



The Slovenian Presidency Conference:
**“New European Research Area –
Towards a Responsible Knowledge-
Driven Society of the 3rd Millennium”**

26–27 October 2021

Conference summary report and recommendations



REPUBLIKA SLOVENIJA
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FOREWORD BY MINISTER OF EDUCATION, SCIENCE AND SPORT OF THE REPUBLIC OF SLOVENIA

I am honoured and proud that the Presidency Conference on the New ERA: “Towards a Responsible Knowledge Driven Society of the 3rd Millennium” was successfully organized under the Slovenian Presidency of the Council of the EU. The conference proceedings, outcomes and the new ERA Conference Recommendations, which are in front of you would not have been possible without the ERA stakeholders: the researchers, the research performers, the research funders, policy-makers and research enthusiast. A very big thank you to all of you!

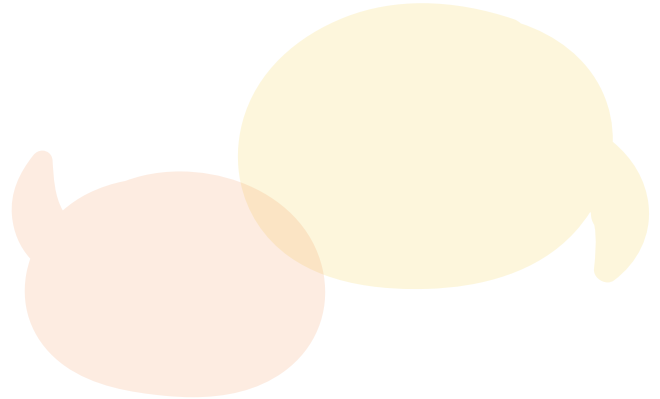


Your active participation at the conference and in preparing these recommendations clearly shows how important it is to meet and discuss the future of the European Research Area, which will importantly shape the Future of Europe.

The ambition to create a single, borderless market for research, innovation and technology across the EU has been re-energised in the last two years. We could say that at the policy-making level the story began when the current Presidency Trio decided to make ERA its top joint priority. The European Commission also recognised this need in its Communication on “A new ERA for Research and Innovation” in September 2020 and then the story continued with two important sets of Council Conclusions, focusing on the new ERA and on research careers during the German and Portuguese Presidencies.

But of course, the new ERA cannot and should not be built only by policy makers. This is why we decided to involve the stakeholders in the process as much as possible and this report is the result of our endeavour. The recommendations, which are the heart of this report, will be provided to policy makers to inform political discussions at the November Competitiveness Council.

By no means is the report the end of our joint efforts to renew and reinvigorate the ERA. On the



contrary, we see it as the beginning of this process. It is now time to translate our joint policy objectives into practice and begin implementing the decisions that were co-designed with your valuable inputs.

The current social developments, the global challenges that lay ahead and our overall political objectives of the twin digital and green transition, depend on a well-functioning, internationally open and internally thriving ERA.

I am therefore especially pleased that in co-writing this foreword, Commissioner Mariya Gabriel has reconfirmed the Commissions' commitment to enabling an ERA supported by the research and innovation stakeholders, an ERA which will enable and facilitate our transition into a responsible knowledge driven society of the 3rd millennium.

Prof Dr Simona Kustec

Minister of Education, Science
and Sport Republic of Slovenia

FOREWORD BY EUROPEAN COMMISSIONER FOR INNOVATION, RESEARCH, CULTURE, EDUCATION AND YOUTH



I would like to thank and congratulate the Slovenian Presidency for organising the ERA Conference 2021. It is an important milestone towards a renewed European Research Area.

My appreciation extends to the whole European scientific community, an inspiring example in what concerns the quality of the work, its openness, the willingness to collaborate and as guardian of our values. You were an example of resilience and commitment during hard times caused by the pandemics. During this period the European

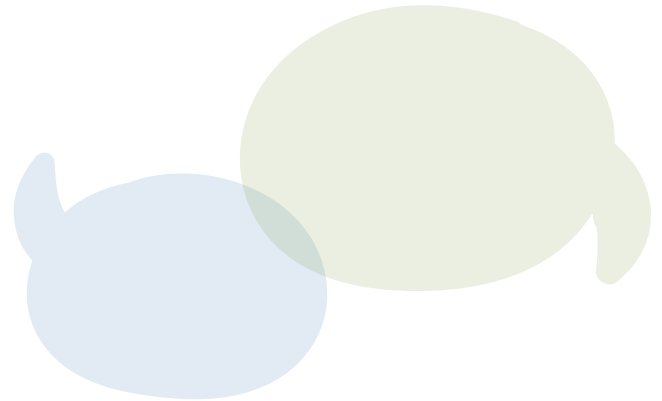
research community did not stand still. Your work made science a protagonist, coming to the foreground like never before. Your talent and capacity to respond when our society called for help represents the best of our European Union in action.

This report is a good example of such positive energy, used to define a set of actions for our collective reflection. It is an excellent base for further work, requiring our best attention in order to turn the ideas into concrete actions.

It is very important to seize the opportunity I mentioned in my intervention at the conference. It is not often that we have a temporal coincidence between an important policy setting exercise, like the one we have been working to set-up the “new ERA”, and the start of a cycle of significant investments through the European Multi Annual Financial Framework.

With Horizon Europe we have a unique and stable source of support to nurture your ideas and turn them into innovations for the benefit of our citizens.

It is also a time in which we are obliged to think about the medium to long term future of Europe, about our recovery after a global health crisis and the growing impact of climate change. Europe has defined ambitious policies to stimulate the transformation of our economies and our societies towards a more sustainable future.



We cannot be simple observers of the pervasiveness and sophistication of digital infrastructures, technologies and services and the great impact on each and every citizen. We have to be together to look for the responses to the big challenges laying ahead of us.

I am fully persuaded that these responses pass through Research and Innovation, including through better linking with education and culture to involve our society. My plea is directed to all of you – decision makers in Member States, the Stakeholders and Research Community, Universities, Research Organisations, Learned Societies, Industry. Please bring your full engagement and your capacities and share our collective responsibility.

We all should be proud to arrive here. At the stage where we adopt an unprecedented Pact for ERA with the purpose to align our strategies and our priorities more effectively. And if this step has no precedent, the record time to achieve it is also impressive, with the Trio of Presidencies delivering on their promise and the next Trio of Presidencies ready to develop further.

