA will be acted upon in a much more ambitious way as it is a driving force for the sector at large. Here, the assessment of research and researchers will be key in the modernisation of research careers.

Mr. Paquet closed by highlighting that the ERA is, ultimately, about the research actors: funders, performers, researchers. In this way, the ERA needs to be a place where these actors can connect, and it is down to all stakeholders to come together to make the ERA a reality.

Dr. Schiltz reiterated the importance of stakeholders in the ERA and emphasised Science Europe's wish to continue its strong engagement with the European Commission in its realisation, and as part of the ERA Governance. He enquired what the expectation of the European Commission is for stakeholder engagement in this new ERA framework.

Mr. Paquet explained that representatives of the seven types of stakeholder umbrella organisations will be invited to engage in the 'ERA Forum' systematically in relevant meetings at EU level, and it is important that research actors organise and co-ordinate amongst themselves to ensure the best collective input can be provided when these calls for engagement arise. The European Commission has strived to be as inclusive as possible, but it must be recognised that not every voice can be present all the time. It is also vitally important that research stakeholders engage in pushing ERA messages and actions in their individual national contexts. Two examples in this regard, are 1) research assessment, which is mostly a national debate, but where national actors will be key to defining a consolidated European framework and vice versa, and 2) the need to strengthen funding for fundamental research, where the bulk of funding is from national levels.

Dr. Schiltz reflected on the strong collaboration between Science Europe, its members, and the European Commission in recent years. He highlighted the work on Open Science and Open Access, in particular via cOAlition S, and said that Science Europe looks forward to further fruitful collaborations on other key topics of ERA relevance, such as on research assessment. He asked about the Commission's plans on this topic and how they can work together to drive change.

Mr. Paquet stated that in the next 18 months, the European Commission will prioritise the reform of research assessment systems, with research stakeholders placed at the helm of the initiative. This will involve providing a platform for exchange of practices and principles, mutual learning, and the sharing of success stories and lessons learned. This will be discussed in the ERA Forum and via a broad stakeholder consultation.

From the audience, **Dr. Mattias Björnmalm** asked about the next phase of the ERA, its implementation, and the importance of the free circulation of knowledge, researchers, and technologies. There are still many barriers to this circulation, such as pension rights and employment regulations. He wondered what the European Commission's role will be in overcoming these barriers.

Mr. Paquet recognised the constraints mentioned, and noted that rules on employment, pensions, and social security are framed by EU rules and there is an increasing understanding at the European Commission that general rules around labour, for instance, can impact specific sectors. Actions can be taken within existing rules in some cases, and in other cases, reviews can be conducted accordingly. Linked to this topic is the review of the Charter and Code for researchers, which will take place in collaboration with stakeholder, and a 'European Research Area Talent Platform' that will be a successor to EURAXESS. Further, the ERA4You initiative will promote intersectoral mobility in and out of academia, and an 'Observatory for Research Careers' will be put in place.

From the remote audience, **Ms. Ingrid Petersson** highlighted that research careers are often viewed as unattractive and insecure. She asked what research funders and performers can do together at European level to improve the attractiveness of the research sector.

Mr. Paquet welcomed continued collaboration between stakeholders on this important topic, reiterating the view that research careers are often viewed as fragmented and insecure. A major challenge for this is project-based funding and the competition it promotes. A question to be investigated in this regard is the balance between project funding (which should remain a key aspect) and institutional funding which can offer more stable and attractive employment for some.



PANEL SESSION 2

Research Careers & Incentives and Reward Structures

Chair: *Professor Mari Sundli Tveit, Research Council of Norway*

- *Dr. Noémie Aubert Bonn, University of Hasselt*
- *Dr. Ismael Rafols, Leiden University*
- *Professor Sabine Leonelli, University of Exeter*

The 2nd panel of the workshop was opened by **Professor Sundli Tveit** who introduced the two topics of discussion: research careers and reward and incentive systems. This panel serves as an introduction for all workshop participants to the breakout group themes planned in session 3.

Dr. Aubert Bonn introduced the subject of her PhD studies on 'success in science', which involved focus groups and surveys with multiple research stakeholders including policy makers, funders, performers, and researchers, technicians, and professionals who had left academia. A major outcome was the realisation that career success and scientific success are misaligned: "actions taken to advance your career in science are not necessarily good for science." Secondly, the imbalance between junior and senior researchers is pronounced and competition is very high because a majority of early-career researchers begin with a wish to continue in academia. Thus, when these researchers leave the sector, there is a feeling of failure. Thirdly, there is a perceived pressure to sacrifice research integrity or research quality to advance in a research career and gain stability. To address these issues, collaboration between all stakeholders is needed, and work to create common visions and frameworks on topics such as research careers and rewards and incentives is needed. There needs to be better alignment between what is valued and what is assessed, and research career pathways need to be diverse.

Dr. Rafols focused on the synergies between research and society. These synergies occur at multiple levels, as society demands more from research, and as research itself becomes more diverse. With this diversity, traditional views of research excellence begin to break down. It is important to consider what the research system should be rewarding and incentivising, and how this links to the synergies between society and research. To do research that is linked to society, there is a need to think in terms of inter- and trans-disciplinarity, and to perform research in collaborative teams rather than in isolation. This type of 'engaged research' requires a different form of assessment that accounts for diversity and directionality. In this system, rather than individual excellence, diversity of knowledge is important, and research assessment is performed from a network perspective. Secondly, assessment needs to shift from summative to formative – where funding and performing organisations can provide learning opportunities and interactions as part of assessments which feed back into discussions on the types of outcomes that are valuable. This type of approach provides a portfolio view of what types of research are funded and performed, which in turn allows for the possibility to align research priorities with perceived needs.

Professor Leonelli picked up on the themes of the previous panellists and focused further on the theme of research diversity. Bringing a greater diversity of minds and ideas into research functions has two important effects: it makes research more socially responsive, and it strongly improves the reliability and validity of the research that is produced. The first type of diversity to speak of as part of this concept is social diversity (age, gender, ethnicity, class, and so on). Secondly, there is knowledge-type diversity which concerns the methods, concepts, and material used by researchers in the research activity. There is also infrastructural diversity, where digital and physical resources, and the environmental resources available to researchers are taken into account. Considering these varied types of diversity is important in thinking about how we define research culture. At the same time, units of research, whether by field or project, do not adequately account for diversity that is supported. Finally, the divide between qualitative and quantitative research is an important consideration for diversity. It is vital that mixed methods and truly diverse approaches are supported and recognised in research and as part of research cultures. An actionable change to support diversity may be to look at what research communities are doing, rather than what individual researchers do. In evaluations, this can translate to how researchers or research groups are maximising the resources available to them.

