Basic information

2016/2145(INI) INI - Own-initiative procedure	Procedure completed
European Cloud Initiative **Subject** 3.30.06 Information and communication technologies, digital technologies 3.50.20 Scientific and technological cooperation and agreements	

Key players

European Parliament

Committee responsible	Rapporteur	Appointed
ITRE Industry, Research and Energy	BUZEK Jerzy (PPE)	12/01/2017
	Shadow rapporteur BONI Michał (PPE) NICA Dan (S&D) FOX Ashley (ECR) VAN NIEUWENHUIZEN Cora (ALDE) REIMON Michel (Verts/ALE)	

Committee for opinion	Rapporteur for opinion	Appointed
ECON Economic and Monetary Affairs	The committee decided not to give an opinion.	
EMPL Employment and Social Affairs	The committee decided not to give an opinion.	
IMCO Internal Market and Consumer Protection	MAYDELL Eva (PPE)	24/05/2016
REGI Regional Development	The committee decided not to give an opinion.	
CULT Culture and Education	The committee decided not to give an opinion.	
JURI Legal Affairs	The committee decided not to give an opinion.	

	LIBE Civil Liberties, Justice and Home Affairs	BONI Michał (PPE)	07/11/2016

European Commission	Commission DG	Commissioner
	Communications Networks, Content and Technology	ANSIP Andrus

Key events

Date	Event	Reference	Summary
19/04/2016	Non-legislative basic document published	COM(2016)0178	Summary
15/09/2016	Committee referral announced in Parliament		
12/01/2017	Vote in committee		
26/01/2017	Committee report tabled for plenary	A8-0006/2017	Summary
15/02/2017	Debate in Parliament		
16/02/2017	Decision by Parliament	T8-0052/2017	Summary
16/02/2017	Results of vote in Parliament		
16/02/2017	End of procedure in Parliament		

Technical information

Procedure reference	2016/2145(INI)
Procedure type	INI - Own-initiative procedure
Procedure subtype	Strategic initiative
Legal basis	Rules of Procedure EP 55
Stage reached in procedure	Procedure completed
Committee dossier	ITRE/8/07102

Documentation gateway

European Parliament

Document type	Committee	Reference	Date	Summary
Committee draft report		PE587.505	15/09/2016	
Amendments tabled in committee		PE592.264	25/10/2016	
Committee opinion	IMCO	PE589.220	29/11/2016	
Committee opinion	LIBE	PE593.831	14/12/2016	

Committee report tabled for plenary, single reading		A8-0006/2017	26/01/2017	Summary
Text adopted by Parliament, single reading		T8-0052/2017	16/02/2017	Summary

European Commission

Document type	Reference	Date	Summary
Commission document (COM)	COM(2016)0178	19/04/2016	Summary
Commission response to text adopted in plenary	SP(2017)358	31/08/2017	
Commission working document (SWD)	SWD(2018)0083	14/03/2018	

National parliaments

Document type	Parliament /Chamber	Reference	Date	Summary
Contribution	RO_CHAMBER	COM(2016)0178	05/10/2016	
Contribution	IT_CHAMBER	COM(2016)0178	20/10/2016	

European Cloud Initiative

2016/2145(INI) - 26/01/2017 - Committee report tabled for plenary, single reading

The Committee on Industry, Research and Energy adopted the own-initiative report by Jerzy BUZEK (EPP, PL) on the European Cloud Initiative.

The report noted that the full potential of cloud computing for Europe can only be realised when data can flow freely across the Union with clear rules, and when international data flows play an increasingly important role in the European and global economy.

The EU is lagging behind on the development of high-performance computing (HPC) as a result of its under-investment in establishing a complete HPC system.

Firstly, Members welcomed the Commission's European Cloud Initiative as part of the implementation of the Digital Single Market (DSM) Strategy and the Digitising European Industry Package, thus fostering the growth of the European digital economy, contributing to the competitiveness of European businesses and services and enhancing global market positioning. They stressed that work on standardisation in cloud computing should be accelerated and that creating more awareness of the benefits of cloud computing is crucial.

