



INT/924
A new ERA for R&I

OPINION

European Economic and Social Committee

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions
A new ERA for Research and Innovation
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1. Conclusions and recommendations

- 1.1 The European Economic and Social Committee (EESC) welcomes the new vision for, and the renewal of, the ERA agenda. The new ERA is not just "more of the same", but is a real "New Deal" for the EU's Research, Technology and Innovation (RTI).
- 1.2 The EESC strongly welcomes the focus on rapidly translating R&I results into sustainable business, as outlined in the document. Safeguarding a just transition process is one of the most important elements to ensure that R&I supports the economy and employment in the EU.
- 1.3 The EESC strongly advocates the need for new governance in the research area in order to remove administrative and regulatory barriers to innovation.
- 1.4 The EESC welcomes the fact that the new ERA document is overall in line with and supports the UN Sustainable Development Goals (SDG). While fostering the transition towards a more resilient European economy, an inclusive recovery leaving no European behind is essential in the process of moving towards a sustainable European economy¹.
- 1.5 The EESC would like to point out that an intelligent blending of R&D instruments at all levels (regional, national, global level, EU level) is important. R&D and innovation should be promoted by making use of the large EU structural funds, too, as well as through direct and indirect measures (e.g. tax incentives) for R&D.
- 1.6 The EESC suggests that the following key sectors and technologies are vital for the prosperity of the EU:
 - Digital business models;
 - Technologies for manufacturing goods and food;
 - Clinical research, pharmaceutical and biotechnological sector;
 - Space technologies;
 - Clean water and sanitation.
- 1.7 The EESC notes that research in the social sciences and humanities is very important for the complex renewal of the ERA agenda.
- 1.8 The EESC would like to emphasise the fact that EU research lags behind in patent performance. Asia has increased its share of global patent applications. In 2019, Asia submitted 65% of global patent applications. Europe's share of patents has decreased and is now only 11.3% of global patent applications.
- 1.9 Numerous studies have shown that the EU is lagging behind the US and Asia in entrepreneurial culture. Entrepreneurial culture needs to be addressed in education, including higher education. Entrepreneurial culture shall therefore be relevant throughout the whole process, from innovation in basic research and applied research to marketing of a new technology.

¹ [EESC proposals for post-COVID-19 crisis reconstruction and recovery: "The EU must be guided by the principle of being considered a community of common destiny"](#), pt. 5.3.1.

- 1.10 The EIC and the EIT, with its KICs, are considered valuable partners and tools in this "acceleration of R&I translation" and in redirecting the focus of the EU's R&I towards the generation of breakthrough innovations that address concrete needs of citizens and business, particularly in relation to major societal challenges. The EIC accelerator offers substantial EU funds for innovative European start-ups with high growth potential, whereas the EIT by definition pursues research excellence for technology-push innovations in its KICs; thus both the EIC and the EIT are important partners regarding the acceleration of R&I translation.
- 1.11 The EESC underlines the need to incorporate the principle of scientific and ethical integrity, so as to prevent losses in terms of human health, money, and scientific failure.
- 1.12 Europe is especially lagging behind the US and Asia regarding the speed of transferring R&D results into innovative products and services. Thus, the EESC encourages the Commission to aim in its RTI policy on "excellence" as well as "speed" at the same time.
- 1.13 The EESC suggests that the European Commission should aim, in its new R&I strategy, for well-balanced portfolios:
- of high-tech industrial production as well as service industry R&D/R&I;
 - market-pull innovations (demand-driven innovation) as well as technology-push innovations.

2. **General comments**

- 2.1 The EESC welcomes the fact that a new vision for and the renewal of the ERA agenda are key elements in the document. The document thus proves that the new ERA is not just "more of the same", but is a real "New Deal" for the EU's RTI. A key aspect of the "New Deal" is the objective of massively increasing the impact of innovation on the economy and society. With this "New Deal", the EU-27 is definitively committed to stopping the ongoing process of losing ground to China and South Korea in basic research as well as in applied research, patent applications, high-tech products and services. The "New Deal" aims to even better educate and train European citizens in all kinds of R&D, innovation and entrepreneurship, and thus to fully unleash the innovation power of European society.
- 2.2 The EESC welcomes the approach of the European Commission to increase the impact of innovation on the economy and society. The EESC emphasises that organised civil society is a catalyst for social innovation. The participation of civil society is needed now more than ever – and true social innovation only happens with when organised civil society is involved².
- 2.3 Asia, especially China and Korea, has massively improved its performance in RTI within the last 20 years. China has not only increased its share of spending on R&D from 0.55% (1995) to 2.2% (2018), but has also outperformed the EU in the total budget spent on R&D, spending USD 496 billion in 2017, while the EU spent USD 430 billion. According to the 2020 EU