It is a pleasure for me to co-write this foreword with Minister Simona Kustec in representation of the EU Council of Ministers of Research who want, like me, a European Research Area supported by all stakeholders and able to create knowledge and apply it in the construction of our shared future of prosperity.

Mariya Gabriel

European Commissioner
Innovation, Research, Culture,
Education and Youth

ACKNOWLEDGEMENT FROM THE PROJECT LEAD

The New ERA Conference project and event was very refreshing as it was far beyond merely providing content for the sessions and drafting the Minister's speeches, but it also included a variety of amusing, exciting and curious tasks.

In preparing for the Conference, we, the project team, has thoroughly renewed our knowledge of the European Research Area (ERA) or gained it anew. We familiarised ourselves with all the history of the revival of the ERA every now and then, especially the new take on ERA based on the September 2020 Commission Communication on ERA and the 18-month Programme of the Council (1 July 2020 – 31 December 2021) by the current Council of the EU Trio Presidency (Germany–Portugal–Slovenia).

First and foremost, I have to thank our Director General, Tomaž Boh for giving us a carte blanche . He empowered us, providing us autonomy and not limiting our choices or decisions regarding the implementation of the Conference.

I am also grateful for the support of my colleagues from the Science Directorate, who gave their time and commitment to deliver the parallel breakout sessions on Day 2. My gratitude especially goes to Albin Kralj, Andreja Umek–Venturini, Ivan Skubic, Peter Sterle, Chloe Lianos, Mateja Struna and Tanja Vertelj, and additionally to our external advisors Jana Kolar and Radojka Verčko. And, as well thank you to Tit Neubauer for arranging a million tiny things invisible to the participants.

Furthermore, I want to thank all the inspirational speakers, moderators and rapporteurs who made this demanding Conference very efficient and successful. In particular, thank you to those of you who were active on the second day and have carried-out the breakout sessions smoothly and professionally (in no specific order): Alexander Grablowitz, Carlo Rizzuto, Anna Panagopoulou, Peter Križan, Karina Angelieva, Peter Wenzel–Constabel, Francisco Colomer, Robert McGreevy, Allen Weeks, Lidia Borrell–Damian, Matjaž Humar, Ronald de Bruin, Gregor Anderluh, Ana Butković, Luisa Henriques, Mojca Kotar, Jan Jona Javoršek, Tomaž Boh, Boštjan Zalar, Konstantinos Glinos, Cacilia Cabello Valdez, Marc Vanholsbeeck, Mojmir Mrak, Angelo Wille and Urša Jerše.

At the end, a big **THANK YOU** goes out to each and every one of you that contributed to this report by attending the Conference, be it on–line or on–site.

Although, there were numerous occasions when the frustration of event organisation got the better of us, we were at the end, and continue to be, proud to be a part of the new era for the new ERA!

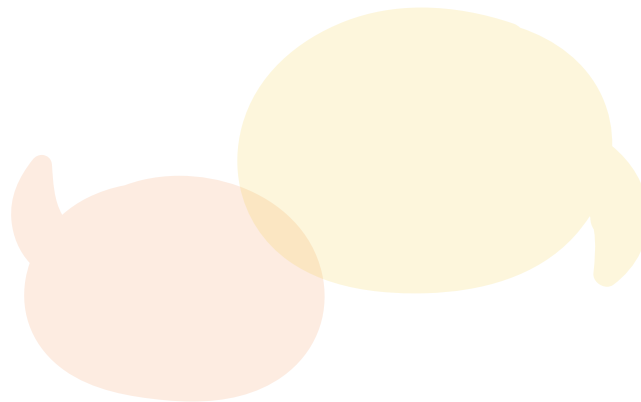
Petra Žagar, project team lead, on behalf of the new ERA Conference Presidency Team

INTRODUCTION

On 26 and 27 October 2021, the new European Research Area (ERA) Conference was organized by the Slovenian Presidency of the Council of the EU, as a virtual/physical (hybrid) event at the Brdo Congress Centre in Slovenia. The Conference was attended by stakeholders from various research and innovation fields, with an interest in the ERA. Attendees included, amongst others, policy officials, researchers, funders, research performing organisations and industry. The objective of the Conference was to engage stakeholders in the new ERA through information dissemination and gathering their recommendations to kick-start its implementation.¹ The output of the Conference is this report, summarising the recommendations and discussion. It includes the graphic recordings produced throughout the Conference, which innovatively captured each session.

The Conference was built around stakeholders' involvement with the aim to identify and voice existing needs, and formulate realistic recommendations that would facilitate implementation of the renewed ERA policy objectives. The Conference's goals were to improve understanding of the ERA, increase linkages between stakeholder communities and develop a common understanding of their needs, – making sure that the Pact for Research and Innovation in Europe (Pact for R&I) and the ERA Policy Agenda works for them, the stakeholders.

Stakeholder engagement is a key aspect of the new ERA paradigm, and was launched in 2019 with the slogan: "Mobilizing knowledge for a better future". This slogan was repurposed for the new ERA Conference and is reflected in its official title: "New ERA – Towards a responsible knowledge driven society of the 3rd Millennium."

