

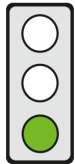
DIGITAL SINGLE MARKET: EUROPEAN CLOUD INITIATIVE

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KEY ISSUES

Objective of the Communication: The Commission wants to create a European Cloud for science, strengthen data infrastructure and invest in quantum technologies.

Affected parties: Science, industry, public institutions.



Pro: (1) A European Cloud for science contributes to the efficiency and quality of research. Success, however, depends on information actually being put in the Cloud.

(2) The plan to open up the Cloud for commercial users is appropriate.

CONTENT

Title

Communication COM(2016) 178 of 19 April 2016: **European Cloud Initiative** – Building a competitive data and knowledge economy in Europe

Brief Summary

► General Background

- In May 2015, the Commission submitted its Communication "Digital Single Market Strategy" [COM(2015) 192]. The third pillar of this strategy deals with "Maximising the growth potential of the digital economy" (see [cepPolicyBrief](#)).
- In April 2016, the Commission submitted four Communications for the third pillar on the following subject areas:
 - Digitising European Industry [COM(2016) 180; see [cepPolicyBrief](#)],
 - European Cloud Initiative (this [cepPolicyBrief](#)),
 - ICT Standardisation for the digital single market [COM(2016) 176; [cepPolicyBrief](#) to follow] and
 - EU eGovernment Action Plan [COM(2016) 179; [cepPolicyBrief](#) to follow].

► European Cloud Initiative: Context and objectives

- According to the Commission, businesses, research communities and public bodies in the EU are failing to tap into the full potential of data. It gives amongst others the following reasons for this (p. 3 and 4):
 - Data from publicly funded research is not always "open".
 - The "lack of interoperability" prevents data sharing.
 - The existing infrastructures for high-performance computing, data storage and networks ("data infrastructure") are not fully integrated but split by countries, "governance models" or scientific domains.
 - The EU lacks "high-performance computers".
- Under the Cloud Initiative, the Commission therefore wants to (p. 7 et seq.)
 - create a "European Open Science Cloud",
 - "strengthen" European data infrastructures and
 - support quantum technologies.

► Creating a "European Open Science Cloud"

- According to the Commission, Big Data creates new possibilities, particularly for research and development (p. 2). It therefore wants to support the creation of a "European Open Science Cloud".
- Scientists will be able to use this for the "storage, management, analysis and re-use of research data".
- Over time, the Cloud will also be open to "government and business users". (p. 6 et seq. and p. 10 et seq.)

- In order to support the development of the Cloud, the Commission is seeking to implement the following measures (p. 6-8):
 - As of 2017, all research data from the Horizon 2020 programme will be publicly accessible. Opt-outs are provided for cases where public accessibility to data would be contrary to future commercial use, personal data protection, data security and the protection of EU classified information.
 - As of 2017, the Commission wants to strengthen the incentives for scientific data sharing and for data sharing between researchers and businesses.
 - By the end of 2017, it wants to submit an Action Plan for scientific data interoperability.
- ▶ **"Strengthening" European data infrastructures**
 - According to the Commission, Europe needs high-performance computing capacity, "leading-edge" data and software services and high-speed connectivity in order inter alia to maximise the potential of Big Data (p. 8 and 9).
 - The Commission wants to work together with the "participating Member States" to develop a "European data infrastructure".
 - For this it will work with the Member States (p. 8-10)
 - as of 2016, to develop a European "Big Data" centre,
 - as of 2016, to "upgrade" the backbone network for research and innovation (GÉANT), and
 - as of 2018, to acquire two prototype high-speed supercomputers.
- ▶ **Supporting quantum technologies**
 - Quantum technologies are those which use certain physical phenomena at the elementary particle level (quantum level).
 - The Commission wants to accelerate the development of quantum technologies and help bring products based on these technologies - e.g. supercomputing and secure networking - to the market as quickly as possible. (p. 12)
 - From 2018, the Commission is planning a "flagship initiative" to support quantum technologies. It wants to carry out a consultation and an impact assessment on this by the end of 2017. (p. 12)
- ▶ **Financing**
 - In order to implement the Cloud Initiative, the Commission is planning an investment of € 6.7 billion within the next five years (Fact Sheet, MEMO/16/1409, p. 4).
 - The Commission wants to channel € 2 billion from the Horizon 2020 programme into the Cloud Initiative.
 - € 4.7 billion will be raised from a combination of private investors, EU funding programmes and national public funds, of which € 3.5 billion will be for data infrastructure, € 1 billion for quantum technologies and € 0.2 billion for other measures (p. 12).

