



Management Plan 2019

Directorate-General for
Communications Networks,
Content and Technology



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Digital technology makes our lives easier at home, at work, while studying and when we travel. 370 million Europeans use the internet every day. To make the most of the opportunities this brings, Europe needs a trusted Digital Single Market (DSM), to make the lives of its citizens easier, enhance growth worth EUR 415 billion every year, and generate hundreds of thousands of new jobs. A connected Digital Single Market is one of the top priorities of the Commission's mandate, and the focus is now on the adoption by the co-legislators of the remaining legislative proposals, with the aim of completing the DSM before the European Parliament elections.

In May 2018 the Commission published a comprehensive proposal for the next multi-annual EU budget, along with proposals for the next generation of programmes. The Commission proposed an entirely new programme, the Digital Europe Programme, along with successor programmes to existing initiatives to support the DSM to meet ICT and digital investment needs: Horizon Europe, the Connecting Europe Facility (CEF) 2, the MEDIA subprogramme, and the cross-sectoral strand of Creative Europe II. Their adoption is crucial, as they will unlock important parts of the DSM and set the funding framework for the next seven years.

The present Management Plan implements the strategic priorities set out in DG CONNECT's Strategic Plan 2016-2020.

First and most importantly, we strive to very quickly complete the three pillars of the Digital Single Market and deliver all DSM-related legislative files, as set out in the 2015 DSM Strategy: 1) improving access to online goods and services across Europe, 2) digital networks and innovative services, and 3) maximizing the growth potential of the digital economy. "A Connected Digital Single Market" is our first General Objective, which is translated into five Specific Objectives embodying a detailed set of actions, which all contribute to it in an integrated and consistent way.

The delivery of the specific outputs will create the conditions that allow European citizens to enjoy the same access to high quality digital services across borders, and where European companies can compete globally, start-ups and Small and Medium-sized Enterprises (SMEs) can grow, and the results of European Research & Innovation (R&I) investment can be translated into successful products and services on world markets.

As set out in President Juncker's 2019 letter of intent, the Commission will work closely with the two co-legislators to swiftly agree the legislative proposals aimed at completing the DSM currently under negotiation, in particular the Copyright Package; the Cybersecurity proposals including the strengthening of the Agency for Network and Information Security and the proposal establishing the network of cybersecurity competence centres and the European Cybersecurity Research and Competence Centre; the proposal on fairness in platform-to-business relations; and the proposals on Privacy and Electronic Communications and the re-use of public sector information and on the implementation and functioning of the .eu Top Level Domain name.

Other initiatives coordinate activities at EU and national level to enhance the competitiveness of EU industry and the innovation capacity of our research community, as well as to make the most of high performance computing, autonomous cars, 5G and artificial intelligence. In addition, we will deliver on preparing the DSM for the future: a coordinated plan for the development of artificial intelligence in Europe, an action plan on disinformation, and a recommendation to establish a format for European Electronic Health Record Exchange.

To match the efforts at European level, the progress made at Member State level will be documented and monitored through the Digital Economy and Society Index (DESI) and the European Semester exercise.

Second, we endeavour to foster European information and communication technologies (ICT) research, development and innovation, and to boost investment. "A New Boost for Jobs, Growth and Investment" is DG CONNECT's second General Objective, which is implemented through two Specific Objectives comprising a number of actions.

Investing in ICT Research and Innovation (R&I) is one of the main instruments that will allow the EU to have a prominent role at a global level and contribute to economic growth and sustainability. The DSM Strategy impacts all pillars of ICT R&I, and therefore targeted R&I investments will support DSM implementation. Policy actions and R&I investment activities are mutually supportive. Horizon 2020, and in particular Public Private Partnerships (PPPs) and the so-called Focus Areas, as well as the telecom investments under the Connecting Europe Facility play an important role in supporting the Commission policies prepared and implemented by DG CONNECT. Conversely, the new policies underpin decision making regarding R&I priorities (e.g. data economy, cybersecurity, software technologies and industrial leadership). The delivery of the specific outputs, detailed in this management plan, will boost the new digital technologies that are the engines of economic growth.