European Open Science Cloud (EOSC): Members gave their support to the EOSC as part of the European Cloud Initiative that will create a virtual environment where scientists and professionals from all regions can store, share, manage, analyse and reuse their research data. It must be developed and used with due regard for the fundamental rights enshrined in the Charter of Fundamental Rights. The committee welcomed the Commission's plan to extend the user base to the industry and to governments as fast as possible. The EOSC should be accompanied by a comprehensive **cyber-security strategy**, because the scientific community has a need for a reliable data infrastructure that can be used without exposing research work to data loss, corruption or intrusion.

European programmes: Members urged the Commission to:

- lead by example, and to make all research data funded by European programmes – such as Horizon 2020, the European Fund for Strategic Investments (EFSI), the European Structural and Investment Funds (ESI) and others – and its results to be open by default, based on the findable, accessible, interoperable and reusable (FAIR) principles;
- identify appropriate financing mechanisms for the EOSC and the European Data Infrastructure (EDI);
- ensure that the EOSC **benefits all regions** of the Union, exploring the use of regional development funds for widening the initiative.

Removing barriers: Members supported the Commission's intention to remove barriers, especially technical and legal ones, to the free movement of data and data services, to remove as well disproportionate data localisation requirements, and to promote the interoperability of data by linking the European Cloud Initiative to the Free Flow of Data Initiative. In order to achieve a digital society, the free flow of data must be regarded as the **fifth freedom** within the single market. They noted that a clear legal framework, sufficient skills and resources related to the management of big data, as well as the recognition of relevant professional qualifications are prerequisites for unleashing the full potential of cloud computing.

The Commission is urged to engage with stakeholders, especially the industry, in identifying big data, and to create incentives for stakeholders, in particular SMEs and start-ups, to use, open and share data in the Single Market.

Text and data mining: the report stressed that full availability of public data within the EOSC will not be sufficient to remove all barriers to data-based research. The initiative needs to be complemented by a **modern copyright framework** that should allow for the removal of fragmentation and lack of interoperability from the European data research process.

Data protection, fundamental rights and data security: the report urged the Commission to take action to promote the further harmonisation of laws in the Member States in order to avoid jurisdictional confusion and fragmentation, and to ensure transparency in the digital single market.

Stressing that the EU is a global importer and exporter of digital services, and that it requires a strong cloud computing and data economy to be competitive, Members called on the Commission to take a lead in striving towards the creation of uniform, globally accepted standards of personal data protection.

Members recognised that a harmonised approach to the implementation of the General Data Protection Regulation, including guidelines, compliance toolkits and awareness-raising campaigns for citizens, researchers and businesses, is crucial, especially for the development of the EOSC and the facilitation of research cooperation, including by high-performance computing.

Lastly, the Commission is urged to:

- cooperate in establishing a safe and trustworthy digital infrastructure and to build up high levels of cybersecurity in compliance with the Network and Information Security Directive;
- work with industry-led standard setting initiatives to ensure that the single market remains accessible to third countries and responsive to technological evolution, avoiding barriers which will hinder innovation and competitiveness in Europe.

European Cloud Initiative

2016/2145(INI) - 19/04/2016 - Non-legislative basic document

PURPOSE: to present a European Cloud Initiative with a view to securing Europe's place in the global data-driven economy.

BACKGROUND: the world is witnessing a dramatic increase in the amount and variety of data being produced. This "**Big Data**" phenomenon creates new possibilities to share knowledge, to carry out research and to develop and implement public policies. It is also becoming easier to exploit this data thanks to the Cloud. As Europe is the largest producer of scientific knowledge in the world, **it is well placed to take the global lead in the developing of a science cloud**.

