



OPINION

European Economic and Social Committee

A Pact for R&I in Europe

Proposal for a
Council recommendation on a Pact for Research and Innovation in Europe
[COM(2021) 407 final – final 2021/230 (NLE)]

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1. **Conclusions and recommendations**

- 1.1 The EESC welcomes the fact that the Pact for Research and Innovation in Europe sets out commonly agreed values and principles for R&I and identifies, on a global, general level, the areas where Member States will jointly develop priority actions. The Pact thus supports the new European Research Area (ERA) while bearing in mind that research and innovation are largely national competences.
- 1.2 The Council recommendation is divided into major parts, which are addressed in the following sections:
 1. Values and principles;
 2. Priority areas for joint action;
 3. Prioritising investments in R&D;
 4. Policy coordination and monitoring and reporting.
- 1.3 In the future, Europe should make value creation, business and quality jobs out of Europe's R&D-results. One very important tool for making business, profit and jobs for Europe out of Europe's R&D-results is Intellectual Property Rights (IPR). The great importance of IPR and patents should be added to the paragraph on Value Creation and a clear IPR strategy for Europe should be developed in the framework of the Pact for the New ERA. This active and passive EU patent policy and patent strategy should be accompanied by an active and passive license strategy and a transparent monitoring system for the net global patent and license balance.
- 1.4 The EESC welcomes the Pact's clear call to deepen the ERA, i.e. to move from coordinating national policies to deeper integration of these policies, and its call to accelerate the twin green and digital transitions. Thus far, R&I in the EU 27 has still mainly been conducted in parallel working silos. These silos now have to be connected by massive "communication pipes", which the EESC believes must be one of the Pact's major objectives.
- 1.5 The EESC feels that, in view of the massive investments in Research, Technology, Innovation (RTI) in Asia (China, South Korea etc.), the EU has to substantially speed up its efforts in R&I, especially regarding the fast transformation of R&D results into innovative products and services, since Europe is lagging behind in this area, as clearly pointed out in COM(2020) 628.
- 1.6 The EESC would like to point out that R&I have to be speeded up in the EU and the digital transition achieved fast. A recently published EC report, the *2021 EU Industrial R&D Investment Scoreboard*, shows that China has increased its R&D investments from 2020 to 2021 by 18.1%, the USA has increased its R&D investments from 2020 to 2021 by 9.1%, whereas the EU 27 have decreased their R&D investments by 2.2%. These transition processes have to be fair and just, not leaving behind any group of civil society, especially vulnerable citizens, European citizens living in remote regions or the social partners.
- 1.7 As pointed out in the new ERA, as well as in the Pact, the EU really needs a new vision, i.e. a New Deal for the EU's ERA. With just "more of the same" as its old RTI strategy, the EU will continue to fall behind the US and Asia (China, Korea, etc.) in R&I.

- 1.8 To date only a limited share of the EU population (the "usual suspects for R&I" only) have been engaged in the EU's R&I policies. However, modern socioeconomic research highlights the great importance of the Science-Technology-Society (STS) for strong performers in R&I. To contribute concretely with the objective of a stronger EU in the world, the EESC asks to include, in appropriate form, civil society organisations, social and economic partners (notably organisations representing MSMEs) at EU and national level in the European Commission's monitoring of the actions already deployed in 2022 by the new ERA Forum and related initiatives like the new European Citizens' Panels within the Conference on the Future of Europe. The so-called knowledge triangle (Higher Education, Basic and Applied Research, Commercialisation of new technology by Industry), which we are glad to see referenced in the Commission's Pact for R&I, too, is an important concept for boosting R&I. Within this concept of participation of EU civil society, it is important, too, to make sure that the workers on the shop floor – as well as vulnerable EU citizens – are included.
- 1.9 Within the new Pact for R&I Europe must prepare the soil for a more entrepreneurial culture such that risk-taking, innovative businesses are encouraged – MSMEs as well as start-ups. The well-known slogan "No risk, no fun" translates in innovation into "No risk, no new business, no new quality jobs".
- 1.10 There are many Commission documents and programmes on R&I. Thus, the EESC would appreciate the Commission clarifying the interlinkages between all its documents on R&I, including the Pact for R&I, the New Era, the European Missions, the EU Recovery and Resilience Plan and Horizon Europe in general.
- 1.11 Last but not least, the EESC wishes to point out that the EU's Pact for R&I and its new ERA should be designed and implemented in agreement with the United Nations' 17 Sustainable Development Goals (SDGs), which aim to achieve decent lives for all on a healthy planet by 2030.