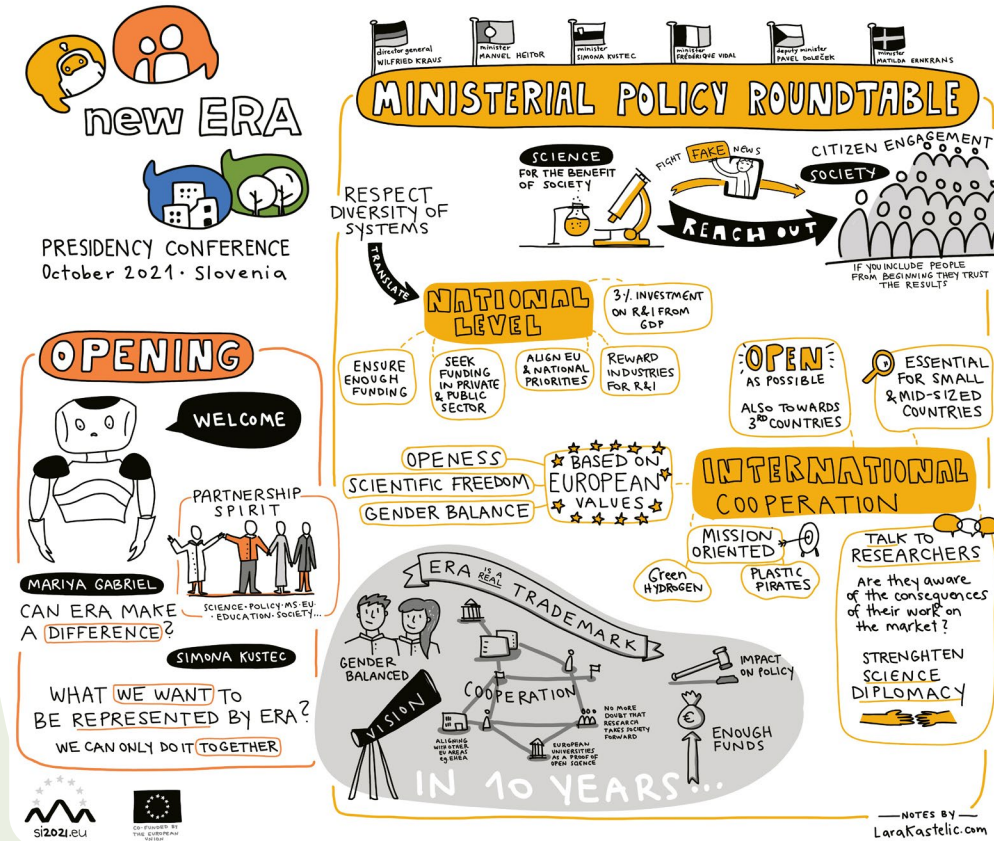


¹ The new ERA was set out in the September 2020 Commission Communication on ERA and the Council Conclusions produced during the 18-month Programme of the Council of the EU (1 July 2020 – 31 December 2021). The new ERA is now moving into implementation, through the Pact for Research and Innovation for Europe and the ERA Policy Agenda.

SUMMARY OF THE CONFERENCE

The opening of the Conference by Commissioner Gabriel and Minister Kustec was followed by a ministerial and senior officials' roundtable with the current and upcoming Presidency Trios on what Member States can do to make the ERA more effective and efficient. The incoming Presidency Trio underlined that they would ensure a continuation of efforts to actively involve stakeholders in the implementation process of the new, revitalized ERA. The ministerial session was moderated by Director General, Jean Eric Paquet from DG R&I of the European Commission.

The main points of the ministerial roundtable can be summarized in one sentence: it is science that provides solutions to grand societal challenges, therefore, investment in basic/fundamental research is essential, in fact, an increase of investment in all research fields is of the utmost importance.



The ministerial panel was followed by a thought-provoking speech by Professor Helga Nowotny, former European Research Council (ERC) president, who re-emphasized the importance of investing in basic/fundamental research and highlighted the crucial need to put research and researchers at the core of the new ERA.

The first day culminated in two stakeholder panels under the banner "Journey to the new ERA". The panels considered the realities of implementing the new ERA. The first panel scrutinised the Pact for R&I and the second considered the wider ERA governance.

new ERA

PRESIDENCY CONFERENCE
October 2021 · Slovenia

HELGA NOWOTNY

NEW ERA
AN IDEA WHOSE TIME HAS COME

UNCERTAINTY OF YOUNG RESEARCHERS CAREERS

HOW DO WE TRANSITION INTO A NEW SOCIETY?

BASIC RESEARCH IS IMPORTANT.

RESEARCH THAT PUSHES BOUNDARIES OF KNOWN IS **UNCERTAIN**

HOW TO GIVE CERTAINTY TO PUBLIC & POLITICIANS?

MANIFESTS THE USEFULNESS OF USELESS KNOWLEDGE

PACT FOR R&I · GLOBAL OUTREACH

LERU
Kurt Dekelelaere
TOP BOTTOM APPROACH
Eliminate MS that block free circulation

UNIVERSITY
RECOGNITION OF THE MOST IMPORTANT PLAYER

WE NEED MORE VOICES & SEATS

SYNCHRONIZE BODIES

EUREKA
Miguel Bello Mora
STRONG POLITICAL SUPPORT

RECOVERY & RESILIENCE FUNDS

PLAN BETWEEN COUNTRIES HOW TO USE

PUBLIC INNOVATION
LOCAL ORGANISATIONS AS ANCHORS OF INT'L PROJECTS

EARTEO
Jadran Lenarčič
SOMETHING IS PRIORITY TODAY... TOO LATE

BIG DIFFERENCES IN EUROPE: CULTURE, INNOVATION PRACTICES, FUNDING SCHEMES... DIVERSITY IS OPPORTUNITY.

LET'S GET RID OF OUR MENTAL CAGES!
WE NEED CRAZY IDEAS AND RADICAL COOPERATION.

MEP
Maria de Graça Carvalho
RECIPROCITY
ALIGN INTERESTS FOR INTERNATIONAL COOPERATION

SCIENCE TECHNOLOGY

NEW ERA GOVERNANCE

EC
Anna Panagopoulou
NEED FOR OPEN & INCLUSIVE GOVERNANCE
WE NEED COMMITMENT BEYOND POLITICAL MANDATE

ERA CONCEPT IS A CONTINUOUS CHALLENGE

NATIONAL RESEARCH & FUNDING IS FOUNDATION OF ERA
INCREASE PUBLIC INVESTMENTS

GG
Berthold Neizert
LEGAL FRAMEWORK NEEDS TO BE ADJUSTED FOR OPTIMAL CONDITIONS FOR EXCELLENT RESEARCH

EESC
Paul Rübig
GUIDANCE TO SPEND 450.000.000 € OF TAX-PAYERS MONEY TO GAIN WE WISH SOCIETY TO UPSKILL OUR DIGITAL SKILLS! OR FOR EMERGENCY RESPONSE?

PIPES TO TRANSPORT KNOWLEDGE

WE ARE MISSING TRUE COMMITMENT

EVA
Stephane Bergmans
WE WISH REPRESENTATION OF SECTORS IN ERA FORUM
OPPORTUNITY FOR STAKEHOLDERS TO WORK ON SPECIFIC PROJECTS

NOTES BY LaraKastelic.com

si2021.eu

CO-FUNDED BY THE EUROPEAN UNION

On the second day, the Conference was dedicated to parallel interactive breakout sessions, addressing some of the proposed ERA Actions from the new ERA Policy Agenda, namely from two Priority Areas: Deepening a truly functioning internal market for knowledge and Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA . Four themes within these two priority areas were considered, therefore four workshops were conducted:

- i. Breakout session 1: ERA for research infrastructures;
- ii. Breakout session 2: ERA for prospective research careers;
- iii. Breakout session 3: ERA for Open Science; and
- iv. Breakout session 4: ERA for economy.