However, **Europe is not yet fully tapping into the potential of data**:

- many European businesses, research communities and public bodies are yet to tap into the full potential of data and of its potentially transformative effect on traditional sectors and on the way research is conducted. **Data coming from publicly funded research is not always open**; likewise data generated or collected by businesses is often not shared, and not always for commercial reasons;
- **lack of interoperability** prevents addressing grand societal challenges that require efficient data sharing and a multidisciplinary, multi-actor approach, e.g. climate change);
- **fragmentation** hampers data-driven science. Access policies for networking, data storage and computing differ;
- there is surging demand in Europe for a world-class **High Performance Computing** (HPC) infrastructure to process data in science and engineering. However, Europe is not participating in the HPC race in line with its economic and knowledge potential; it is lagging behind in comparison to the USA, China, Japan, Russia and India.

The European Cloud Initiative will **allow the EU to fully exploit the potential of data as a key driver of Open Science and the 4th industrial revolution**. It is designed to help science, industry and public authorities in Europe access world-class data infrastructures and cloud-based services as they become the decisive factors for success in the digital economy.

CONTENT: the European Cloud Initiative builds on the Digital Single Market Strategy, which aims, inter alia, to maximise the growth potential of the European digital economy. It aims to develop a trusted, open environment for the scientific community for storing, sharing and reusing scientific data and results, the European Open Science Cloud. It aims to deploy the underpinning super-computing capacity, the fast connectivity and the high-capacity cloud solutions needed via a European Data Infrastructure.

1) European Open Science Cloud: the European Open Science Cloud aims to give Europe a global lead in scientific data infrastructures. Practically, it will offer **1.7 million European researchers and 70 million professionals in science and technology a virtual environment** for storage, management, analysis and re-use of research data, across borders and scientific disciplines.

- **As of 2016**, the Commission will use the Horizon 2020 Work Programmes to: (i) provide funding to integrate and consolidate e-infrastructure platforms, (ii) **federate existing research infrastructures and scientific clouds** and (iii) support the development of cloud-based services for Open Science.
- **As of 2017**, the Commission will make **open research data the default option**, while ensuring opt-outs, for all new projects of the Horizon 2020 programme. It will encourage scientific data sharing and the creation of incentive schemes for researchers and businesses to share data

2) European Data Infrastructure: the European Data Infrastructure, once fully implemented, will underpin the European Open Science Cloud. It will also support the EU to rank among the world's top supercomputing powers **by realising exascale supercomputers around 2022, based on EU technology.**

- **From now until 2020**, the Commission and participating Member States should develop and deploy **a large scale European HPC, data and network infrastructure**, including the following: (i) the acquisition of two co-designed, prototype exascale supercomputers and two operational systems which will rank in the top three of the world; (ii) the establishment of a European Big Data centre; (iii) the upgrade of the backbone network for research and innovation (GEANT) and the integration of European public services networks.

3) Exploiting the potential of quantum technologies: the European Data Infrastructure should be complemented by an ambitious, long-term and large-scale flagship initiative to unlock the full potential of quantum technologies, accelerate their development and bring commercial products to public and private users.

- The Commission will start the preparatory steps for the flagship, with the aim of launching **the ramp up phase in 2018**.

4) Financial implications: various sources of EU financing can be identified for the European Cloud Initiative: (i) Horizon 2020 Framework Programme for Research and Innovation; (ii) Connecting Europe Facility (CEF); (iii) European Structural and Investment Funds (ESIF); (iv) European Fund for Strategic Investments (EFSI).

In cooperation with Member States and stakeholders, the Commission will explore appropriate governance and financing mechanisms for the Open Science Cloud and the European Data Infrastructure and define an implementation roadmap.

European Cloud Initiative

2016/2145(INI) - 16/02/2017 - Text adopted by Parliament, single reading

The European Parliament adopted by 444 votes to 93, with 50 abstentions, a resolution on the European Cloud Initiative.

Members noted that the full potential of cloud computing for Europe can only be realised when data can flow freely across the Union with clear rules, and when international data flows play an increasingly important role in the European and global economy. They recalled that the EU is lagging behind on the development of high-performance computing (HPC) as a result of its under-investment in establishing a complete HPC system.