2. **General comments**

- 2.1 The core Commission document, on which the Pact is based and to which the Pact refers, is COM(2020) 628 - *A new ERA for Research and Innovation*.
- 2.2 In March 2021, the EESC published an opinion¹ on *A new ERA for Research and Innovation*². Many of the conclusions, recommendations and general comments contained in that EESC opinion are also valid for the Pact; some of them are reproduced in this document.
- 2.3 Bringing these R&I elements together in a single legal act will reaffirm Member States' political commitment to mobilise their R&I policies to tackle the challenges that Europe faces today, which are:
- a. The twin transition (digital transition and green deal)

¹ EESC opinion on *A new European Research Area (ERA) for Research and Innovation*, [OJ C 220, 9.6.2021, p. 79](#).

² COM(2020) 628.

- b. The post-pandemic recovery
- c. The ever-fiercer global competition in RTI, especially from Asia (China, Korea, etc.).

All these challenges have to be tackled in a fair and just way, leaving no one behind, especially not vulnerable EU citizens.

- 2.4 Global RTI rankings and studies show that, in terms of global competition, the EU 27 are lagging behind the USA and Asia, especially China and Korea, where RTI is concerned, especially in terms of Key Enabling Technologies (KETs) (e.g. Artificial Intelligence, Machine Learning, Robotics, Digital Business Models, etc.). Challenges a) and b) are to be found in Commission communication COM(2021) 407. Challenge c) "global competition in RTI especially from Asia (China, Korea, etc.)" has been added intentionally by the EESC, because it feels that if the EU does not address this challenge successfully the EU will lose millions of qualified jobs to Asia and will thus lose wealth and quality of life for Europeans. RTI is the major generator of future quality jobs. If technological leadership in many industries moves to Asia, quality jobs will also move to Asia.
- 2.5 The European Research Council (ERC), too, has already issued an opinion on the Pact and the new ERA. The ERC, too, stresses very clearly that the EU is falling behind in comparison to Asia, especially China, regarding RTI, stating that "*The pact for R&I may be the EU's last chance to finally meet the goals of the original ERA to cement Europe's position as a leader in research and innovation*"³.
- 2.6 China has not only overtaken the EU regarding output in R&D and output in patents but, for around five years, has also very aggressively taken the global lead in setting technological industry standards. For many decades, the US and Europe had monopolised the setting of industry standards. Setting the technology industry's standards has a very powerful role in global RTI, meaning that the nation that sets these standards has a competitive advantage. The EESC therefore strongly recommends that the Commission set out clear measures in the Pact, to uphold Europe's strong position in setting global technology industry standards.
- 2.7 The EESC feels that, in view of the massive investments in RTI in Asia (China, South Korea etc.), the EU has to substantially speed up its efforts in R&I, especially regarding the fast transformation of R&D results into innovative products and services. A recently published EC report, the *2021 EU Industrial R&D Investment Scoreboard*, shows that China has increased its R&D investments from 2020 to 2021 by 18.1%, the USA has increased its R&D investments from 2020 to 2021 by 9.1%, whereas the EU 27 have decreased their R&D investments by 2.2%. The EU's measures to speed up R&I have to address multinationals headquartered in the EU, as well as MSMEs, since MSMEs, too, are threatened by competition from Asia and since most of the employment growth in Europe stems from MSMEs and start-ups, not from large enterprises.
- 2.8 The EESC welcomes the clear call made in the Pact for a deepening of the ERA, i.e. moving from the coordination of national policies to the deeper integration of these policies, as well as the call to accelerate the green and digital transition. Until now, R&I in the EU 27 has still

³ Source: <https://erc.europa.eu/news/pact-research-innovation-foundations-european-research-area-still-valid-and-unavoidable>

mainly been conducted in parallel working silos. These silos now have to be connected by massive "communication pipes" which, in the EESC's view, must be one of the Pact's major objectives. Communication and cooperation are key driving forces for R&I.