On the priority actions needed from research organisations to better support research careers and improve reward and incentive structures, **Dr. Aubert Bonn** suggested that re-thinking and re-defining what a researcher is, is key to supporting a greater diversity of skills, competencies, and career paths. **Dr. Rafols** highlighted the need for actions that can span the entirety of the European Research Area, noting that leading examples linked to research culture change originate mostly in Northern and Western Europe. Pluralistic approaches to research assessment maybe be difficult to embed in Southern and Eastern systems, but these are systems where the benefits of research synergies with societal needs may be felt most. **Professor Leonelli** emphasised the importance of defining guidance for open science practices and the provision of supporting tools. A blanket approach to open science is not helpful in this regard and context-specific guidance is needed. In this regard, assessment of open science practices must also be context specific.

From the virtual audience, **Dr. Miklós Györff** asked about the balance of responsibility between national funding agencies and individual research institutes in support for research careers. **Professor Leonelli** noted that research institutes often use national funding organisation guidance as part of their assessment processes and thus the two are linked. Assessment practices that are context specific are needed to support changes to research careers, and collaboration is needed in this regard. **Dr. Rafols** suggested that research funding organisations should act as facilitators of learning to adapt assessment processes for the needs of research careers that can be taken up at institutional level.

Professor Michael Matlosz from the audience asked how 'peers' can be identified in a broader sense for assessment processes? **Dr. Rafols** suggested that interdisciplinary panels are a good place to look for guidance here, with an important criterion for 'peer' selection being those that are open and accepting of other people's positions. **Professor Leonelli** emphasised that panel reviews are generally better in this regard than individual reviewers, and that diversity is key.

Policies to Support the Evolution of Research Cultures in Europe

Empowering early-career researchers to improve research culture

Chair: Ms. Martine Reicherts, Chair of the FNR Board

- *Dr. Véronique De Herde, Université Catholique de Louvain*
- *Dr. Mattias Björnmalm, CESAER*
- *Professor Dr. Toma Susi, University of Vienna*

Ms. Reicherts welcomed three members of the research community to present their perspectives on ways of improving research cultures, based on an opinion article they co-published on the topic.⁵ **Dr. De Herde** began by describing, from her perspective as an early-career researcher, how evaluation in the research system can be conceptualised as a trickle-down of prestige-based metrics, starting at governments, through research funders and research institutes, and down to individual researchers. This system may be easy to implement, but it is now well-recognised as inadequate in capturing the diversity of outputs and activities of modern research, or in support of diverse understandings of what quality research is. Perversely, this system promotes competition over collaboration, and can lead to an unhealthy work culture and a loss of talent. Further, this system is perpetuated by metrics from commercial entities, and early-career researchers are often 'forced' to make prestige-driven publication choices to remain competitive, which further feeds a costly publishing landscape. The (early-career) researcher dilemma is that career incentives ('publish or perish') are at odds with thinking idealistically about what helps advance knowledge (outreach, open science practices, and collaborative work).

Professor Susi continued from the perspective of a recently established researcher, urging the need for reform of research assessment and a change of evaluation culture. He shared a personal story about being trapped in prestige-publishing thinking, after almost deciding not to pursue a press release for a piece of research that was rejected from a prestigious journal and then accepted by another quality journal with lower impact. While the research had not changed, the perspective of its value had because of its published venue. This highlights a common line of thinking that the name of the journal is more important than the content of the research within. To drive change, individual researchers at all stages need to reflect on their own behaviour in relation to the current reward system, regardless of how well it may have served them: change starts with researchers. Secondly, the entire research community needs to define how it wants to recognise, incentivise, and reward research and researchers.

Building on the theme, **Dr. Björnmalm** emphasised that while evaluation is in the hands of the research community (where it should be), change requires support from research funders, performers, and policy makers. Presenting a vision for European research in 2030, he proposed five key enablers. Firstly, on sustainable funding: by 2030, EU Member States have reached the 3% GDP target with a balance between competitive and non-competitive funding streams.

5 doi.org/10.1629/uksg.548

Secondly, no legal barriers remain to the mobility of researchers. Thirdly, diverse trajectories for research careers are supported, and are attractive. Fourthly, research infrastructure is abundant and available to all within the research community. Finally, by 2030, knowledge is viewed as a global public good rather than as a tool to drive competitive advantage for financial gain.

Professor Ulrike Felt asked from the audience how the panellists would distribute funding to support their visions, assuming that funding levels do not change. **Dr. Björnmalm** reflected on the fact that competitive funding is necessary and contributes to research quality, but that a better balance of funding streams would enable shifts in research culture towards a more positive model. **Dr. De Herde** proposed a possibility for recuperating some of the public money that goes into publicly funded research and that contributes to commercial publishing profits by incentivising alternative publishing practices. Finally, **Professor Susi** commented that regardless of the budgets available, better evaluation criteria would lead to higher quality research.