² EESC proposals for post-COVID-19 crisis reconstruction and recovery: "The EU must be guided by the principle of being considered a community of common destiny", pt. 6.8.

Industrial R&D Investment Scoreboard, from 2018 to 2019, EU companies increased R&D by 5.6%, US companies by 10.8% and Chinese companies by 21.0%.

- 2.4 The OECD's Science, Technology and Industry Scoreboard reports show, among other things, that the EU is especially lagging behind in digital service businesses and what are known as breakthrough technology-push innovations. The EESC advocates a European path of digitalisation by seizing the opportunities for the economy while safeguarding societal values and fundamental rights. A human-centred focus in all Commission initiatives is very much welcome with a view to developing a European approach to progress³.
- 2.5 Promoting the development of breakthrough innovations⁴ while safeguarding a just transition process is one of the key challenges in the near future.
- 2.6 The EESC fully supports putting one clear focus on the Twin Transition, i.e. the Digital Transition and the Green Deal.
- 2.7 The EESC welcomes efforts to ensure that R&I results are rapidly translated into sustainable business. Safeguarding a just transition process, i.e. towards a greener/climate-friendly Europe, a fair digital future, with respect for workers' rights and positions, as outlined in the document, is one of the most important elements to ensure that R&I supports the economy and employment in the EU.
- 2.8 The EESC welcomes the fact that the new ERA document is overall in line with and supports the SDGs. While fostering the transition towards a more resilient European economy, an inclusive recovery leaving no European behind is essential in the process of moving towards a sustainable European economy⁵.
- 2.9 The EESC would like to point out that an intelligent blending of R&D instruments at all levels (regional, national level, EU level) is important. R&D and innovation should be promoted by making use of the large EU structural funds, too, as well as through direct and indirect measures (e.g. tax incentives) for R&D.

3. **The European Research Area in a new context**

- 3.1 As pointed out in our general comments, the EESC clearly thinks that, if the EU's RTI strategy remains "more of the same", it will continue to lose ground in the global RTI competition, especially against China, Korea and the USA.
- 3.2 The EESC underlines the need to incorporate the principle of scientific and ethical integrity, so as to prevent losses in terms of human health, money, and scientific failure.

³ [OJ C 364, 28.10.2020, p. 101.](#)

⁴ Clayton M. Christensen, *The Innovator's Dilemma - When New Technologies Cause Great Firms to Fail*, 2016.

⁵ EESC proposals for post-COVID-19 crisis reconstruction and recovery: "The EU must be guided by the principle of being considered a community of common destiny", pt. 5.3.1.