The Horizon 2020 work programme for the period 2018 to 2020 directly supports the Commission's political priorities, with a total share of EUR 6.3 billion, for which DG CONNECT is responsible. This includes EUR 1.7 billion for 'Digitising and transforming European industry and services' actions.

The major contractual PPPs play a strategic role and are of key importance in the support to ICT across all parts of Horizon 2020. They contribute to a better alignment of EU support to ICT R&I with industrial strategies and to a defragmentation of this support in the fields of 5G, big data, robotics, photonics, micro-electronics, manufacturing technologies (Factories of the Future), high performance computing and cybersecurity.



Future and Emerging Technologies (FET) activities create in Europe a fertile ground for responsible and dynamic multi-disciplinary collaboration on future technologies and for kick-starting new European research and innovation ecosystems around them. These are the precursors for future industrial leadership and for tackling society's grand challenges in new ways. The 2018-2020 work programme continues to implement FET Open (within the European Innovation Council pilot), FET Proactive (which will be part of the new enhanced European Innovation Council pilot as from 2019), and the "Graphene", "Human Brain Project" and "Quantum Technologies" Flagships, and prepares the grounds for a Flagship initiative on "Future Batteries Technologies".

Building on this set of structuring initiatives, a new set of strategic partnerships under Horizon Europe is required to ensure Europe's competitiveness and strategic autonomy in the digital field.

With its economic weight and political clout, Europe is also in a good position to influence the global debates around the digital transformation in areas such as artificial intelligence and 5G, and ensure leadership in the digital market. Work with our international partners takes place in three main areas: i) regulation, to promote a regulatory system in our partner countries that is close to and/or compatible with the EU legal framework, ii) market access, to remove barriers in third countries and iii) coherence with our research, to implement a coherent approach between our regulatory, policy and research initiatives (e.g. access to research programmes).

The 2019 Management Plan takes into account the needs related to preparations for Brexit, including both legal and technical-administrative-budgetary measures. Notwithstanding individual specificities among Directorates-General, these actions are being coordinated by the Secretariat-General to ensure coherence in their design and timing.

A CONNECTED DIGITAL SINGLE MARKET

SPECIFIC OBJECTIVE 1.1

Digital goods and services are available to consumers and businesses across Europe

SPECIFIC OBJECTIVE 1.2

Electronic communications networks and services, digital content and innovative services benefit from favourable conditions and compete on a level playing field

SPECIFIC OBJECTIVE 1.3

The digital economy can develop to its full potential underpinned by initiatives enabling full growth of digital and data technologies

SPECIFIC OBJECTIVE 1.4

All Europeans enjoy effective world-class connectivity through future-proof and ubiquitous digital networks and service infrastructures as underlying basis for the digital society and data economy

SPECIFIC OBJECTIVE 1.5

A modern, open and pluralistic society building on Europe's cultural diversity, creativity and respect of creators' rights and its values in particular democracy, freedom of expression and tolerance

DG CONNECT STRATEGIC PRIORITIES 2016-2020

A NEW BOOST FOR JOBS, GROWTH AND INVESTMENT

SPECIFIC OBJECTIVE 2.1

Europe maintains its position as a world leader in the digital economy, where European companies can grow globally, drawing on strong digital entrepreneurship and performing start-ups and where industry and public services master the digital transformation

SPECIFIC OBJECTIVE 2.2

Europe's research finds investment opportunities for potential technology breakthroughs and flagships, in particular through the Horizon 2020 programme and using Private Public Partnerships

Relevant general objective: A Connected Digital Single Market

Specific objective 1.1:
Digital goods and services are available to consumers and businesses across Europe.

