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Open Science as a Key Enabler of Development:
Opportunity for Young Researchers and Widening Countries

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Abstract

The new European Research Area (ERA) policy paper with the Horizon Europe programme will change the continent's Research and Innovation (R&I) ecosystems. With the support of several member states, decision-makers in European Institutions see Open Science as the key to a globally competitive European R&I system. Its success, however, also requires dedication from the national and local levels and a change in how researchers work. Interdisciplinary, collaborative approaches are becoming crucial in the new era of European research, while enhanced support and emphasis on connecting R&I leading and lagging countries can release new synergies. This article briefly introduces new tools and opportunities to help policymakers and young researchers increase their positive impact.

Keywords: European Commission (EC), European Open Science Cloud (EOSC), European Research Area (ERA), European Union (EU), Policy, Research and Innovation.

1. Introduction

In a rapidly changing world, during these times of global crises, where countries are facing fundamental problems of shortages of goods, labour, and energy resources, whilst also challenged by the side effects of climate change, global approaches are needed to counter global problems. International strategies include cutting-edge solutions that require interdisciplinary research with a collaborative, stakeholder approach. Research and Technology Organisations (RTOs), academics and researchers should not work in silos anymore but in joint efforts with the industry, policymakers and non-governmental organisations. This was the principal idea behind the new European Research Area policy paper (European Commission, 2020) by the European Commission (EC). It aims to collect all previous Horizon 2020 achievements and build upon them to extend them with a massive investment programme of 95.5 billion EUR through Horizon Europe (EC, 2022a). Its objective is to create a coherent, single area for

researchers while respecting the autonomy of the member states. European policies and initiatives only function as continental catalysts if favourable national and local contexts exist that support local researchers and the industry, including small and medium enterprises (SMEs). If they exist, they can be channelled into continental and global progressions and developments through EU initiatives.

2. Opportunities of Open Science in the EU Context

The uptake of the concept of Open Science (OS) by the EC can also be used as another critical enabler in the hands of local policymakers to connect their Research and Technology Organisations (RTOs) and industries (or their Research and Innovation (R&I) ecosystems) to European and global leading research projects and infrastructures (Ince & Janger, 2022). This, however, requires significant local investment and dedication from all stakeholders.

The objectives of OS are multidimensional and have different levels. It provides a horizontal, interlinked approach to policymakers on EU, regional, national and local levels to use the strengths of the diverse but also divided landscape of the EU and to minimise weaknesses that hinder the competitiveness of European R&I. With pan-European initiatives, structures and policies, better and smarter coordination of national policies can be ensured, based on evidence. From the side of national and local policymakers, more efficient specialisation strategies can be drawn and implemented that save significant amounts of effort (financial, labour, time). Smart specialisation strategy (S3, RIS3) already provides a tool and platform for national and local decision-makers to map their potential in the European context. These are also used to create common R&I indicators for EU countries, like the European Innovation Scoreboard (EIS), Regional Innovation Scoreboard (RIS), Science, Research and Innovation Performance of the EU (SRIP) report, and the Transition Performance Index (TPI). If national policies enhance their countries' comparative advantages, then those countries can capitalise on their strengths and connect to international initiatives. For widening member states, this is challenging because of high barriers between R&I leading and lagging countries (EC, 2022b). That challenge was addressed via two components within the Horizon Europe programme, 'Widening Participation' and 'Spreading Excellence'. These components aim to "amplify geographical diversity, build the necessary capacity to allow successful participation in the R&I process and promote networking of and access to excellence" (EC, 2022c). Once national policymakers, funding agencies, RTOs and R&I decision-makers incentivise the participation of researchers in these projects, the uptake of Horizon projects in widening countries and mainstreaming of Open Science overall can gain momentum.

3. Potential Emergence of Young Researchers

In the case of the aforementioned favourable socio-economic circumstances that include supportive scientific uptake and policy frameworks (including incentives), even young researchers can have a global impact by using OS principles and tools. In such a strictly hierarchical setting as academia, where high burdens harden the entrance and recognition of fresh PhD students and graduates to the R&I market, it is crucial to provide means, like OS tools, with which they can connect to global dialogues despite the potentially disabling factors of related hierarchical orders. Another asset is that they can be the first "OS" native researchers that will be highly advantageous for the future labour market, which is also enhanced by the European Researchers' job portal, EURAXESS.

OS tools and infrastructures, like the European Open Science Cloud (EOSC), will enable researchers to work simultaneously, in a collaborative approach with others, in a multidisciplinary working environment (EOSC, 2022). This also means that required skills from researchers are going to change. This is now recognised by leading European and national policymakers and RTOs through consultations by the European Research Area Committee (ERAC), concluding with the Agreement on Reforming Research Assessment that aims to change the European Research landscape (Ince & Janger, 2022).

As a guide, within the frames of EOSC Future (EOSC Future, 2022), practice stories and case studies were collected that can help researchers' journeys into the world of Open Science.

4. Conclusion

R&I is a significant asset and tool to counter unprecedented times, but it needs comprehensive reform. Researchers can benefit from these changes by mastering basic skills such as collaboration, horizontal thinking, and digital knowledge. If decision-makers of all levels agree and co-create an adaptive environment, then Open Science can be an investment with great returns rather than costs.

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