Parliament welcomed the Commission's European Cloud Initiative as part of the implementation of the Digital Single Market (DSM) Strategy. It stressed that work on **standardisation** in cloud computing should be accelerated and that creating more awareness of the benefits of cloud computing is crucial.

European Open Science Cloud (EOSC): Members gave their support to the EOSC as part of the European Cloud Initiative that will create a virtual environment where scientists and professionals from all regions can store, share, manage, analyse and reuse their research data. It must be developed and used with due regard for the fundamental rights enshrined in the Charter of Fundamental Rights. Parliament welcomed the Commission's plan to **extend the user base** to the industry and to governments as fast as possible.

Solutions under the European Cloud Initiative should be developed with due **regard for the fundamental rights** enshrined in the Charter of Fundamental Rights.

The scientific community needs a secured, safe and open-source high-capacity infrastructure in order to advance research and to prevent potential security breaches. The EOSC should be accompanied by a comprehensive **cyber-security strategy**.

The Commission and the Member States, in cooperation with other stakeholders, are called upon to establish a **roadmap** to give as fast as possible a clear timescale for the implementation of the actions envisaged by the EOSC.

Access to data and financing: Parliament urged the Commission to lead by example, and to make all research data funded by European programmes – such as Horizon 2020, the European Fund for Strategic Investments (EFSI), the European Structural and Investment Funds (ESI) and others – and its results to be open by default, based on the findable, accessible, interoperable and reusable (**FAIR**) principles.

Moreover, concerned by the EUR 4.7 billion financing gap of the European Cloud Initiative, Members called on the Commission to: (i) identify appropriate **financing mechanisms** for the EOSC and the European Data Infrastructure (EDI); (ii) provide sufficient resources for this policy area in Horizon 2020 and in its proposal for the Ninth Framework Programme.

Removing barriers: Parliament supported the Commission's intention to remove barriers, especially technical and legal ones, to the free movement of data and data services, to remove as well disproportionate data localisation requirements, and to promote the interoperability of data by linking the European Cloud Initiative to the Free Flow of Data Initiative. In order to achieve a digital society, the free flow of data must be regarded as the fifth freedom within the single market. Members noted that a clear legal framework, sufficient skills and resources related to the management of big data, as well as the recognition of relevant professional qualifications are prerequisites for unleashing the full potential of cloud computing.

The Commission is urged to: (i) engage with stakeholders, especially the industry, in identifying big data; (ii) create incentives for stakeholders, in particular SMEs and start-ups, to use, open and share data in the Single Market.

Text and data mining: the resolution stressed that full availability of public data within the EOSC will not be sufficient to remove all barriers to data-based research. The initiative needs to be complemented by a **modern copyright framework** that should allow for the removal of fragmentation and lack of interoperability from the European data research process.

Data protection, fundamental rights and data security: Parliament urged the Commission to take action to promote the further harmonisation of laws in the Member States in order to avoid jurisdictional confusion and fragmentation, and to ensure transparency in the digital single market.

Stressing that the EU is a global importer and exporter of digital services, and that it requires a strong cloud computing and data economy to be competitive, Members called on the Commission to take a lead in striving towards the creation of uniform, globally accepted standards of personal data protection.

Parliament recognised that a harmonised approach to the implementation of the General Data Protection Regulation, including guidelines, compliance toolkits and awareness-raising campaigns for citizens, researchers and businesses, is crucial, especially for the development of the EOSC and the facilitation of research cooperation, including by high-performance computing.

Lastly, the Commission is urged to:

- cooperate in establishing a **safe and trustworthy digital infrastructure** and to build up high levels of cybersecurity in compliance with the Network and Information Security Directive;
- ensure that this initiative is fit for purpose, outward looking, future proof and **technologically neutral** in order for the EU to be a leader in this area;
- work with industry-led **standard setting initiatives** to ensure that the single market remains accessible to third countries and responsive to technological evolution, avoiding barriers which will hinder innovation and competitiveness in Europe.