Related to spending programme(s): CEF, Creative Europe MEDIA



EU COPYRIGHT RULES FIT FOR THE DIGITAL AGE



Better choice & access to content online and across borders



A fairer online environment for creators and the press



Improved copyright rules for education, research, cultural heritage and inclusion of disabled people

#copyright #DigitalSingleMarket

As a matter of priority, DG CONNECT will work with the co-legislators to facilitate the adoption of the 2016 proposals to adapt the **EU copyright rules to the realities of the DSM** in early 2019. The Regulation on TV and radio transmissions and retransmissions and the Directive on copyright in the DSM will, together, ensure i) better choice and access to content online and across borders, ii) improved copyright rules on research, education and preservation of cultural heritage, and iii) a fairer and sustainable marketplace for creators, the creative industries and the press.

The Commission's **proposal for the Creative Europe MEDIA Programme post-2020** accompanies the Audiovisual Media Services Directive. The Commission proposes to increase the budget by 30% and significant changes in the way support is delivered, to address recent market developments, including the stronger position of global distribution platforms. The new MEDIA will focus on reaching out to wider audiences and fostering collaboration in order to scale up and compete at the European level. The priorities of support will be to nurture skills and talent, foster innovative and quality content, enhance theatrical and online distribution and strengthen promotion of works with high circulation potential.

In 2019, the European Film Forum will focus on preparing the implementation of the new Creative Europe MEDIA, to identify actions and modalities for future Work Programmes that effectively address the Programme's objectives. Also the Commission will continue to support the Open Method of Cooperation (OMC) of the Member States. Following the success of the 2018 OMC on the circulation of non-national films, the 2019 OMC will aim to strengthen audiovisual co-productions, due to their high potential to travel across Europe and reach wider audiences.

The Commission's 2020 annual Work Programme for Creative Europe MEDIA will respond to the recommendations of the mid-term evaluation that can be addressed under the existing framework. The Commission will also adopt a Delegated Act on supplementary performance indicators for the Creative Europe MEDIA Programme, addressing a number of shortcomings, which were identified by the mid-term evaluation. The supplementary indicators will allow the Commission to more effectively monitor results and communicate them to stakeholders.

To ensure that the **.eu legal framework** still serves its intended purpose and values, the Commission proposed a Regulation on the implementation and functioning of the .eu Top Level Domain name on 27 April 2018, for which negotiations with the co-legislators are ongoing. Once adopted, the Regulation is expected to include an obligation for the Commission to adopt the lists of reserved or registered domain names notified by Member States by means of implementing acts and to establish the criteria and the procedure for the designation of the Registry by means of delegated acts. The contract with the Registry currently operating the .eu will expire in October 2019. The Registry agreed on the principle of a contract extension, which will allow the next contract with a Registry to align with the new .eu legal framework. Furthermore, on wider internet governance, the Commission will be represented in a number of high-level events such as the European Dialogue on Internet Governance (EuroDIG) conference, the three Internet Corporation for Assigned Names and Numbers (ICANN) meetings and the Internet Governance Forum 2019. It will notably seek to ensure the adoption of a balanced WHOIS policy reform in ICANN and to improve the functioning of the Internet Governance Forum, with the help of EU Member States.

The Regulation on addressing **unjustified geo-blocking** and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market applied as of 3 December 2018. DG CONNECT prepared practical guidance addressed to traders, consumers and Member States, and will continue to support full implementation of the Regulation. DG CONNECT will take first steps to evaluate the Regulation, inter alia through a Eurobarometer survey of consumer experiences and economic studies.

Main outputs in 2019:

Delivery on legislative proposals pending with the legislator

Output	Indicator	Target date
<i>Directive on copyright in the DSM.</i>	<i>Adoption by the co-legislators.</i>	<i>Q1 2019</i>
<i>Regulation establishing the Creative Europe Programme.</i>	<i>Political agreement.</i>	<i>2019</i>

All new initiatives and REFIT initiatives from the Commission Work Programme

Output	Indicator	Target date

Important items from work programmes/financing decisions/operational programmes

For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the [Draft Budget for 2019](#).