The workshops were carried-out in various formats, ranging from classical hybrid (on-site and on-line in a single group) to parallel virtual and on-site sub-group roundtables. Altogether 41 recommendations were extracted and distilled through these discussions, which are presented on the following pages. The recommendations from each breakout session was reported back to the wider Conference in a plenary. No objections were raised against the recommendations presented. The recommendations vary from the visionary to the very concrete, but together create a firm basis for further discussions and implementation within each ERA Agenda Priority Area.



OCTOBER 2021 · SLOVENIA
new ERA PRESIDENCY CONFERENCE
STAKEHOLDERS WORK SHOP

RES. INFRASTR.

WHAT IS LONG-TERM FINANCIAL SUSTAINABILITY?

- THERE IS NO COHERENT UNDERSTANDING. AT THE MOMENT ALL IS BASED ON SHORT-TERM FUNDING.
- GOOD PRACTICE EXAMPLES OF NAT'L FUNDING NEEDED

PREDICTION OF OPERATIONAL COSTS IS BAD...

- NO FORECASTING METHODOLOGY
- LACK OF SHARING PRACTICES

CAREERS

new MODES OF MOBILITY

BALANCED BRAIN CIRCULATION

INDEPENDENCE
ABILITY TO BUILD OWN RESEARCH TEAM

SECURITY & STABILITY

MOBILITY HAS STRONG SPILL-OVER EFFECT ON ATTRACTING TALENTS TO EUROPE

ALIGN FUNDS & STRATEGIES **EU - NAT - INST**

IMPORTANT TO HAVE **DIVERSITY** OF **METRICS** AND NOT **THE** METRICS.

BALANCE

AUTONOMY OF RPOs

COMMONALITIES & SPECIFICS

PRINCIPLES, OBJECTIVES, DISCIPLINING, GARAGE PRICE

EOSC PARTNERSHIP

RPOs RFOs ASSESSMENT AGENCIES

OPEN SCIENCE

INTELLECTUAL PROPERTY

UNIFYING PATENTS

NETWORK BETWEEN RESEARCH FUNDING ORGANISATIONS

SECONDMENTS

RESEARCH ASSESSMENT REFORM

CAREER DRIVERS

TECH TRANSFER

EMPLOYMENT

PUBLICATION

MISSING INDUSTRY

PROVIDE FUNDING PROGRAMMES FOR INDUSTRY - ACADEMIA COOPERATION

IMPACT. SOCIETAL INFLUENCE

ECONOMY



NOTES BY
 larakastelic.com



Breakout session 1: ERA for Research Infrastructures

Research infrastructures (RIs) are key elements of the ERA. In 2000, two years after the ERA’s conception, the European Strategy Forum on Research Infrastructures (ESFRI) was established.

ESFRI was mandated by the EU Council to support a coherent and strategy-led approach to policy-making on RIs in Europe and to facilitate multilateral initiatives, leading to the better use and development of RIs at the EU and international levels.

Since then, a thriving system of over 50 European RIs has been established, including 23 European Research Infrastructure Consortia (ERICs), mobilising approximately €20 billion across the EU. The system is complemented by pre-existing international and by numerous national RIs, many of which are also open to transnational users. There is a great variety of RIs, from large single-sited facilities to distributed ones, from analytical facilities to e-infrastructures and RIs offering data access only. Together these RIs are key elements of the research and innovation ecosystem, supporting the advancement

of science, addressing various societal challenges and contributing to economic and technological progress.

With such an elaborated landscape of RIs, their sustainability is a recurrent issue, and is high on policy-makers’, funders’ and RIs’ agendas. With this in mind, the session ERA for RIs was focused on the availability of sufficient and diverse funding (re)sources and their efficient use.²

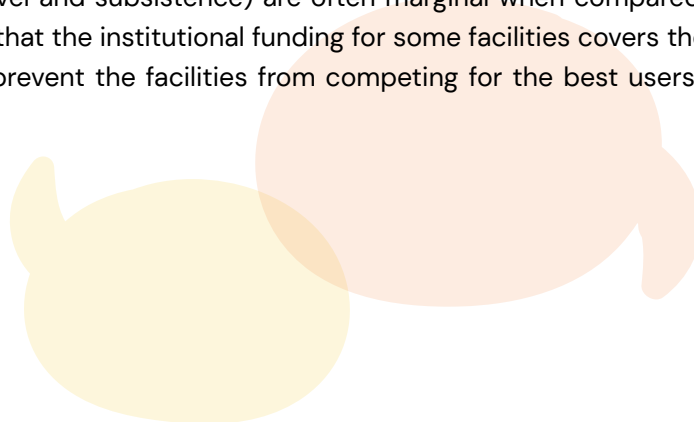


² <https://era-si.eu/programme/day2/topic1>

Discussion report

The participants first addressed the challenges RIs face. The following are some of the examples provided:

- ✓ One-time capital investment is not sufficient. Instead, a credible investment and operations financing plan should realistically address the full lifecycle of a RI, including continuous development and upgrades, operations and decommissioning.
- ✓ Often, there is insufficient emphasis on a pool of researchers needed to provide high-quality services. Provision of these services often requires highly trained and experienced researchers. This type of career needs to be attractive, which necessitates stable and secure positions and the possibility to fund and allocate time to their own in-house research.
- ✓ RIs are expected to operate over decades and be continuously ready to respond to external requirements and challenges, yet they are often funded with short-term project funding, which is not sustainable.
- ✓ The introduction of new policy priorities in addition to the operations of RIs require an increase in funding. Such examples are delivery of European Open Science Cloud (EOSC), carbon neutrality, cooperation with industry, mission-oriented research, and similar.
- ✓ The trans-national access funding scheme (TNA) of past framework programmes, which enabled access to national facilities in particular domains, such as electron microscopy, ion-beams, synchrotrons, and similar, is no longer available for such purposes. Consequently, RIs within the TNA may have to revert back to being national resources unless new funding for the TNA purpose becomes available, either on the EU or national/regional level.
- ✓ Even when available, funding of user-access differs across the same type of facilities. Although costs of (e.g. travel and subsistence) are often marginal when compared to access provision, the fact that the institutional funding for some facilities covers these costs and not for others prevent the facilities from competing for the best users on equal footing.