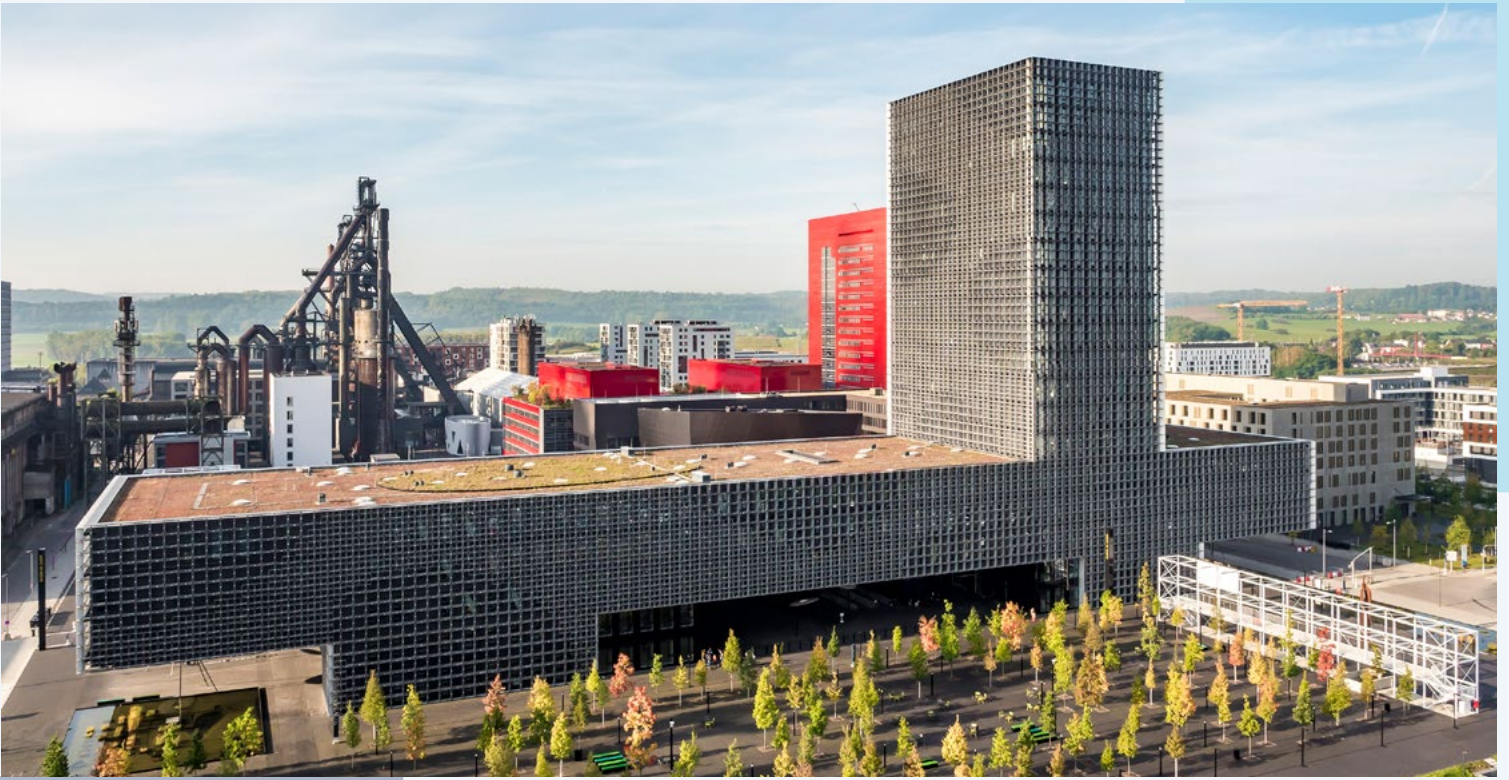
Ms. Reicherts asked the panellists how value for money can be assured in research systems, especially considering the call for 3% GDP targets for funding. **Professor Susi** started by asking how we define value – suggesting that robust, reproducible research that advances knowledge may be key to defining value and thus targeting it. **Dr. De Herde** reiterated that research evaluation is, again, key: “by rewarding what is valued by the system you move towards for value for money”.

Ms. Martina Hirayama, Swiss State Secretary for Education, Research and Innovation, asked Dr. De Herde what single measure would be recommended to start cultural change. Raising awareness amongst researchers that change is possible and that researchers are empowered to call for it would be a good first step, according to **Dr. De Herde**.

Mr. Constantijn Heemskerk, Deputy Director of Research and Science Policy at the Dutch Ministry of Education, Culture and Science, asked the panellists what governments can do to reduce the risk in transitioning away from oversimplified quantitative metrics whilst allowing the research community to take the lead. **Professor Susi** proposed that national ministries could simply stop using metrics and ask the research community to directly develop alternatives: suggestions would quickly arise.

Professor Welham asked the panellist how to engage all researchers in the changes proposed, especially with regards to those that have benefitted most from the current system and may be reluctant to support change. **Dr. Björnmalm** suggested engaging with stakeholder associations to gather support and spread awareness of the issues faced and potential solutions to them, while **Dr. De Herde** focused on the social responsibility of improving research culture as a way of promoting research culture. **Professor Susi** reiterated the power of real incentives to encourage change, even to those that are reluctant.

Ms. Reicherts closed the session by asking the panellists what change they most wanted to see in 20 years' time. **Dr. Björnmalm** pictured a system with great, empowered young researchers who must no longer consider publication strategies or career strategies, and can focus on their research questions instead. **Dr. De Herde** envisioned a system of true collaboration and support, where competition is present but is not a central driver. **Professor Susi** proposed a future where the most talented individuals view research as an attractive and rational career option.



Ministerial Interventions

Chair: **Dr. Lidia Borrell-Damián**, Secretary General of Science Europe

- SLOVENIA: **Professor Simona Kustec**, Minister of Education, Science and Sport
- PORTUGAL: **Mr. Manuel Heitor**, Minister for Science, Technology and Higher Education
- LUXEMBOURG: **Mr. Claude Meisch**, Minister for Higher Education and Research
- SWITZERLAND: **Ms. Martina Hirayama**, State Secretary for Education, Research and Innovation
- SLOVAKIA: **Mr. Ľudovít Paulis**, State Secretary for Education, Science, Research and Sport
- FRANCE: **Dr. Claire Giry**, Director General of Research and Innovation
- ESTONIA: **Professor Renno Veinthal**, Deputy Secretary General for Research and Development, Higher and Vocational Education
- BELGIUM: **Dr. Marc Vanholsbeeck**, Director at the Fédération Wallonie-Bruxelles
- THE NETHERLANDS: **Mr. Constantijn Heemskerk**, Deputy Director of Research and Science Policy at the Dutch Ministry of Education, Culture and Science

Professor Simona Kustec congratulated Science Europe on its 10-year anniversary and looked forward to the next 10 years. On the topic of this workshop, she said that the importance of the softer side of policy making, such as research culture perspectives, can often be overlooked, but does not make such topics less significant. It is the common responsibility of all research actors to advocate, promote, and lead on all aspects of openness, fairness, and equality, and of synergies, co-operation, and excellence. Portugal, Germany, and Slovenia have pursued these core aims as part of their shared work under the trio of Presidencies of the Council of the EU. The Pact for Research and Innovation, and the Council conclusions on the Governance of ERA will shortly be adopted (adopted on 26 November 2021) – both documents are based on clear norms, principles, and values that are embedded in 41 recommendations that touch on diverse subjects, from research infrastructures to research careers and Open Science. A new law on research and innovation was just recently adopted in Slovenia that set the foundation for actions on topics touched upon in this workshop: research career support and the incentivisation of good ethical research practice. Slovenia would continue its collaboration with all actors in furthering the European Research Area, and research as a whole.