- 3.3 The EESC encourages the European Commission to design a "New Deal" RTI agenda for the EU.
- 3.4 State-of-the-art, efficiently managed R&I infrastructures are one important key issue for this acceleration of R&I translation.
- 3.5 The day-to-day management of these R&I infrastructures could be professionalised in the EESC's view. Utilisation of some of these expensive R&I infrastructures is relatively low: some have a utilisation of less than 25% of annual working hours.
- 3.6 The EESC welcomes the EC's Open Science Initiatives (EOSC).
- 3.7 The EESC agrees that the technologies mentioned in the document are very important, strategic key technologies for the EU, and proposes that the following key technologies and sectors be added:
- Digital business models;
 - Technologies for manufacturing goods and food;
 - Clinical research, pharmaceutical and biotechnological sector;
 - Space technologies;
 - Clean water and sanitation.
- 3.8 Digital business models are currently the fastest growing businesses in the globe and will continue to be in the years to come. One just has to look at e-commerce (e.g. Amazon), Industry 4.0, e-banking, e-gaming, digital social networks (e.g. Facebook), e-security, etc.
- 3.9 The EESC notes that research in the social sciences and humanities is very important for the complex renewal of the ERA agenda.
- 3.10 The EESC notes that EU research lags behind in patent performance. Asia has increased its share of global patent applications. In 2019, Asia submitted 65% of global patent applications. Europe's share of patents has decreased and is now 11.3% of global patent applications.
- 3.11 Other important R&I topics include (but are not limited to) manufacturing of goods (which has always been and still is a stronghold of the EU), IT, software and AI, and medium tech.
- 3.12 Most of the jobs within the EU still are in medium tech (which, similarly, has always been a stronghold of the EU). High tech is of course important, but there is a lot of growth potential and job potential in medium tech too.
- 3.13 The coronavirus crisis is a severe challenge for mankind and all possible measures should be taken to develop vaccines and treatments for COVID-19. This crisis has exposed several issues that need to be addressed to prevent similar pandemics in the future, not least as regards our relationship with the natural world and animals. European R&I must play an important role in identifying, researching and solving those issues. On the other hand, the crisis should not be the only guideline for the EU's long-term R&I strategy.

3.14 Numerous studies have shown that the EU is lagging behind the US and Asia in entrepreneurial culture. Entrepreneurial culture needs to be addressed in education, including higher education. Entrepreneurial culture shall therefore be relevant throughout the whole process, from innovation in basic research and applied research to marketing of a new technology. Entrepreneurial culture must be a key competence in all of the EU's RTI and thus, of course, in the new ERA too.

4. **The vision: a stronger European Research Area for the future**

4.1 The communication devotes a number of paragraphs to new common technology roadmaps, a New Industrial Strategy and key future technologies for the Commission. The EESC, again, would like to point out that all these topics need to be seen in close connection with the SDGs. In other words, R&D needs to be pushed in particular within the new ERA and common technology roadmaps, where any of the 17 areas of the SDGs can be supported. The EESC is convinced that a constructive social and civic dialogue at all levels will contribute to a successful implementation of the strategy.

4.2 The EESC appreciates the strengthening of RTI cooperation within the EU. Any EU Member State alone is simply too small to compete with the large research nations such as the USA or China. The individual Member States lack "economies of scale", which are very important especially for large breakthrough innovations. Europe's achievements in science and technology have been significant and research and development efforts form an integral part of the European economy. Europe has been the home of some of the most prominent researchers in various scientific disciplines, notably physics, mathematics, chemistry and engineering. Scientific research in Europe is supported by industry, by the European universities and by several scientific institutions. The output from European scientific research consistently ranks among the world's best. While cooperation is one key element in efficient innovation to generate new products and services, competition is the major driving force for innovation in the global economy. Thus the EESC recommends a well-balanced portfolio of cooperation as well as competition between the Member States in the EU's "New Deal" for RTI.

4.3 The EIC and the EIT with its KICs, are considered valuable partners and tools in this "acceleration of R&I translation" and in redirecting the focus of the EU's R&I towards the generation of breakthrough innovations that address concrete needs of citizens and business, particularly in relation to major societal challenges.

5. **Translating R&I results into the economy**

5.1 The communication states that "The EU is lagging behind its main global competitors in business R&D intensity, in particular in high-tech sectors, and in scaling-up innovative SMEs with negative effects on productivity and competitiveness. (...) Unlocking investment in innovation in business, services as well as in the public sector is critical to reversing this trend, as well as to reinforce Europe's industrial and technological sovereignty. The EU needs to make full use of its excellent research and innovation results to support the green and digital transition of the EU economy". The EESC shares this position, but wants to stress that the digital transition in particular needs a responsible RTI approach. The EESC reiterates its full support

for the EU's strategy of seeking trustworthy and human-centric artificial intelligence (AI), and reiterates its call for a "human-in-command" approach to AI, as called for since its first opinion on AI in 2017⁶.