- 2.9 As pointed out in the new ERA, as well as in the Pact, the EU really needs a new vision, i.e. a New Deal for the EU's ERA. With just 'more of the same' as its old RTI strategy, the EU will continue to fall behind the US and Asia (China, Korea, etc.) in R&I.
- 2.10 Many studies conclude, that knowledge transfer in R&I works primarily via heads, i.e. via job rotation between R&I organisations, as well as between EU Member States on a massive scale. The EESC recommends massively increasing knowledge transfer via heads, i.e. job rotations and researcher mobility programmes within the EU 27 on a huge scale. Knowledge transfer in R&I does not work via large documents: one cannot transfer the knowledge of five years' R&D work of any researcher by means of a 500-page R&D report.
- 2.11 The Pact refers to the ERA technology roadmaps. To the current knowledge of the EESC, an ERA roadmap for 2015-2020 is available, but the EESC is not aware of any ERA technology roadmap going beyond 2020. Technology strategies have to be planned for the long term, since a new technology does not happen overnight. Technology roadmaps need a lead time of at least 10 years. The EESC therefore encourages the Commission to develop mid-term (2020-2030) and long-term (2020-2050) technology roadmaps following the publication of the new ERA.
- 2.12 The EESC welcomes the reference to the great importance of the so-called 'knowledge triangle' (Higher Education, Basic and Applied Research, Commercialisation of new tech by Industry)⁴.
- 2.13 The EESC believes that, while it is true that research and (higher) education are key drivers of knowledge creation, they are not the key driver for innovation. Innovation – by definition – means the conversion of R&D results into innovative products and business. It is not the task of universities or of research institutes to develop innovative products and business. In this paragraph, enterprises, especially start-ups and entrepreneurs, are missing and their important role in the innovation process has to be added here. The European Innovation Council (EIC), the European Institute of Innovation and Technology Knowledge and Innovation Communities (EIT KIC) and other innovation schemes play an important role in this context.
- 2.14 According to the famous diagram of Professor Ansoff, only a small share of R&D projects (less than approx. 25%) eventually yield successful technical products on the market. Thus, one major focus within the EU's R&I pact and strategy has to be the effectiveness and efficiency of R&I. If, with intelligent means to ensure the effectiveness and efficiency of R&I, its rate of success can be increased from 25% to e.g. 28%, this would be an enormous success for Europe. The effectiveness and efficiency of R&I, while maintaining the EU's strong claim for excellence in research, could also substantially speed up Europe's R&I, which is desperately needed.

4

As highlighted in point 2(h) of the Proposal for a Council Recommendation (COM(2021) 407). Paragraph (h) reads: "Research and innovation and (higher) education are key drivers of innovation, knowledge creation, diffusion and use."

- 2.15 Regarding "Values and Principles", the EESC agrees that the values stated in this chapter are important, but to stop the EU falling behind the USA and Asia in the global R&I competition, additional principles are needed. It is stipulated the new ERA that the EU must speed up the conversion of R&D results into innovative products and services for the global markets. This urgently needed speeding-up requires, among other values and competences, entrepreneurship. Many global studies suggest that the EU is lagging behind substantially compared to the USA and Asia regarding entrepreneurship (e.g. regarding innovative digital business models).
- 2.16 Regarding "Value Creation", the EESC fully agrees on the very high importance of transforming 'knowledge' (i.e. R&D-results) into innovative, sustainable products and services. The pact refers to the important role of basic research regarding generating breakthrough discoveries and knowledge. However, creating 'value for Europe' needs more than generating breakthrough discoveries: There are – unfortunately – numerous examples in which European researchers have been generating breakthrough discoveries, but entrepreneurs and innovative companies from USA and Asia have been making business and profit out of Europe's R&D results and the jobs went from Europe to USA and Asia. Europe should not let happen this again.
- 2.17 Europe should in the future make value, business and quality jobs out of Europe's own R&D-results. One very important tool for making business, profit and jobs for Europe out of Europe's R&D-results is patents. The great importance of IPR (Intellectual Property Rights) should be added to the paragraph on Value Creation and a clear IPR strategy for Europe should be developed in the framework of the Pact for the new ERA. This active and passive EU patent policy and patent strategy should be accompanied by an active and passive license strategy and a transparent monitoring system for the net global patent and license balance.
- 2.18 In point 2 of the Proposal for a Council Recommendation⁵, the priority areas for the EU's R&I are given. The following priority areas for R&I topics are also given in COM(2020) 628:
- Artificial intelligence
 - Microelectronics
 - Quantum Computing
 - 5G
 - Renewable energy
 - Hydrogen technologies
 - Zero emission and smart mobility
- 2.19 The EESC wishes to reiterate that, while it agrees that these seven priority areas⁶ are very important, the following key technologies and sectors should be added:
- Space technologies;
 - Clean water and sanitation,
 - New, high-tech materials with high future potential for the EU, e.g. Graphene
 - Technologies for manufacturing goods and food;

⁵ COM(2021) 407

⁶ As given in COM(2020) 628.