- ✓ For many RIs, particularly the larger single-sited ones, the ratio between fixed costs (to be fully ready to operate) and marginal costs (proportional to the amount of operation) is high, at the order of 80/20. This means that small fluctuations in funding can have a disproportionate effect on the amount and efficiency of operation. As a result, significant capital funding can end up being ineffectively exploited.
- ✓ National funding decisions are not always made in a coherent manner, i.e. being aware of and considering the decisions of other national agencies. This can lead to significant investment being used sub-optimally. Coordination at a European scale is needed with regard to the operation of all national RIs of European interest, together with European RIs.
- ✓ ERICs are not able to apply for national funding,³ which puts them at a specific disadvantage relative to national RIs and can be even more complicated if the ERIC is multi-sited with different rules for different sites.
- ✓ The ESFRI roadmap pools resources towards shared objectives and has been arguably one of the highlights of the ERA. Its 2021 edition includes new RIs worth €4.1 billion of planned investment. Unless national budgets for RIs are increased, this will endanger the sustainability of existing pan-European and national RIs.
- ✓ Some analytical facilities face issues that can only be resolved through joint technology development. Such is the case with electron microscopy, which lacks standardisation of hardware interfaces and software, resulting in difficulties in achieving interoperability between experiments and in adapting instruments and workflows to perform specialised experiments.

After discussing the challenges, the discussion focused on the recommendations aimed at increasing the efficiency and quality of the funding provided to the RIs.



³ https://www.eric-forum.eu/wp-content/uploads/2020/09/ERIC-Forum_Policy-Brief.pdf

RECOMMENDATIONS

- 1 ESFRI is called to analyse funding approaches across different countries in view of collecting good practice examples and stimulating improved national and European funding for RIs. Such an approach should include the mix of various funds, be it regional, national or European, in synergy. Good practices related to the usage of Cohesion policy and the Recovery and Resilience Facility are particularly welcome, as are the approaches to life cycle planning and budgeting in relation to various RIs.
- 2 In order to have access to multiple funding sources, RIs need to demonstrate a broad impact, thus increasing the overall recognition of the importance of RIs. This will enable them to be prioritised by more than just ministries responsible for research, but supported by various ministries, e.g. of Economy, Innovation, Environment and Finance.
- 3 RIs should contribute to the ERA through their contribution to all four pillars of Horizon Europe. Currently, some calls in cluster 2 of Horizon Europe specifically refer to the relevant contributions of RIs, but these are exceptions. RIs, in particular, and their umbrella organisations, should consider increasing their visibility and relevance within the ERA.
- 4 RIs can significantly contribute to European partnerships and Horizon Europe Missions. Again, umbrella organisations of RIs, such as the European Intergovernmental Research Organisation (EIRO) forum, ERIC Forum, or the Analytical Research Infrastructures in Europe (ARIEs), are invited to connect to the specific communities gathering around the Missions or partnerships. The support of the Commission) and responsible national ministries in this endeavour would be welcome.
- 5 In the case of RIs, joining forces across Europe in, e.g. research and development and developing joint services, is of particular relevance. National funders could consider funding such projects through the Lead agency approach.

6 | The EC contribution is less than 10% of national expenditure on pan-European RIs, yet it is an important catalyst of collaboration and development.

7 | The Commission has supported TNA funding over decades, and it continues to be very important. With the recent change in the approach of the EC in TNA funding, several networks of facilities have remained without such support. To overcome the risk of losing the TNA under changed conditions, it is proposed that the national funders consider providing the resources to the affected RIs based on reciprocity and considering the added value TNA brings to the facility and the country. This is evident from the emergence of several pan-European RIs in recent years, many of which are organised as ERICs, fully supported by Member States (MSs), and which do not rely on the EC's supported TNA for their operation. The model should be exploited further, and other alternative access funding models should be explored in close collaboration between the EC, MSs and the RIs.

8 | Impact assessment is key for the long-term sustainability of RIs, and several have proceeded with their impact assessments over the past years. ESFRI or the EC should review these studies in order to collect best practice approaches and evidence on the benefits of RIs to society, environmental impact, both positive and negative, as well as the impacts on the EU, national/regional level, if available.

10 | The Commission is asked to update the Charter for Access to Research Infrastructures with the involvement of the RIs and relevant research stakeholders (e.g. universities, national research organisations).

9 | The ESFRI Roadmap 2021 foresees the establishment of 11 new RIs, supported by MSs, with investment of €4.1 billion. This successful development, arguably one of the highlights of the ERA, needs to be accompanied by increased national funding for the RIs. Otherwise, the sustainability of existing pan-European and national RIs will be endangered. To enable monitoring of these investments, EC should propose an indicator for measuring the expenditure of the MSs in the international and pan-European RIs, such as ESFRI and ERICs.

From the researchers' perspective, appropriate working conditions and job security are the most important elements in deepening the ERA. To attract, develop and retain researcher talents, measures and efforts are needed that will improve the working conditions and employment opportunities, thus enabling the researchers' reintegration into their research system of origin. These activities should be supported by EU actions, complemented by

efforts and measures from the Member States and Associated Countries, through targeted support from research institutions and with significant engagement of other relevant research stakeholders from both the public and private sectors. Stronger, more structured links are required between researchers and their respective institutional backgrounds.

Discussion report

In line with the long-term objective of creating favourable conditions for balanced brain circulation within the ERA, participants of this session discussed different types of mobility; special attention was given to virtual mobility as a new emerging phenomenon. [Informed by the background paper](#), the participants also emphasized high-quality working conditions as a catalyst for creating possibilities for researchers' reintegration into their matrix research environments and systems.

The topic of prospective scientific careers has been considered throughout the Presidency Trio of Germany, Portugal and Slovenia and was also highlighted during the Croatian Presidency. The two moderators of the session (representatives of Portugal and Croatia) summarized the goals of the session as presented in the background paper: formal grounds for setting the new ERA as presented in the [December 2020 Council Conclusions on Deepening the ERA](#), and drew attention to the [Zagreb Call for Action](#) as a possible toolbox for implementation.

The three introductory inspirational speakers, who were specifically chosen to present three different points of view on the topic (i.e. individual researcher, national research organization and international research cooperative programme/organization) provided an illustration of the state of play and identified major recent developments.