Policy Context

The EU Commission considers the completion of a Digital Single Market to be one of the priorities of its period of office. In May 2015, it presented a Strategy for the Digital Single Market [COM(2015) 192, [cepPolicyBrief](#) on maximising the growth potential of the digital economy]. In mid-May, EU Commissioner Oettinger and the Dutch Economic Affairs Minister, Henk Kamp, accepted the so-called Quantum Manifesto, in which stakeholders from business, science and research called on the EU to invest € 1 billion in the development of quantum technology ([Communication from the Netherlands EU Presidency 2016 of 18 May 2016](#)). At the end of May, the Council of Ministers under the Netherlands Presidency, declared that all scientific articles which are the result of publicly funded research, will be freely accessible by 2020 ([Press release of the Netherlands EU Presidency 2016 of 27 May 2016](#)).

Options for Influencing the Political Process

Leading Directorate General:	DG Communications Networks, Content & Technology
Leading Committees of the EP:	Industry, Research and Energy, Rapporteur: TBA
Leading Federal Ministry:	Federal Ministry for Economic Affairs and Energy
Leading Committee of the BT:	Committee for Economic Affairs and Energy

ASSESSMENT

Economic Impact Assessment

Ordoliberal Assessment

A European Cloud for science contributes to the efficiency and quality of research. It prevents duplication of work, for example by collecting and evaluating data, strengthens the (interdisciplinary) exchange of information and facilitates the monitoring and verification of research results. **The success** of a scientific Cloud **depends, however, on information actually being made available.** Some scientists, however, may find it advantageous, for considerations of reputation and career, not to put research work in the Cloud and just rely on the participation of other players (free-loading problem). It is therefore wise to make all research data from

projects in the Horizon 2020 Programme freely accessible. Opt-outs are appropriate, however, such as to safeguard intellectual property rights.

The plan to open up the Cloud for commercial users is appropriate. Industry should not however be obliged to place its research results in the Cloud because knowledge generated and financed by industry in the course of its research activities does not constitute public property. The public dissemination of this knowledge would run counter to its commercialisation which is precisely what provided the incentive for the research. If industry is nevertheless interested in making its research results available, this can easily be realised via Cloud services offered, for example, by private providers.

As long as the European Cloud is used primarily by science rather than industry, its financing by way of public funds is appropriate. To the extent that it is also used commercially in the future, financial participation by industry is imperative.

The development of data infrastructure and support for quantum technology involves high costs. In view of the limited budgets of the Member States, European collaboration in this regard makes sense.

Legal Assessment

Legislative Competency

The legal basis for the Horizon 2020 Programme is provided by the EU's competence to promote the competitiveness of the Union's industry (Art. 173 TFEU) and its competence for establishing a multiannual framework to support scientific and technological objectives (Art. 182 TFEU). The competence to determine the rules for the participation of undertakings, research centres and universities and the rules governing the dissemination of research results arises from Art. 183 TFEU.

Subsidiarity

Unproblematic.

Proportionality with respect to Member States

Unproblematic.

Compatibility with EU Law in other respects

Freedom of sciences (Art. 13 Charter of Fundamental Rights), in addition to the right to defend oneself against intervention by the party obligated under the fundamental right, also gives rise to a participation right as against the obligated party due to the extensive financing of science by public funds (Jarass, Charta der Grundrechte der Europäischen Union, Kommentar, Art. 13, para. 11 et seq.). Free accessibility to research data from projects under the Horizon 2020 Programme does not constitute a breach of freedom of sciences: As a result of the opt-out provisions, the publication of research data as a requirement for funding is proportionate. In addition, the party obligated under the fundamental right has a broad scope for discretion in this regard (Jarass, Charta der Grundrechte der Europäischen Union, Kommentar, Art. 51, para. 57).

Conclusion

A European Cloud for science contributes to the efficiency and quality of research. The success, however, depends on information actually being made available. The plan to open up the Cloud for commercial users is appropriate.