Output	Indicator	Target date
<i>Creative Europe MEDIA Work Programme 2020.</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019</i>
<i>Adoption of a Commission Delegated Act on supplementary performance indicators for the Creative Europe Programme.</i>	<i>Adoption by the Commission.</i>	<i>Q1 2019 PLAN/2018/2999</i>
<i>Strategic stakeholder dialogue through the European Film Forum and national film funds, focusing on the future Creative Europe MEDIA.</i>	<i>Holding 7 events in film festivals in 2019.</i>	<i>Q4 2019</i>

Other important outputs		
Output	Indicator	Target date
Commission Implementing act containing the lists of reserved and/or blocked .eu domain names by Member States.	Adoption by the Commission.	Q3 2019 PLAN/2018/3422
Commission delegated act laying down the criteria and procedures for the designation of the .eu Top Level Domain Registry operator.	Adoption by the Commission.	Q3 2019 PLAN/2018/3421

Specific objective 1.2: Electronic communications networks and services, digital content and innovative services benefit from favourable conditions and compete on a level playing field.	Related to spending programme(s): Horizon 2020, CEF
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In his State of the Union Address 2019, President Juncker committed the Commission to further protecting Europeans in the digital age by helping to defend against cyber-attacks. **Cybersecurity** is also fundamental to the effective functioning of the DSM. Beyond the continued work on the **Cyber Security Act and the certification framework**, the Commission adopted on 12 September 2018 the proposal on the creation of a **Network of Competence Centres** and a **European Cybersecurity Industrial, Technology and Research Competence Centre** to develop and roll out the tools and technology needed to keep up with an ever-changing threat and to coordinate the funds foreseen for cybersecurity. The negotiation with the co-legislator will be intensified with an aim to close it by Q2 2019.

In parallel, DG CONNECT will launch several pilot projects under H2020 to build on the initial preparatory activities conducted together with the Joint Research Centre. With Connecting Europe Facility resources, the Commission is developing and deploying the core cooperation platform of cooperation mechanisms initially focused on Computer Security Incident Response Teams (CSIRTs) in accordance with the Directive on security of network and information systems (NIS Directive) and is supporting Member States to develop their cybersecurity capabilities. Member States were required to transpose the NIS Directive, which is the first comprehensive piece of EU legislation in this area, into national law by 9 May 2018 and to identify all operators of essential services by 9 November 2018. The Commission will assess the consistency of the approach taken by the Member States in this identification and will submit a report. DG CONNECT will monitor the transposition and implementation of the Directive and will continue to support, in its role as secretariat, the work of the Group for EU strategic cooperation on cybersecurity established under the NIS Directive.

DG CONNECT will prepare an implementing act specifying a contract summary template to be used by providers of publicly available electronic communications services in accordance with the Directive establishing the European Electronic Communications Code, The template will facilitate the comparability of service offers for end-users and reduce the compliance cost for providers.

Part 1. Main Outputs for the Year

Supporting effective implementation of the first EU cybersecurity law (Directive on Security of Network and Information Systems), with:



GREATER CAPABILITIES

Member States have to improve their cybersecurity capabilities



COOPERATION

Increased EU-level cooperation



RISKS PREVENTION

Players in key sectors (such as energy, transport, health) are obliged to put in place measures to prevent risks and handle cyber incidents

Working with Member States on:



EU CYBERSECURITY AGENCY

Strengthening the European Union Agency for cybersecurity to better assist Member States



EU CERTIFICATION FRAMEWORK

An EU-wide certification framework to ensure that products and services are cyber-secure



COORDINATED RESPONSE

Ensuring fast and coordinated responses to large scale cyber-attacks

DG CONNECT monitors the **Roam-like-at-home** rules to inform a review report to the EP and Council on the maximum wholesale roaming charges due by the end of 2019. DG CONNECT is also preparing an evaluation report of the Commission Implementing Regulation on fair use policy and the sustainability mechanism due by June 2019.