Matjaž Humer, researcher at the Jožef Stefan Institute and assistant professor at the University of Ljubljana and an ERC Grantee, presented the case of an individual researcher. Through his personal experience, he pointed out the importance of personal persistence in applying for national and complementary international/EU funding and highlighted the frequent inadequacy of national remuneration (i.e. salaries) for early stage researchers. In his experience, adequate national schemes are invaluable in gaining independent research experiences and effective

training plays a key role as well. He also stressed that institutional support is paramount when obtaining experiences in competitive EU or international project calls, such as ERC calls. The importance of (building) adequate independent networks was also identified as an important element of an independent research career.

Ronald de Bruin, Director of the COST Association, continued with his leading thought that science was not as much about technology but mainly about people and networks. He presented cases where COST supported researchers in view of promoting brain circulation, boosting their careers, increasing their scientific productivity and strengthening their careers for a better ERA. The importance of the research environment, of networking possibilities and of appropriate use of physical and virtual mobility became evident through his presentation. He also reported that COST established the first virtual mobility pilot actions, as an adaptation to mobility restrictions experienced in the previous years (as a response to the COVID-19 pandemic).

Gregor Anderluh, Director of the National Institute of Chemistry in Ljubljana, focused on the importance of the circulation of talents and of the necessary support from research institutions in establishing stable research conditions and research independence. Rigid institutional rules and regulations should undergo changes, especially in the area of financing, in order to allow for stability in contracting funding and appropriate working conditions at the level of research institutions. From his point of view, institutional autonomy, which enables institutional human resource strategies and stable/predictable support to young talents, is a prerequisite for prospective scientific careers. In the session's general discussion on building better collaborative processes in the ERA, he stressed the need of assuring supporting mechanisms for mobilization of young talents and securing fixed national positions for them, once they complete their EU and international research training.

In summary of the session, a number of clear objectives that need to be pursued within the new ERA became evident:

- ✓ the research environment and opportunities for individual researchers need to be regularly considered in view of amelioration;
- ✓ the role of research institutions and of other stakeholders in creating capacities in the research process should be strengthened in the new ERA, with particular focus on young researchers establishing their independent paths;
- ✓ EU, national and institutional strategies should be aligned to ensure stability and predictability, which are key pull-factors for deciding on a research career;
- ✓ enable and allow different career paths, with extensive intersectoral mobility and develop different metrics to appropriately take into account these differences in the evaluation process.

RECOMMENDATIONS

- 1 A new approach to the measures for enhancing researchers' mobility, physical and virtual, taking into account the barriers that cause unbalanced mobility patterns in Europe, should be adopted, striving to achieve complementarity at national and EU levels.
- 2 Place and role of virtual mobility in career paths, along with the accelerated use of digital tools and intersectoral mobility, should be recognized as a tool for increasingly balanced and more inclusive brain circulation.
- 3 The fact that international mobility/brain circulation has strong effects on attracting talents to Europe should be taken into account when designing new measures for mobility.
- 4 Identification of cross-cutting issues in European and national strategies and regulations that support mobility and their complementarity is needed to make mobility and competition more fair and make the new ERA a reality.
- 5 Synergies with Structural Funds and other financial resources, which requires change in relevant financial regulations, including taking into consideration "Seals of excellence", should be achieved.
- 6 The importance of networking and collaboration for the development of research careers and promoting emergence of new topics should be recognized. Sufficient tools and bottom-up networking possibilities should be at the disposal of the research community.
- 7 Appropriate employment and working conditions (e.g. security, stability and predictability) for researcher positions, including social benefits, are necessary for increasing the possibilities for reintegration (of researchers to origin countries); and calls for designing specific conditions for researchers in view of their labour market position.
- 8 Lack of possibilities for starting independent research career at an early stage should be addressed at different levels, including by introducing necessary new instruments and measures.
- 9 Intense involvement of stakeholders in assisting the research career building process, namely through piloting, to complement the efforts of national governments and of the European Commission is necessary.

(e.g. research integrity) and practices (such as Open Science practices or team science). Furthermore, RA should take into account the type of research concerned and the stage of the research career, with specific attention to the – often precarious – professional situation of early stage researchers, whose actual achievements should be assessed on the basis of their own merits without any influence by marks of prestige (such as the Impact Factor of a journal). Indeed, such marks of prestige often depend on highly circumstantial factors and also accumulate slowly in time, which negatively impacts early-stage researchers as well as new research infrastructures.

Policy makers should better communicate and raise awareness about the added value in terms of research and innovation that is linked to the reforms of RA and the adoption of Open Science practices. They should avoid jargon and engage in conversation with researchers in their own language, notably but not exclusively with those who are at an early stage of their career.

RPOs and research funding organizations (RFOs) representative associations generally agree that the time has come to engage collectively in RA reforms. Many RPOs want, and have the capacity, to reform RA; others see the need but do not have the capacity, autonomy or resolve to do it. Public authorities should therefore provide support and an adequate framework for change in order to mitigate the risk of two-speed RA reform in Europe.

A new partnership between RPOs, RFOs and national assessment agencies, in the framework of the European agreement and with the adequate support and encouragement of national/regional governments, is needed notably to overcome the geographical and institutional divides that may prevent (smaller) countries and institutions from reforming RA. Such a partnership will also be a response to the perceived risk that if only a few countries and/or institutions would reform their RA they would be penalized at an international scale for doing so e.g. by no longer using the Impact Factor of journals for assessing individuals.

An adequate balance has to be found between the respect for the autonomy of RPOs and the need to provide a framework for inter-institutional discussion and alignment. The current situation of RA appears to be fragmented around Europe, it is therefore necessary to align national and regional levels of governance with respect to joint objectives, principles and actions.

Furthermore, if objectives, principles and actions have to be commonly agreed, specificities should also be taken into account, notably relating to discipline, career stage, national contexts and approaches.

RECOMMENDATIONS – RESEARCH ASSESSMENT (RA)

- 1 Make the improvement of the research assessment system a top priority at national and regional level (e.g. policy priority in Open Science policies etc.)
- 2 Encourage RPOs, RFOs and national assessment agencies to join the European initiative/agreement and provide appropriate support (e.g. guiding funding agencies to reform evaluation criteria; providing financial support; using a standing group of civil servants and experts in charge of Open Science to exchange experiences at EU level; putting in place the appropriate regulatory framework to enable for changes to be implemented etc.)
- 3 A stakeholder-owned initiative is the right approach to safeguard the autonomy of institutions and to enable a culture change. It should be based on commonly agreed objectives, principles and actions, but also include room for experimentation and mutual learning, to allow for differences across disciplines, career stages and countries.

