A set of European Digital Principles: Essential, but a Broader Approach is Needed

Science Europe Response to the European Commission Consultation on European Digital Principles

In an environment that moves increasingly towards Open Science, digital technologies are of crucial importance to research and innovation. An ever-growing amount of research outputs are being shared and made available to researchers as digital objects. Technologies and infrastructure are necessary to collect, analyse, process, preserve, and share these objects efficiently.

Science Europe welcomes the opportunity to provide input to the European Commission's consultation on a set of common European Digital Principles. These principles and policies are essential to enable the digital transformation of society through more and better access to data.

As the representative of major national research performing and research funding organisations, Science Europe supports the generation of a common set of digital principles that support EU citizens and sustainable, social, cultural, and economic developments. Given the importance of these principles for the research and innovation sector, it would like to make the following general and specific comments on the Commission's plans for setting digital principles.

Broader consideration of the benefits of research for society and economy is needed

Over the past years, the European Commission's reflections on digital policies and legislation have often been focused on their potential benefits for citizens and businesses in Europe. Science Europe has regularly brought the impact of such policies and legislation on the research sector to the attention of the Commission. A thriving research sector contributes to "the uptake of digital solutions and the use of data [that] will help in the transition to a climate neutral, circular and more resilient economy"[1] and benefits economic growth and society at large.

Research strongly relies on access to high-quality and secure digital content, tools, and platforms. Its needs and particularities should be duly considered in policy and legislative developments in the digital field. The specific policies, practices, and experiences of the research sector can inform any broader, cross-sectoral initiatives or policy developments in the digital field and substantially contribute to the development of such digital principles.

Safeguarding fundamental rights

Fundamental rights play an important role in the development, deployment, and uptake of digital technologies. The European Commission addressed this topic in its recently published proposal for an Artificial Intelligence Act. Science Europe agrees that safeguarding fundamental rights is crucial to

---

[1] EC Communication: 2030 Digital Compass: the European way for the Digital Decade, p. 3

protect the users of digital technologies and increase their trust in the systems they have at their disposal.

Freedom of expression, non-discrimination, and access to diverse, trustworthy, and transparent information are fundamental values for research and innovation. Other essential elements are the protection of personal data, privacy, and intellectual property. Safeguarding these is indispensable for society as a whole, but also crucial to maintaining a legislative frame that provides legal certainty in which researchers and their organisations can operate effectively.

A digital environment needs to be secure and human-centred, and as open as possible. However, it also needs to be recognised that safeguarding the above-mentioned fundamental rights can cause some limitations to full openness.

In addition to these two general aspects, Science Europe would like to respond to the following specific aspects that are addressed in the European Commission's consultation:

Universal access to digital technologies (section 1.1 of the consultation)

Science Europe agrees that it is important to tackle the digital divide (the gap between those who benefit from digital technologies and those who do not) and to achieve a technological level playing field across the EU. But while the Commission focuses on universal internet access, Science Europe would like to stress that, again, a broader approach is needed. Internet access is only one aspect out of many: to address the digital divide, universal access to all digital technologies needs to be assured.

Access to digital technologies, including but not limited to, fast and reliable broadband connections and digital infrastructures, is important for citizens and businesses, but also for the research and innovation sector as research is often conducted in cross-border and interdisciplinary collaborations. For successful international research projects, it is of utmost importance that all partners have access to the technologies that they need to contribute to the projects they are involved in.

Digital education and skills (section 1.2 of the consultation)

Science Europe emphasises that it will also be important to have a broader perspective in the area of digital skills. The Commission rightly stresses the importance of fostering digital skills for citizens in general, and special skills for workforce in the digital field in particular. However, the skills to use and operate digital technologies are also increasingly important for researchers and for research support staff.

Over the past years, the research sector has seen new careers in the digital field emerging in its organisations. Digital skills in the research sector are important for three reasons: first, training is needed to enable researchers to make use of new technologies that can support their high-quality work. Second, highly-trained researchers are often involved in the development of new technologies that will in turn serve society as a whole. Third, research-based technologies will be key for education in the future.

Taking the example of Artificial Intelligence (AI) as a very technical digital technology, there is indeed "a growing and pressing need for people to have a basic understanding of AI and data in order to engage positively, critically and ethically with this pervasive technology."[2] This is also of importance for researchers from all disciplines that use AI in their research and for research organisations that increasingly explore options to use AI technologies in research administration. Researchers who are involved in developing AI systems need to have the necessary training to be able to stay abreast of the continued technological developments.