- 5.2 Europe is especially lagging behind the US and Asia regarding the speed of transferring R&D results into innovative products and services. Thus, the EESC encourages the Commission to aim in its RTI policy on "excellence" as well as "speed" at the same time.
- 5.3 The EESC certainly recognises that the communication acknowledges that R&I translation into viable products and the chain of innovation need attention. However, most actions and measures proposed in the document still focus on the input side of the chain of innovation (higher education, research careers for talented people, more money for public and basic research, etc.).
- 5.4 The EESC encourages the Commission to aim for a well-balanced equilibrium between focusing on the input side of the chain of innovation and the output side.
- 5.5 The EESC encourages the Commission to further stimulate market-pull innovations by, for example:
 - promoting lead user concepts;
 - investing in systematic social innovation studies to anticipate early appreciation and acceptance of new products and services by society.

6. **Service industries**

- 6.1 Industrial production processes can be highly automated, such that they can produce very high batch sizes with a small share of labour costs and globally competitive production costs, even with Europe's high hourly wages. Regarding service industries, this situation is more complicated. Digital service business models, too, can be highly automated. Services to individuals, like hair-cutting, massages, etc., however, cannot be automated. For all these reasons, the EU would be well advised to aim, in its new R&I strategy, for a well balanced portfolio of high-tech industrial production and service industries.

7. **Deepening the Framework for Research Careers**

- 7.1 The EESC welcomes the measures proposed in the communication to enhance the technological and scientific excellence and the mobility of young researchers, but encourages the Commission to step up measures regarding enhancing the entrepreneurship of young researchers and innovators as well. This would include better career prospects for researchers as well as higher salaries, especially for researchers at the beginning of their careers. Furthermore, connecting universities with economic entities to ensure the transformation of innovation into marketable products seems to be fruitful. The EESC proposes establishing a single register of EU researchers and innovators with basic professional research data to connect EU researchers and innovators more closely.

⁶ [OJ C 288, 31.8.2017, p. 1.](#)

7.2 Key competences and key innovative cultures, new learning and teaching technologies, personalised training.

7.2.1 The EESC would once again like to point out that it is not only key strategic technologies that are very important, but that key competences of employees and innovative cultures within all EU enterprises are also very important if the EU is to prosper.

7.2.2 The following element is especially important for the new ERA agenda, the new R&I agenda and the new "Pact for Research and Innovation in Europe": fostering an innovative culture and a culture of entrepreneurship within EU enterprises, for the management as well as for all employees, for example by offering appropriate training courses, etc. to employees.

8. **Citizens' engagement**

8.1 The EESC agrees with the statement in the communication that "The engagement of citizens, local communities and civil society will be at the core of the new ERA to achieve greater societal impact and increased trust in science". The EESC explains its support for the European Commission's approach which is based on the idea that "research organisations and industry should involve citizens in technology choices".

8.2 The social partners and civil society organisations such as consumer organisations, NGOs, etc. should be involved as active partners in European R&I processes and projects, in particular when the research affects or impacts the people or cause they represent. Involving these partners at an early stage will promote engagement, understanding, ownership and acceptance of the innovation, and support the just transition processes that are necessary, especially for breakthrough innovations. It will also help researchers understand the impact of their innovations on society at large and help them address potential negative impacts at an early stage in the process. For this reason, the EESC has also been calling for a multidisciplinary approach in certain research areas, where there is an impact on multiple research areas. One of these areas is again AI, where the EESC has been calling for the involvement of the humanities, law, economics, ethics, psychology, etc. in the R&I of AI, beyond the mere technical element⁷.

8.3 The EU's economy relies heavily on exports of its goods and services.

8.4 Technology choices should thus be based on EU citizens' preferences for goods and services, but also on those of the rest of the 7.8 billion people in the world. The EESC calls on the Commission to particularly promote R&I in reaching the UN SDGs.

8.5 As pointed out in our general comments, the importance of RTI needs to be better communicated to politicians, the media and society.

8.6 It is therefore also important to develop smart means and strategies for communicating the importance of RTI, but also its results, in the context of the communication and the new EU RTI strategy.

⁷ [OJ C 288, 31.8.2017, p. 1.](#)

9. **Governance of the new ERA**

- 9.1 The EESC agrees that a transparent monitoring system (ERA Scoreboard) will be essential in order to monitor the EU's performance in the global RTI competition. The EESC advocates the need for new governance in the research area in order to remove administrative and regulatory barriers to innovation.

Brussels, 24 March 2021.

Christa SCHWENG

The President of the European Economic and Social Committee