European Open Science Cloud (EOSC)

Discussion for the EOSC part of the session revolved around the role of EOSC stakeholders and EOSC federated infrastructures in helping set up and implement incentives and reward mechanisms for sharing and re-using research outputs and tools including data, codes and workflows. Another area touched upon by the participants was about the way the new ERA Policy Agenda and the EOSC could contribute to institutional capacity-building and skills development in Open Science.

Research infrastructures such as the EOSC provide a good ground for a new 'partnership' between RPOs, RFOs and public authorities at European, national and regional level. Such partnerships should support reforming RA processes and foster the excellence of European research and innovation. With this perspective, EOSC should not be considered 'only' as a Web of research data and services, but also as an important foundation in the construction of an innovative research ecosystem for researchers and society; it has an impact at each stage of the research cycle, from research design to open education, and also enables comprehensive RA.

Research communities should not only have control and ownership of the data underpinning RA, but also be directly involved in the design of the RA procedures. Furthermore, transparency implies that it should be possible for researchers and stakeholders to access the data underpinning RA and check how metrics are calculated.

Metrics are to be considered with the broader perspective of research design, production, dissemination and evaluation. They constitute a complementary tool to qualitative evaluation for rewarding and providing incentives but should not guide in a narrow and restrictive way the design and the conduct of the research activities.

A responsible usage of carefully selected metrics that relate to the diversity of the valuable behaviours needs to be assessed, along with qualitative measures that would support a more comprehensive evaluation of research processes, results/outputs and outcomes. In particular, practices that are essential to the new ERA, such as data curation and data stewardship, should be supported when designing metrics. In any case, it should be avoided that a single indicator becomes a target, constraining the diversity of the research and innovation ecosystem (as it is currently too often the case with the Journal Impact Factor).

Researchers including the ones at an early stage of their career should be properly educated to use EOSC in an efficient way.

Issues concerning the impact of the European legislative framework on data access and Open Science practices should be studied cautiously.

It is the responsibility of national and regional governments to assure that researchers are properly trained and skilled in the different dimensions of Open Science, including citizen science, and to include such training in academic curricula. Currently, there is a significant gap between the uptake of Open Access – which is satisfactory – and the much lower uptake of the other pillars of Open Science.

Concerning Open Data, researchers should be trained in the production and curation of quality data. Furthermore, data stewardship must be assured on a sustainable basis, beyond the duration of a project.



RECOMMENDATIONS – EUROPEAN OPEN SCIENCE CLOUD (EOSC)

- 1 Support the development of EOSC–federated services and tools to allow the gathering and monitoring of data on the usage, quality and impact of research outputs, infrastructures and on Open Science practices.
- 2 Ensure independence, autonomy and transparency of the data underpinning RA. This could be achieved by ensuring control and ownership by the research community over critical infrastructures and tools, by making the metrics for monitoring and evaluation transparent and reproducible, and by supporting data curation and annotation processes that are led and based on community standards.
- 3 Support all European stakeholders involved in RA activities to move towards qualitative assessment, supported by responsible use of quantitative metrics that are fully integrated into their assessment processes, while respecting institutional autonomy. Acknowledge that the provision by EOSC of the underpinning data to feed and contribute to responsible metrics will take time to develop but is essential to ensure the autonomy and transparency of the European research system.
- 4 Support the provision of high–quality training on open and data–intensive science and encompass all aspects of research integrity. Promote new curricula and profiles related to Open Science such as data stewards.
- 5 Ensure alignment and coordination on core components of skills development and training through e.g. the establishment of national competence centres for data stewardship.

Breakout session 4: ERA for Economy

The breakout session explored the design of ERA Actions that have an economic focus, providing recommendations of how best to design, implement and foster adoption of actions related to competitiveness, strengthening excellence and maximizing the value of knowledge creation, validation and uptake of research knowledge into practical applications.

Particular focus is required in the consideration of how to boost fast and smooth market uptake of research and innovation (R&I) results to enable Europe’s competitive leadership in technology. More information can be found in the session’s [background paper](#). Two areas related to economy and competitiveness were considered through the lens of the upcoming ERA Policy Agenda and Actions:

1. [Common Industrial Technology Roadmaps](#) (TRs): How to overcome the mismatches at EU, national and regional level. Relevant to proposed Priority Area “Taking up together the challenges posed by the twin green and digital transition, and increasing society’s participation in the ERA” and Action “Accelerate the green/digital transition of Europe’s key industrial ecosystems”.
2. [Knowledge Valorisation](#) (KV): How to shape industry-academia collaboration, and renew the Guiding

Principles and related Code of Practices. Relevant to proposed Priority Area “Deepening a truly functioning internal market for knowledge” and Action “Upgrade EU guidance for a better knowledge valorisation”.



Discussion report

The complexity of the current policy landscape was identified as a barrier across stakeholder groups (industry, academia/researchers, policy and funders). Familiarity with the current support instruments, Guidelines and Codes was low, even within policy representation, with the dense technical language viewed as difficult to navigate. Limited capacity within each stakeholder group further limits the understanding of and access to the various policy tools, as well as the willingness to work horizontally on knowledge transfer. The group welcomed tools such as TRs to act as single sources of information (e.g. containing all evidence, policy levers, regulations, interested industry and academic parties).

Whilst the TRs and KV Codes and Principles may go some way to boosting KV and contributing to the economy, a key issue raised was regarding researchers' interest in engaging in industrial collaboration. Whilst up-skilling researchers to embed an entrepreneurial mind-set will be beneficial, the lack of engagement is largely due to the fact that career progression and research assessment is tied to research publication. Researchers are not incentivised to patent research, and career progression can be hindered if they pause academia and enter industry for a time period (e.g. on secondment). Additionally, KV is not integrated in the Research Performing Organisations (RPOs) mission in the same way as research, and is many times considered as the task of Knowledge Transfer Offices. Therefore many other new ERA policy areas and actions were identified as key opportunities for embedding the ERA as a key contributor to a resilient and strong economy, such as research infrastructures relationship with technology infrastructures to de-silo the research continuum, research assessment reform to value impact, Open Science incentives to enable smart use of IP and research careers and education to foster an entrepreneurial spirit within researchers.