Following the review of the 2009 Commission Recommendation on the regulatory treatment of fixed and mobile termination rates in the EU, DG CONNECT is now working towards a delegated act setting **European rates for fixed and mobile call termination** with adoption expected during the first semester of 2020. DG CONNECT is looking into the development of a cost model for assessing the cost of providing fixed and mobile termination rates in the EU, which will allow the Commission to set the rates that will directly apply to all operators providing fixed and/or mobile call termination services in the EU.

National regulatory authorities use the Weighted Average Cost of Capital (WACC) to calculate the return on investments in telecoms networks in ex-ante regulatory proceedings. DG CONNECT works towards a **Commission 'Notice on Guidelines'** presenting the recommended approach **for the determination of the WACC**, which the Commission will use when assessing draft regulatory decisions from national regulatory authorities under the Framework Directive and the European Electronic Communications Code, once the latter comes into force.

DG CONNECT will prepare an implementation report of the Commission to the European Parliament and to the Council on the **open internet access rules** in accordance with the review clause of the Telecom Single Market Regulation drawing on the limited implementation experience since 30 April 2016.

The **Broadband Cost Reduction Directive** promotes the roll-out of high-speed communication networks by reducing the cost of building the new networks, incentivising cooperation across sectors and exploiting synergies (e.g. with energy, water, transport). The 2018 report on the implementation of that directive contains several recommendations, on which DG CONNECT will follow up with Member States and regulators, mainly via the Communications Committee (COCOM) and BEREC.

DG CONNECT is supporting the efforts of the co-legislators to secure the adoption of the proposal on **fairness in platform-to-business relations** before the European elections. By creating a fair, transparent and predictable business environment for smaller businesses and traders when using online platforms, these new rules will play an unprecedented role in facilitating the creation and development of market opportunities, including for SMEs. The **Observatory on the Online Platform Economy**, set up through a Commission Decision in April 2018, will intensify its work in 2019. Focusing inter alia on platform trading practices, data issues and discrimination, it will issue preliminary findings by mid-2019.

Benefits for citizens and businesses of the Regulation on Privacy and Electronic Communications



Users must be in control of their device and need to be asked for consent before cookies are stored to monitor their online behaviour.



Traditional telecommunications services will have new opportunities to process metadata (metadata is information about data) to provide additional services and to develop their businesses.



By replacing the current ePrivacy Directive by a directly applicable Regulation, citizens and businesses benefit from one single set of rules instead of 28 different ones. This creates more legal certainty and reinforces trust in the internal market.



ePrivacy rules will be enforced by independent supervisory authorities already competent to enforce the General Data Protection Regulation. This will ensure their uniform application across the EU.

DG CONNECT will support the efforts of the co-legislators to adopt the **Regulation on Privacy and Electronic Communications** by May 2019, to ensure a consistent legal framework for privacy and data protection in the EU. The Regulation will be a *lex specialis* to the General Data Protection Regulation (GDPR) that applies since 25 May 2018, and is expected to bring a level-playing field to the sector of electronic communications.

Main outputs in 2019:

Delivery on legislative proposals pending with the legislator

Output	Indicator	Target date
Proposal establishing the Network of cybersecurity competence centres and the European Cybersecurity Research and Competence Centre.	Adoption by the co-legislators.	May 2019
Proposal on fairness in platform-to-business relations.	Adoption by the co-legislators.	May 2019
Proposal on ePrivacy and Electronic Communications.	Adoption by the co-legislators.	May 2019

All new initiatives and REFIT initiatives from the Commission Work Programme

Output	Indicator	Target date

Important items from work programmes/financing decisions/operational programmes

For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the [Draft Budget for 2019](#).