- The clinical research, pharmaceutical and bio-technological sectors;
 - Digital business models in general;
 - Technologies (hardware and software) for emergency preparedness (blackouts, disruption of digital communications e.g. by cyber crime etc.).
- 2.20 The EU 27 – unfortunately – have a significant brain drain of excellent researchers to the USA and increasingly to Asia, too. This brain drain has to be stopped and should be converted into a brain gain. Among others, the following principles are very important for an excellent, globally leading, fast RTI performance:
- Recognition and fair remuneration of excellent researchers in the EU 27, in particular excellent female researchers (see poor gender balance in RTI in the EU 27).
 - Efficient Communication, Collaboration and Cooperation (the three important "Cs" of innovation!)
 - Increasing EU and national funding for research centres and universities, based on competitive bidding processes, thus insuring that the 'best-of-the-best' researchers get the money (not funding by a 'watering can' to all research centres).
- 2.21 One major goal of the EU's new ERA is value creation. Thus, the EESC feels that the paragraph "Knowledge Valorisation" is very important. In this paragraph, the importance of cooperation and interlinkages between all R&I actors is highlighted. This is important, but not enough for 'Knowledge Valorisation'.
- 2.22 Issues that are equally important for value creation for Europe are:
- a commitment to rapid conversion of R&D results into innovative products, services and ultimately into values, business and quality jobs. This requires, *inter alia*, a much more entrepreneurial culture in Europe as well as a positive attitude to taking risks: fast launch of innovative products always incurs risks too.
The well-known slogan "No risk, no fun" translates innovation into "No risk, no business, no new jobs";
 - a clear technology roadmap, especially regarding KETs and FETs (Key Enabling Technologies);
 - a clear IPR strategy for the new ERA.
- 2.23 Regarding "Deepening a truly functioning internal market for knowledge", knowledge – without any doubt – is very important, since the 21st century is the century of knowledge. However, it is also very important to give a new boost to production of all hardware in Europe. 20 years ago, the EU thought that the production of goods could be moved to Asia, while keeping production-related R&D in Europe. This turned out to be a mistake. R&D always follows production, sooner or later. Thus, to bring back at least a portion of production and its related jobs from Asia to Europe, the EU needs to make great efforts. This would also go a long way towards solving the problem of unemployment, which is a particularly big problem in some countries in Southern Europe.
- 2.24 A lesson which Europe, too, has learned from the corona pandemic: The production of almost all basic medications and vaccines has moved from Europe to Asia in the last 20 or 30 years.

Europe has lost its sovereignty in many important products and medicines. Microchips are another example where European industry, especially the car industry, is suffering massively at the moment. Other examples where Europe – unfortunately – is almost fully dependent on Asia are batteries for electric vehicles, hydrogen technologies. (While European car producers still are experimenting with prototypes of hydrogen powered cars, Toyota, Honda and Hyundai already mass produce them and sell them regularly). Asia also is by far the leader in optical technologies, 5G communication technologies, artificial intelligence, machine learning, robotics and many others KETs and FETs (Key Enabling and Future Technologies). In the Pact for R&I Europe must make regaining sovereignty in key technologies a clear priority.

- 2.25 Europe is on the one hand facing the challenge of high unemployment among young people, especially in some countries in Southern Europe and, on the other, the challenge of a shortage of highly qualified STEM (Science, Technology, Engineering, Mathematics) graduates, especially a severe shortage of engineers in all fields of ICT and digitalisation, e-mobility and in technologies for renewable energies. It is often forgotten that it is primarily engineers that convert R&D results achieved by researchers into technical products. Due to demographic changes (our ageing society) and due to the fact that most countries in Europe are failing to attract more women students to engineering studies, this problem will increase in the near future. Of course, measures to attract more women students to engineering studies have to be increased in the EU on a huge scale. In addition, smart programmes for attracting highly-qualified engineers from non-EU Member States have to be generated by the Pact for R&I. The global RTI-competition will increasingly become a global talent war, and up to now, the EU has performed badly in this global talent war for talents compared to the US, for example.
- 2.26 Last but not least, the EESC wishes to point out that EU's Pact for R&I and its new ERA should be designed and implemented in agreement with the United Nations' 17 Sustainable Development Goals, which aim to achieve decent lives for all on a healthy planet by 2030.

Brussels, 23 February 2022.

Christa SCHWENG

The president of the European Economic and Social Committee