Furthermore, Small-Medium Enterprises (SMEs) are part of the fragmented ecosystem, with different barriers to access different markets, which should be more connected. SMEs have limited capacity for the uptake and management of new technologies and research, and thus invest less in R&D. Data was highlighted as a way to foster SME interest, however Open Science, including industry and innovation data, should be easily searchable for small businesses with limited knowledge of the data tools and platforms. To further assist SMEs boost innovation practices, the group discussed the potential of capacity building and employee training programs, exchange programs with RPOs and universities, as well as the role of EU funding to foster tight and long-term industry-academia collaboration.

A lack of industry representation within the room highlighted the issue of siloed sectoral working, and the challenge of engaging all relevant stakeholders required for successful KV.

The group discussed the limited support provided for long-term private/public cooperation and the opportunity of providing dedicated funding for partnerships beyond time-bound projects and activities such as secondments. Dedicated funding could also contribute to overcoming the policy and funding 'valley of death' for technologies at the mid Technology Readiness Levels (TRLs), as the 'valley' was attributed partially to poor industry interest due to a lack of clear market drivers and therefore perceived risk. The valley of death could also be bridged with funding for and research interest in follow-up of projects at higher TRLs instead of reliance on further development being 'self-sufficient', including making results 'sellable'. Building upon achievements of European partnerships and synergies between different instruments were perceived as important, particularly in the context of scaling up different regional schemes. Academia-industry cooperation should be strengthened and include more initiative from industry-side to connect to research. A culture for such cooperation needs to be nurtured, as it is not successful when prescribed.

Of particular interest to the group was the need for an ecosystem approach, harnessing ERA Actions such as ERA Hubs to amplify regional excellence and provide mutual learning opportunities, as well as complementary EU policies such as the [European Industrial Strategy](#). The current definition of KV is considered too narrow and hinders the ecosystem approach possibilities – it should consider knowledge transfer activities beyond Intellectual Property (IP) and commercialisation such as citizen engagement, living labs, co-creation, challenge-based research and education, etc. We should move from linear one-way transfer towards two-way industry-academia interaction that enhances the circulation of knowledge and co-creation of innovation. In the plenary, an important point was raised: KV should move from strictly focusing on technological innovation and benefit for economy towards social innovation and most importantly combining both for the benefit of society.

The group discussed the opportunity presented by synergistic funding (such as the Recovery and Resilience Facility and cohesion policies), and how it should be leveraged to deliver against the TRs. Whilst there was support for national approaches to be informed by TRs, the group expressed that TRs must be developed and implemented with Member State representatives through a working group, to ensure feasibility. Communication between different actors is crucial for greater impact. Smart Specialisation Strategies were also highlighted within this context.

RECOMMENDATIONS

- 1 Make the improvement of the research assessment system a top priority at national and regional level (e.g. policy priority 1. We must take an ecosystem approach, harnessing regional excellence through ERA Hubs and leveraging complementary funding and policies, such as the European Industrial Strategy. TRs should state the relevant parties, policies and regulations to connect the fragmented landscape. Priority in Open Science policies etc.)
- 2 Synergies between funding should be leveraged at regional, national and EU level, and dedicated seamless funding for different TRL stages should be considered (long-term goal is to provide support "from cradle to grave" support).
- 3 Fundamental knowledge interdisciplinarity must be strengthened and embedded in TRs. Social sciences must also be considered within TR. Both must be valued higher by Industry.
- 4 EU level working group should be set up with Member State representatives for the design of TRs and their subsequent implementation, ensuring a coordinated effort that harnesses national strengths and is delivered with Smart Specialisation in mind.
- 5 Marketing of research needs to be improved to increase visibility and engagement with citizens and SMEs, following industry campaigns as an example of best practice. This could be done at EU level, in support of both KV and TRs, and could be a Guiding Principle for KV.
- 6 The updated KV Recommendations should cover "new" forms of industry-academia collaboration and go beyond collaborative and contract research, by providing guidelines for IP management and good practices.
- 7 The Unitary Patent system should be launched soon, to help overcome current national discrepancies and large financial burden that deters researchers and RPOs/Research Funding Organisations from pursuing patents.

- 8 | Broaden the definition of KV to include citizen engagement and societal impact, not just commercialisation and IP. Citizen engagement and societal impact must also be embedded in TRs.
- 9 | A community between research funding and performing organisations at national and EU level would facilitate mainstreaming of KV. EU level support could standardise practices.
- 10 | Design schemes to create local culture of academia–industry cooperation and spur interest in industry to engage with researchers at lower TRLs and researchers with industry at later TRLs.
- 11 | Provide dedicated funding programs for industry–academia long–term partnerships. This funding could be targeted at improving industry outreach to academics, and for industry/academia secondment exchange programmes. Effectiveness of these programs should be evaluated over longer period of time.
- 12 | Entrepreneurial upskilling of researchers should be considered within the Careers ERA priority areas and actions, with research breaks for industrial secondments rewarded in career progression.
- 13 | Research Assessment reform must consider the value of commercialisation, patenting and knowledge transfer activities. Incentives must be introduced for researchers to ‘patent first’.
- 14 | Provide support to scale–ups through an EU Academy and support network (similar to EIT KICs for start–ups), to overcome the ‘valley of death’ and help up–skill them to apply to funding opportunities.

CONCLUDING REMARKS

This report and its constituent recommendations present a comprehensive insight into the discussions and the outcome of the New European Research Area – Towards a Responsible Knowledge-Driven Society of the 3rd Millennium Conference. The report will be published on the Slovenian Presidency of the Council of the EU website, and the Conference webpage.

The report will inform the ministers' lunch debate at the Competitiveness Council on 26 November 2021, where it will be included as an Annex to a discussion paper prepared by the Slovenian Presidency of the Council of the EU. The discussion paper itself summarizes the content of this report and presents three sets of recommendation per breakout session topic that were chosen in close cooperation between the Slovenian Presidency and the breakout session rapporteurs and moderators.

Furthermore, the report will be presented the European Commission's policy expert group, the ERA Forum, which considers the implementation of the new ERA, to aid their implementation of the Pact for R&I and the further development of the ERA Policy Agenda Actions.

In conclusion, we thank all of you who have been and remain an indispensable part of the European Research Area. It is your daily work, your valuable experience, your bold ideas and your innovative solutions that make the ERA possible! Moreover, it is you who can, and will, co-design and bring about a new era of the ERA.





Ministry of Education, Science and Sport

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