Minister Manuel Heitor emphasised that the build-up and strengthening of the European Research Area will depend on the extent to which European citizens become an integral part of new developments in science and technology. There is a constant drive for increased funding for research and innovation, yet over the last 20 years funding has been stagnant at about 2% of EU GDP, well below the 3% target. Some countries lead in funding, others are increasing (such as Portugal, where in the last five years funding rose from 1.2 to 1.6% of GDP), yet in many countries funding remained constant or decreased. This should be considered as a major European collective concern, because our common climate goals, and in particular the 'Fit for 55' package and its goals of decreasing CO₂ emissions by 55% in the coming decade, will require more and new knowledge through R&D, institutional innovation to foster articulation among an increasingly diversified set of stakeholders in research and innovation, and new observation methods, integrating space systems with in situ sensors and advanced IT systems, including AI. All European countries must contribute and support this target for the ecosystem to thrive and enable effective actions on policy priorities

such as research careers. But this will be achieved only if EU Member States accept to include the target of 3% of GDP on R&D spending in the European Semester's review cycle. Minister Heitor also highlighted that, according to the recent Eurobarometer report, science and technology is viewed by EU citizens in a very diverse way, with a number of very problematic situations in many EU regions and countries. Special attention should be given to Estonia and Portugal, with Portuguese citizens assigning the highest positive influence of science and technology on society. An explanation for this is the investment that Portugal has made in the last 25 years on science culture and science education for all. This type of investment is critical to the future of the European Research Area, and citizen engagement must be a central priority. He noted that climate change provides a unique opportunity to foster the role of young citizen's voices to promote science and technology. Minister Heitor concluded by highlighting that Portugal celebrated its national day of scientific culture, still unique in a European context, on the same day as the High Level Workshop.

Mr. Claude Meisch reiterated the importance of research culture at national level, and the necessity of a strong culture at European level. He said that Luxembourg is aware of this and will do its part in fostering a successful shift towards a positive and sustainable shared European research culture. The Luxembourg national research and innovation strategy aims to enhance the attractiveness of research careers through a value, reward, and incentive system that recognises the full range of outcomes from scientific activities including knowledge transfer, training and mentorship, teamwork, and communication. Concerted efforts will be made to improve gender equality in research, and to make diversity and inclusion a priority. The Luxembourg government's aim is to position Luxembourg as an attractive research location for the best talent. On research culture specifically, Luxembourg has set up a national working group to address three remits: 1) identifying the current culture and its support needs, 2) sharing best practices between institutions and aligning with international standards, and 3) devising a goal-oriented strategy to improve the reward and incentive systems that research is conducted within. At European level, there is an important and difficult balancing act between aligning and advancing collectively on topics such as research careers, whilst also allowing for country-specific contexts.

Ms. Martina Hirayama recognised the many challenges facing our research systems, especially with regard to research culture, and it must be through dialogue and collaboration between all stakeholders that change is enacted. In Switzerland, organisations and institutions have undertaken several initiatives to tackle this issue. The Swiss National Science Foundation is implementing a national open access strategy. Swiss universities have taken this forward with an action plan and have established a national open research data strategy together with other partner organisations. Through endorsement of DORA, many Swiss institutions and organisations are reforming their assessment processes. Beyond national actions, a dialogue across Europe and strong collaboration are needed to change reward and incentive systems towards a more sustainable research culture. Collaboration is also needed at the level of funding programmes, including the inclusion of third countries in the future ERA governance. She said that Switzerland remains ready to be associated to Horizon Europe and Erasmus, and emphasised that it regrets that a political link has been made between institutional questions of relations to the EU and association with these important research programmes. Switzerland maintains its commitments to advancing the future ERA together. It is important to remember that researchers are the backbone of European research systems and the ERA itself.

Mr. L'udovít Paulis noted that the workshop was very timely for Slovakia as they are currently preparing several reforms around Open Science, an internationalisation strategy, and on project evaluation. Research is often a passion and a hobby, and it is important that research careers are fostered to enable researchers to continue to fulfil their passions in sustainable ways. However, to achieve public spending targets for research and innovation, the role of research must be better understood by the public. Transparency, accountability, and value are key issues that public research must continually answer to as part of its engagement with society. On the balance between project funding and institutional funding, this is an important discussion, and in Slovakia the target is around 30% for project funding and 70% for institutional funding. Further, discussions are being held around evaluation processes and the incorporation of both quantitative and qualitative elements in assessment processes in Slovakia.



Dr. Claire Giry presented the recent French law on research programming that will dedicate €25 billion over the next 10 years to increase the attractiveness of research in France. This will include the re-evaluation of salaries, improvement of research career trajectories, and increase the number of PhD grants offered and the availability of tenure tracks. She said that France is committed to play its part in the implementation of the new ERA. Open Science and the reform of research assessment are key topics that need to be explored at an EU level and this requires the mobilisation of all stakeholders and strong political commitments at the highest levels. In France, such commitments are enshrined through a national plan for Open Science and an associated working group who will prepare recommendations for Open Science. These recommendations will include the use of narrative CVs and the avoidance of oversimplified metrics. Reforms of research assessment should be a European priority, and an initiative will be launched in February 2022 in Paris on this topic. To make culture change happen, three elements are required: 1) to make the knowledge square a reality, 2) to consolidate the European universities, and 3) to implement a global approach to research through the launching of multi-lateral dialogues with key international partners.

Professor Renno Veinthal thanked the speakers representing the research community for their important insights and views in earlier discussions during the workshop. He considered a review of institutional and university governance as an important possible avenue to provoke change. Being a representative of a small country, he emphasised the importance of the ERA. Opportunities for mobility are key, and access to international centres of excellence allow national systems to grow. It is important that discussions around these forms of collaboration are further opened to include more and new stakeholder voices – including those in the finance sector, for instance. In Estonia, there is a public consensus and support for increased public spending on research and innovation, and this will enable more attractive research careers. Changes to research career structures are needed, but we must also recognise that not all researchers will become professors, and thus expectations also must be managed correctly from an early stage through training and guidance. Shining a light on options outside of academia is important in this regard.

Dr. Marc Vanholsbeeck stated that the Fédération Wallonie-Bruxelles considers that academic freedom and the fundamental values of science should be protected. They constitute the foundation of our European research and innovation ecosystem, in which an adequate balance between all forms of research should be kept. It is important that citizens, policy makers and all research stakeholders recognise the uncertainty inherent in fundamental research. To address societal challenges, interdisciplinary pathways are key, and citizens should be involved whenever relevant in the co-creation of relevant projects and programmes. Science communication is also instrumental, allowing the public to fully benefit from the research and innovation undertaken across Europe. It is therefore the responsibility of national and regional governments to provide a framework for training and guidance around all dimensions of Open Science, including citizen science. Gender equality also needs to be fostered, and the Fédération Wallonie-Bruxelles was currently making efforts to raise awareness around equal participation in science and technology studies. Research assessments must consider all relevant types of outputs and activities, and through this diversity of research careers can be supported and enabled.