---

[2] EC Consultation questionnaire

An open, secure, and trusted online environment (section 2.5 of the consultation)

In its [Communication](#) '2030 Digital Compass: the European way for the Digital Decade', the European Commission states that "digital infrastructure serving citizens, SMEs, the public sector and large companies require high performance computing and comprehensive data infrastructures."[3] While this is very true, Science Europe would like to point out that here, again, these reflections should be made from a broader point of view.

Comprehensive data infrastructures and high-performance computing play an essential role in research and innovation. The Commission has entered into a co-programmed partnership under Horizon Europe with member states and research stakeholders to advance the development of the European Open Science Cloud ([EOSC](#)). This federation of research infrastructures will promote the exchange of digital objects and offer data processing and high-performance computing services. Such developments originally brought forward by the Commission should not be forgotten when planning further initiatives in the digital field. On the contrary, the setup of the EOSC is far enough advanced already to provide important insights on linking infrastructures, necessary skills, and interoperability of content and services.

A European digital identity (section 2.7 of the consultation)

"Building trust in the online environment is key,"[4] but not only to economic and social development as the European Commission states. In a time where research increasingly adopts Open Science practices, meaning the free sharing and re-use of research outcomes, researchers must be able to trust the identity of the person who shares the content, and to attribute specific content to a particular person.

The research sector has been relying for many years on the use of unique and persistent identifiers that clearly describe either a person or a digital object. Science Europe therefore agrees that a "universally available, recognised and accepted digital identity is key"[5] to increasing and maintaining trust in a digital environment.

Ethical principles for human-centric algorithms (section 2.9 of the consultation)

Researchers and research organisations can be both users and developers of AI systems. To guarantee the safety of AI systems, a human-centric design and human oversight of these systems are crucial. Science Europe welcomes the fact that human oversight for high-risk AI systems plays a significant role in the recent European Commission proposal for an AI Act and would like to encourage the Commission to also integrate this notion in the future digital principles. An overarching European approach to human-centric technologies allows the setting of standards on an international level and contributes to protecting users of digital systems.

Additional digital principles (section II of the consultation)

Digital technologies can be a great support to citizens, research, economy, and society as a whole. To foster their usefulness, their interoperability and sustainability, as well as of the content they store and the technology they use, are key elements.

The research sector has adopted two important sets of principles that support the movement towards Open Science becoming the 'new normal' in research: the FAIR principles and the TRUST principles. By establishing these principles firmly in research activities, Europe is already setting standards for the research sector.

---

[3] EC Consultation: 2030 Digital Compass: the European way for the Digital Decade, p. 7

[4] EC Consultation questionnaire

[5] EC Consultation questionnaire

The FAIR principles refer to making research data Findable, Accessible, Interoperable, and Re-usable.[6] Data stored and preserved according to the FAIR principles are discoverable and available for re-use by other researchers. Even data that cannot be openly published due to privacy, data protection, intellectual property rights, or other confidentiality requirements, can be FAIR and thus benefit research.

The TRUST principles refer to data repositories, important elements of digital infrastructures. They stand for Transparency, Responsibility, User focus, Sustainability, and the (fitness of) technology.[7]

Science Europe hopes that these principles will also be integrated in the future Pact for Research & Innovation in Europe. These principles do not have to stay limited to the R&I sector, however: they can and should certainly inspire overarching digital principles at European level.

As European digital principles will be beneficial for businesses, society, and research alike, Science Europe would like to offer its expertise and the extensive experience of its members to contribute to the development of European digital principles.

About Science Europe
Science Europe is the association representing major public organisations that fund or perform excellent, ground-breaking research in Europe. It brings together the expertise of 38 of the largest and best-known research organisations in the world to jointly push the frontiers of how scientific research is produced and delivers benefits to society. It advocates science and the scientific community to help build the European Research Area (ERA) and shape the global scientific agenda.

Science Europe member organisations develop, manage, and implement national research policies, as well as a large variety of funding programmes, from bottom-up schemes to mission-oriented research. They collectively invest over €23.9 billion each year on research in 28 European countries. Science Europe members are also developing and adapting national policies on an on-going basis to create the best possible conditions for research.

---

[6] https://www.nature.com/articles/sdata201618
[7] https://www.nature.com/articles/s41597-020-0486-7