Mr. Constantijn Heemskerk began by stating that the Netherlands is in full support of progression in the rewards and recognition of research and researchers, especially as the academic world is now evolving rapidly. The open generation of knowledge and role of society in research are now key. Recent developments, such as the transition to Open Science, are promising, but it must be recognised that these strongly influence the ways that researchers work. Researchers should be enabled to contribute to such transitions through effective policies and practices. An evolution of research assessment is necessary. Mechanisms are needed that do justice to the efforts made by researchers towards impact, education, academic leadership, Open Science, and so on. He said that the Dutch government fully supports this transition. Research funders play an important role in the shift to new assessment systems, and the Dutch Research Council (NWO) is implementing changes like the use of narrative CVs. Yet, change is needed beyond national borders as science is a cross-border endeavour. The European Research Area is an excellent forum to bring these much-needed changes into effect at an international level, for the benefit of all.

Breakout discussions

To facilitate discussions in smaller breakout groups, participants were provided with a first concept for a 'values framework' to discuss and critique. The value clusters included in this concept were autonomy, integrity & transparency; diversity & equality; inclusion, collaboration & collegiality; openness; communalism; and trust.

In two distinct themes, participants were asked:

- What values should be the foundation for a future positive research culture (using the above clusters as a reference)?
- How can values be operationalised into effective policies and practices? What successful and unsuccessful examples already exist?
- How can research funding and performing organisations work together to advance policies and practices towards a more positive research culture at national and European levels?

Theme 1: Research careers and shared values – ensuring that careers in the R&I ecosystem remain attractive for talented people

The goal of this breakout theme was to discuss ideas and share existing good practices that recognise and support a broader diversity of roles and competencies that are needed as part of sustainable and high-quality research ecosystems in the ERA. This included broader definitions of research(-supporting) careers, possibilities to increase inter- and intra-sectoral mobility, and other similar ideas. Further, focus was given to ways to ensure that research careers are attractive, and can support long-term plans for individuals, institutions, and national/ERA-level research ecosystems.

Theme 2: Incentives and rewards based on values, contributing to change and moving forward together

The goal of this breakout group was to generate ideas on how to concretely incentivise and reward research activities that align with the supporting values of research culture, towards a broader definition of high-quality research in the ERA. Different levels of incentivisation can be developed, including institutional, national, and ERA-level implementations. In addition, aligning incentivisation strategies as well as assessment processes for grant allocation and career progression between RFOs and RPOs (as well as between countries in the ERA). This will help support a common understanding and sustainable change supporting researchers throughout the ERA.

Theme 1 Summary – Research Careers

Theme chair: Dr. Irena Martinović Klarić, Executive Director at the Croatian Science Foundation (HRZZ)

Key discussion points from four breakout groups on this theme

- More should be done to improve the attractiveness of academic research careers. The evolution of academic/research careers is a shared responsibility. Research funding organisations can act to shape the financial and assessment frameworks. Research performing organisations can take actions adapted to their specific context. Science Europe is well placed to develop a holistic view of the situation.

- The current precarity of working conditions for researchers undermines the quality of research. A better balance between competition and stability is needed.
- Intersectoral mobility must be considered as part of the training and guidance of early-career researchers and should be recognised in assessment processes. This mobility should be fostered in both directions – into academia and out of it.
- There is a need to re-consider career gaps as a detrimental part of academic CVs. If valuable and relevant expertise is gained (in industry, for instance) then this time should not be considered as a ‘career gap’ – a different term is needed.
- ‘Team Science’ perspectives need to be better recognised across all forms of assessment, and skills and competencies such as teaching, mentorship, and management should be more reasonably balanced against pure research skills.

A more comprehensive summary of the discussions of individual groups is available in Annex 1 on page 30.

Theme 2 Summary – Rewards and Incentives

Theme chair: Dr. Mairéad O’Driscoll, CEO of the Health Research Board (HRB)

Key discussion points from four breakout groups on this theme:

- Reward and incentive structures should be founded on agreed values.
- The use of research evaluation needs to be appraised, and ‘scientific evaluation’ needs to be employed only when it is truly necessary. Review and panel activities need to be better recognised for their efforts and contributions. Reducing this burden may help to improve evaluation quality.
- Intersectoral mobility needs to be better fostered, partly through incentivising a diversity of personalities, skills, and roles in teams – and teamwork itself needs to be better rewarded when compared to individual contributions.
- Developing a matrix approach to the diverse skills and competencies that should be valued in research would be helpful in fostering broader reward and incentive systems and would contribute to transparency and trust.
- In peer review, broadening the voices and competencies involved in evaluations may help in expanding what is rewarded as part of assessment processes, and would increase the ‘openness’ of processes.
- High-level targets of assessments should be clearly defined, but assessment criteria can be considered more flexibly to allow different situations, different profiles, different career pathways, and so on. Criteria must also consider specific disciplinary and/or career-stage needs.
- Research integrity perspectives needs to be better considered as part of reward and incentive systems, and research organisations should lead by example.

A more comprehensive summary of the discussions of individual groups is available in Annex 1 on page 30.

Next Steps for Science Europe

The 13th High Level Workshop on the European Research Area, co-organised by Science Europe, the Luxembourg National Research Fund (FNR) and the Luxembourg Ministry of Higher Education and Research (MESR) addressed the broad topic of research culture, with a focus on research careers and rewards and incentives systems. A rich pool of perspectives, experiences, actions, and expectations were collected across the sessions and will be taken forward by Science Europe as part of its activities in the coming years.

In conjunction with the workshop, Science Europe published a statement on research culture.⁶ The statement envisages an ERA that focuses on the quality of research and its processes, supports scientific freedom, and promotes social diversity and inclusion, acknowledging that these conditions will, in turn, foster a productive research system. To reach this vision, Science Europe has made four commitments to support change:

1. Develop an open values framework to promote alignment on actions required to foster research culture change.
2. Recognise the importance of revisiting the reward and incentive framework to value a broader range of research competencies, activities, conduct, and outputs.
3. Improve the stability and sustainability of European research by recognising a broader range of roles.
4. Take a leadership role in convening relevant stakeholders that jointly commit to speeding up actionable changes to the research assessment system, and enable the voice of the research community in such changes.

Activities building on the workshop outcomes will be discussed and developed by Science Europe's Working Group on Research Culture, and members of the stakeholder community will be engaged to support the concerted action needed to drive change. These actions will also be framed within the four commitments above. Rapid action is needed, and Science Europe is committed to playing its part in change.

6 scieur.org/researchculturestatement



ANNEX 1

Individual Breakout Group Summaries

Breakout Group 1: Rewards and Incentives

The discussion started with an overview of the proposed high-level values framework. The group agreed that the value clusters were easy to agree on, but require further detail to truly affect change and delineate in what direction research culture should go. From this, the group focused on the diversity value, discussing the value and need of intersectoral mobility, as well as some ideas on how to incentivise this within an evaluation process.

Next, the group discussed how to incentivise the values proposed. The overall concept of evaluations and their effect on research culture was highlighted, with the group distinguishing between evaluations that are useful (such as those that are required to differentiate proposals for funding allocation) and those that are not useful (such as those that simply confirm that everything is running smoothly). In addition, differences between individual and group evaluation were brought up, with the observation that individual evaluation is highly valued, even if many group efforts went into the success/career track of the individual. Team/group evaluations need to be further developed and increased in importance to ensure that this is valued moving forward.

Key Messages for Science Europe

- There are too many evaluations. Organisations should consider whether or not the evaluation is necessary. If not needed, save time/energy and focus on quality of the 'true' evaluations. For example, 'evaluations' of continuing progress are not really true evaluations. Longer contracts/grant periods would reduce the number of evaluations.
- There should be minimum standards for feedback after evaluations, especially in the context of shared values – this helps researchers know what is valued, and how they should move forward with future proposals/evaluations.
- Incorporate neutral observers on panels – from outside disciplines or knowledge users. This would help with openness/transparency. Consultative advisors – when a panel knows they are being watched, the dynamics change (for example, the panel tries to be more open-minded).
- Intersectoral mobility needs to be better fostered, partly through incentivising a diversity of personalities/skills/roles in teams.
- A flaw in many current evaluations is the lack of team-based evaluation criteria or recognition, and an over-valuing of individualised evaluations – basing evaluation on individuals does not help collective development. Researchers being evaluated individually is not a problem, but the fostering of individualistic behaviour that it can promote, may be.

Breakout Group 2: Rewards and Incentives

All the participating members of the discussion group were clear that the topic of research culture is essential and needs to be further addressed by funders, institutions, ministries, and Science Europe within the ERA. The draft values framework presented was considered an initial starting point, however the participants agreed unanimously that the list of values was incomplete.

They discussed it thoroughly, and decided that several essential values were missing, such as sustainability, accountability, social responsibility, societal trust, academic freedom, and institutional autonomy (the latter two could be combined into one 'autonomy' value). The discussion group also agreed that some of the mentioned values were related, linked, or resulting from others, and thus proposed a different visual representation of the values that would be more circular. Other terms such as autonomy, sustainability, and diversity were also discussed in more detail.

According to the discussion group, to implement the values through reward and incentive structures, funders and institutions must align their present system to the proposed values and not necessarily amongst each other. Certain processes, such as the research assessment workflows must be evaluated by all parties. Ministries could promote this further by mandating this alignment within the ERA. Finally, the discussion group agreed that a coalition of dedicated parties, initiated by Science Europe, would represent a powerful driver. One main role model and driver would in this case represent a better solution than an 'everybody needs to shift at the same time' approach.

Key Messages for Science Europe

- Sustainability, accountability, social responsibility, societal trust, academic freedom, and institutional autonomy need to be more strongly incorporated into a values framework.
- Values need to be supported by direction and be provocative to guide changes of practice.
- Funders and institutions must align their present system to the proposed values, not necessarily align their systems among each other. Ministries could start mandating this alignment.
- One powerful driver of the cause would be better than the 'everybody at the same time' approach.

Breakout Group 3: Research Careers

The group began by discussing the curiosity-driven nature of research and its links to peer review. Quality in this sense, is determined by peers. It is not perfect, but it is still widely accepted as the best current system. High-level criteria such as excellence and quality are inherently hard to define, but this does not mean that researchers who conduct peer review cannot judge them. Guidance, however, is needed and this where transparency is provided, and trust is built.

Mobility is key in research and can add to diversity as well as to the attractiveness of the sector. Yet, mobility must be considered alongside equality, and should never be exclusionary. Mobility should be discussed in a broad sense, including international mobility but also inter-sectoral mobility. All aspects of mobility improve the skills of individuals and teams.

The group agreed that research precarity was a major factor in reducing the attractiveness of the research sector, especially for early-career researchers. The balance between stability and competition is a difficult one to resolve, but there was agreement that greater stability needs to be offered. Research is often a chosen career path because it is a passion, but this does not mean that irrational career pathways are acceptable.

A greater diversity of well-recognised roles is needed in research, and support for inter-sectoral mobility, both in and out of the research sector, is vital. A 'Team Science' approach would foster this diversity, but the system is still a long way off this.

Key Messages for Science Europe

- Intersectoral mobility must be considered as part of the training and guidance of early-career researchers and should be recognised in assessment processes. This mobility should be fostered in both directions – into academia and out of it.
- High-level guidance is needed in understanding terms such as 'quality' and 'excellence', but flexibility must be maintained to allow peer review to function correctly as well.
- There is a need to re-consider career gaps as a detrimental part of academic CVs. If valuable and relevant expertise is gained (in industry, for instance) then this time should not be considered as a 'career gap' – a different term is needed.
- 'Team Science' perspectives need to be better recognised across all forms of assessment, and skills and competencies such as teaching, mentorship, and management should be more reasonably balanced against pure research skills.

Breakout Group 4: Research Careers

The group began by introducing individual priorities for research culture. These introductions reflected the topic's broadness and the large number of focuses among the institutions. All participants agreed that research culture is rather difficult to define, and that it should respect and reflect the diversity within a complex ecosystem. Diversity is a key element in research, but mutually accepting and exchanging on good practices is highly appreciated. A good research culture should serve the competitiveness of the individual countries and of the ERA (and Europe).

The group then focused on important values, and all agreed that 'diversity' needs broader recognition (and should not be considered in terms of gender only). Concerning the support for job security and career advancement, there are various instruments in place at PhD and Postdoc level to incentivise an early (on-time) termination of the PhD and funding a 'transition phase'. All agreed that academia needs to be more open for various career tracks and some funders highlighted their instruments in place (such as for cross-sectorial mobility; mobility in general; non-scientific skills training; recognition of various roles within academia). An active exchange in and out of academia should be aimed for. Mobility in general was considered a very important value in research careers and should receive the required support and being valued. The discussion concluded on the topic on how to support and evaluate/incentivise/value co-operation and teamwork in research (for example by allowing for more co-applicants in a grant and rather than asking for a PI to the consortium to align on a corresponding applicant). However, co-applicants should be highlighted in real collaborations only. In view of the assessment, briefing of the panel members is key. Also, an assessment of the same proposal by different panels in charge of various specific points of the proposal should be considered.

All participants agreed that Science Europe Member Organisations should share their quantitative and qualitative assessment criteria for careers, for project funding, and for accrediting institutions and to try to align on similar approaches within Science Europe.

Key Messages for Science Europe

- Defining research culture in the European Research Area must respect and reflect the diversity of national contexts.
- A good research culture in Europe must serve the competitiveness of both national systems and the ERA as a whole.
- Diversity is a key element of research and needs broader recognition across all processes.
- For research careers, intersectoral mobility is a priority topic.
- Teamwork and collaboration need to be better incentivised

Breakout Group 5 (online): Rewards and Incentives

The group first focused on diversification, recognising the need to incentivise and reward wider contributions of the research endeavour. This must include all research team members, research support staff, publication support staff, and any other contributors. Rewards beyond the core research activity should be promoted to better include activities such as science communication, entrepreneurship, and/or engagement in policy making.

The group then discussed the movement away from publication-related indicators. What research funding and performing organisations are looking for as part of assessments (societal impact, and so on) must be very clear (transparency) and must be reflected in the assessment criteria used. CVs and application forms must also be tailored to reflect the criteria used. The group recognised that this can be very difficult, however. Creating a space for diversity comes with difficulties to define (the various types of) quality. In this way, definitions can become vague and therefore un-actionable, and thus cannot be turned into useful and transparent criteria. The discussions turned to narrative CVs, which are seen as a current good-practice example. It is important that these narratives do not become storytelling, but allow applicants to demonstrate that they are best placed to do the research described. It is important that narrative CVs allow for descriptions of relevant non-research activities.

On collaborating for change, the group agreed that all stakeholders must be involved in any changes to reward and incentive systems, otherwise the changes will not be accepted. It is also important to recognise that absolute consensus can never be reached. Piloting new processes and practices is key and incorporating applicant and reviewer feedback is necessary. The outcomes of pilot initiatives should be shared amongst research organisations for mutual learning.

Key Messages for Science Europe

- Create 'contributorship models' to broaden recognition.
- High-level targets of assessments should be clearly defined, but assessment criteria can be considered more flexibly to allow different situations, different profiles, porosity in research careers, and so on. Criteria must also consider specific disciplinary and/or career-stage needs.
- Narrative CVs could be renamed 'evidence-based CVs' to avoid that they promote storytelling.
- A space to exchange ideas and share pilot scheme outcomes is needed between research organisations.

Breakout Group 6 (online): Rewards and Incentives

The group began by discussing values that are most important when considering the re-appraisal and reform of reward and incentive systems. Transparency and integrity were proposed as central values that must be considered. Transparency as an important component of the relationship between science and society. Integrity both in terms of the organisational processes of research organisations and the ways in which research is conducted and disseminated.

Actions and practices that broaden the understanding of what good research is and what good researchers are, were discussed. Diversity needs to be promoted in terms of research profiles, outputs, and competencies. Narrative CVs were given as an example of process changes that foster diversity. Specific examples such as the elimination of letters of recommendation were given, and a discussion on reducing the number of publications attached to applications was held. Most importantly, the content of any included publications should be explained.

Career breaks were discussed. Often, time spent outside of academia is perceived as a failure. There needs to be better recognition of the diverse and valuable skills and experience gained both inside and outside of academia. Double-mentorship schemes were given as an example of fostering these skills with early-career researchers being given an insight into both life in academia and outside of it.

Supporting the autonomy of researchers is key, and the value of autonomy should be clear. This links to precarity because career uncertainty and temporary positions do not mix well with a focus on quality and taking time to do good research.

Key Messages for Science Europe

- Integrity should be considered by research organisations both in terms of the research they fund and perform, as well as in terms of the organisational processes they implemented. This then links to transparency as a value.
- Mentorship and training should be expanded to include non-academic career pathways, especially at early career levels.
- Revisit research integrity guidance at a European level – possibly a revision or update of the European Code on Research Integrity. Common guidelines, or some level of harmonisation, on how to approach plagiarism or improper research conduct would be beneficial.
- A matrix of the diverse skills and competencies that should be valued in research would be helpful in fostering broader reward and incentive systems, and would contribute to transparency.

Breakout Group 7 (online): Research Careers

The group discussed the current state of research careers. Specific attention was paid to issues regarding the sustainability of career paths within academia, as well as issues related to intersectoral mobility. The group identified and agreed on the main issues with research careers in academia, notably the lack of sustainable, long-term funding that is driving people out and the lack of diverse career paths for those that remain. It was agreed that more should be done to ensure academic research careers remain attractive, especially when compared to non-academic research careers.

The role of research funding and performing organisations was also discussed. While the great diversity between organisations working in different national contexts was highlighted, group members also agreed that improving the attractiveness of research careers is a shared responsibility. While funders have an important role to play within the research ecosystem, notably deciding on research assessment procedures and a balanced allocation of available funding, there are many actions best left to the autonomous judgement of research performers. It was suggested that benchmarking and exchange of good practices could provide a necessary, holistic view of the situation across Europe and the actions already being developed. The role of Science Europe in this regard was also highlighted.

Key Messages for Science Europe

- More should be done to improve the attractiveness of academic research careers.
- Improving academic research careers is a shared responsibility.
- Research funding organisations can act to shape the financial and assessment frameworks.
- Research performing organisations can take actions adapted to their specific context.
- Science Europe and its working groups are well-placed to develop a holistic view of the situation across Europe through benchmarking and exchange of good practices.

Breakout Group 8 (online): Research Careers

The discussion developed around the importance of having clear career paths. This lack of clarity was identified as the root of the main problems raised during the whole High Level Workshop. The precarity and fragmentation of research career is causing evident damage to the mental and physical health of researchers and undermines the quality of research. The transparency in how to pursue an academic career should be associated with more partnerships with non-academic organisations to create linkages facilitating the transition to other career perspectives. The analytical skills of researchers are highly valuable for different types of employers. Enterprises are already active on this, whereas policy makers seem having more difficulties in acknowledging the importance of having researchers in their organisations.

An open issue to be discussed refers to the notion of precarity and what good working conditions are. The need for data, especially on the gap between doctorates and professorship, was raised as crucial to take informed actions. The requirement of providing clear career perspectives to researchers was proposed as a first concrete action. In this perspective, university professors should be involved in broadening the research perspective, clarifying career paths and making clear that academia is not the only path for researchers.

Key Messages for Science Europe

- Clarity on working perspective for researchers is needed.
- The precarity of working conditions for researchers undermines the quality of research.
- It is essential to broaden the perspective of career perspectives beyond academic professorship to consider research infrastructure (for example museums and libraries), to the business sector and enterprises as well as public administration and other sectors.

- Data about researchers' careers are needed at all levels to allow for evidence-based policy changes.
- New practices of business mentoring for researchers and the use of narrative CVs may help in broadening these perspectives.



ANNEX 2

High Level Workshop Programme

WEDNESDAY 24 NOVEMBER 2021

Venue: *LuxExpo the Box, 10 Circuit de La Foire Internationale, 1347 Luxembourg City*

09.15–09.30 Welcome Address and Setting the Scene

- **Mr. Claude Meisch**, Minister for Higher Education and Research, Luxembourg
- **Dr. Marc Schiltz**, President of Science Europe

09.30–09.50 KEYNOTE SPEECH – Research Culture: Affecting how Research is Performed, Communicated, and Evaluated

- **Prof. Dr. Ulrike Felt**, University of Vienna

09.50–11.00 Panel discussion and Audience Q&A

Chair: **Prof. Melanie Welham**, UK Research and Innovation

- **Prof. Adrian Curaj**, The Executive Agency for Higher Education, Research, Development and Innovation Funding of Romania
- **Prof. Rosa Menéndez**, Spanish National Research Council
- **Dr. Diego Baptista**, Wellcome
- **Ms. Agnieszka Żyra MSc**, EURODOC
- **Prof. Dr. Ulrike Felt**, University of Vienna
- **Dr. Angelika Kalt**, Swiss National Science Foundation

In the first session, fundamental concepts of research culture will be introduced, highlighting the importance of fostering cultures that are diverse, inclusive, sustainable, and attractive across the entire research community. The values underlying research cultures will be examined, and their relationships to good research practice and research quality across the European Research Area (ERA) will be discussed.

11.00–11.30 *Coffee break*

11.30–12.00 High-level Address – Supporting a Sustainable and Effective Research Culture in the ERA

- **Mr. Jean-Eric Paquet**, Director-General for Research and Innovation, European Commission

Hosted by: **Dr. Marc Schiltz**, President of Science Europe

12.00–12.45 Panel Discussion on Research Careers & Incentives and Reward Structures

Chair: **Prof. Mari Sundli Tveit**, Research Council of Norway

- **Dr. Noémie Aubert Bonn**, University of Hasselt
- **Prof. Stephen Curry**, Chair of DORA
- **Dr. Ismael Rafols**, Leiden University
- **Prof. Sabine Leonelli**, University of Exeter

12.45–13.30 *Lunch*

13.30–15.00 Policies to support the evolution of research cultures in Europe**Part 1: Empowering early-career researchers to improve research culture**

Chair: **Ms. Martine Reicherts**, Chair of the FNR Board

- Short Presentations by **Dr. Véronique De Herde** (UC Louvain), **Dr. Mattias Björnmalm** (CESAER), **Prof. Dr. Toma Susi** (University of Vienna)
- Questions to speakers from ministerial representatives, and the general audience

Based upon a piece published this year (<http://doi.org/10.1629/uksg.548>), the session will focus on how early-career researchers can be empowered to improve research culture in the ERA.

Part 2: Ministerial Interventions

Chair: **Dr. Lidia Borrell-Damián**, Secretary General of Science Europe

This session will identify strategic priorities at national and European level for supporting an effective and sustainable research culture in the ERA.

- **Slovenia:** **Prof. Simona Kustec**, Minister of Education, Science and Sport
- **Portugal:** **Mr. Manuel Heitor**, Minister for Science, Technology and Higher Education
- **Luxembourg:** **Mr. Claude Meisch**, Minister for Higher Education and Research
- **Switzerland:** **Ms. Martina Hirayama**, State Secretary for Education, Research and Innovation
- **Slovakia:** **Mr. L'udovít Paulis**, State Secretary for Education, Science, Research and Sport
- **France:** **Dr. Claire Giry**, Director General of Research and Innovation
- **Estonia:** **Prof. Renno Veinthal**, Deputy Secretary General for Research and Development, Higher and Vocational Education
- **Belgium:** **Dr. Marc Vanholsbeeck**, Director at the Fédération Wallonie-Bruxelles
- **The Netherlands:** **Mr. Constantijn Heemskerk**, Deputy Director of Research and Science Policy at the Dutch Ministry of Education, Culture and Science

15.00–15.15 *Coffee break*

15.15–16.15 Breakout discussions

Taking forward the concepts and ideas discussed in the previous sessions, participants will be divided into groups to share and propose further ideas for embedding a research culture perspective into two priority themes: research careers, and rewards & incentives.

Theme 1: Research careers and shared values – ensuring that careers in the R&I ecosystem remain attractive for talented people

Discuss ideas and share existing good practices that recognise and support a broader diversity of roles and competencies that are needed as part of a sustainable research ecosystem in the ERA.

Theme 2: Incentives and rewards based on values, contributing to change and moving forward together
Generate ideas on how to concretely incentivise and reward research activities that align with the common values of research cultures in the ERA, and contribute to shared understandings of the broad nature of good research practice and research quality.

16.15–16.20 Conclusion: Brief Summary and Next Steps for Science Europe

16.20–17.20 Science Europe 10-year Anniversary Celebration: Reception
Host: **Dr. Marc Schiltz**, President of Science Europe
Anniversary Messages

19.30–22.00 Science Europe 10-year Anniversary Celebration: Seated Dinner
Host: **Dr. Marc Schiltz**, President of Science Europe
Speeches by former Science Europe presidents in attendance

Fonds National de la
Recherche

Maison du Savoir
2, avenue de l'Université
L-4365 Esch-sur-Alzette

Rue de la Science 14
1040 Brussels, Belgium

Tel. +32 2 226 0300
Email office@scienceeurope.org
Web www.scienceeurope.org

The ERA refers to a unified European Research Area in which researchers are free to move around, perform their research, and work together with researchers from other countries.

Creating the ERA requires the harmonisation of various rules, requirements, and regulations, and for closer international collaboration within the EU.

The High Level Workshop on ERA offers an annual platform for Science Europe Member Organisations, national ministries, and EU institutions to discuss progress, specific aspects, and future development of the ERA.

Tel. +352 26 19 25-1
Fax +352 26 19 25-35
Web www.fnr.lu

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