Part 1. Main Outputs for the Year

Output	Indicator	Target date
Other important outputs		
Output	Indicator	Target date
<i>Commission Report on the open internet access rules of Regulation (EU) 2015/2120 (Telecom Single Market Regulation).</i>	<i>Adoption by the Commission.</i>	Q2 2019 PLAN/2018/3423
<i>Commission implementing act on Information requirements for contracts (contract summary template).</i>	<i>Adoption by the Commission.</i>	Q4 2019 PLAN/2018/3497
<i>Commission Report to the European Parliament and Council on the maximum wholesale roaming charges.</i>	<i>Adoption by the Commission.</i>	Q4 2019
<i>Evaluation of the Commission Implementing Regulation on fair use policy and the sustainability mechanism.</i>	<i>Adoption by the Commission.</i>	Q2 2019
<i>Commission Notice on the Weighted Average Cost of Capital (WACC).</i>	<i>Adoption by the Commission.</i>	Q1-Q2 2019 PLAN/2017/1800
<i>Report assessing the consistency of Member States' identification of operators of essential services.</i>	<i>Adoption by the Commission.</i>	Q2 2019 PLAN/2018/4819

Specific objective 1.3:
The digital economy can develop to its full potential underpinned by initiatives enabling full growth of digital and data technologies.

Related to spending programme(s):
 Horizon 2020, CEF

The **High Performance Computing (HPC) initiative** aims to establish a world-class HPC ecosystem in Europe and acquire leadership-class supercomputers to secure Europe's own independent HPC technology and system supply, offering HPC services for science, the public sector, industry and SMEs. DG CONNECT will coordinate national and European efforts in developing and acquiring such leadership-class supercomputing infrastructure and federate HPC service provisioning all over Europe. In 2019, the HPC initiative will be implemented by the newly established EuroHPC Joint Undertaking as follows:

- Launching calls for proposals using funds from Horizon 2020 and the Participating States of the Joint Undertaking to develop the next generation of key HPC technologies and systems towards exascale; achieve excellence in HPC applications and prepare and widen HPC use, including through the creation and networking of HPC competence centers throughout the European Union.
- Launching the acquisition of at least two pre exascale supercomputers and the joint procurement of at least two petascale supercomputers that will be jointly funded by the European Union (Horizon 2020 and CEF) and the Participating States of the Joint Undertaking. The supercomputers should be operational by the end of 2020 and accessible across the EU for any academic or industrial user

DG CONNECT will also carry out preparatory work on the proposal to amend the Regulation (EU) 2018/1488 establishing the EuroHPC Joint Undertaking, which will allow the use of new financial instruments after the end of this programming period.

The **European Open Science Cloud (EOSC)** was proposed in the 2016 Commission Communication "European Cloud Initiative - Building a competitive data and knowledge economy in Europe". Its objective is to give the EU a global lead in research data management and ensure that European scientists reap the full benefits

of data-driven science, by offering 1.7 million European researchers and 70 million professionals in science and technology a virtual environment with free, open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines. Over the last years, DG CONNECT has worked on integrating and consolidating the e-infrastructures funded through Horizon 2020 under the EOSC, taking shape as a collective effort of four major projects. In close cooperation with DG RTD, the EOSC was officially launched in November 2018. After supporting ICT, the Commission is committed to join forces with Member States to build an all-encompassing EOSC and widen its access and services to public authorities and the private sector in the next 10 years to increase innovation opportunities in Europe. In 2019, a second call will be launched under H2020 for implementing the EOSC access channel and catalogue (portal) and for supporting research-enabling service providers for the EOSC, accompanied by complementary initiatives to open up the catalogue of services and the user base of the EOSC.

Following up to the adoption of the **Regulation on a framework for the free flow of non-personal data in the EU** at the end of 2018, DG CONNECT will prepare informative guidance on the implementation of the Regulation, particularly with regard to the notion of 'mixed datasets'. To facilitate self-regulatory works, two cloud stakeholder working groups have been set up: one tasked with developing Codes of Conduct to facilitate porting of data between IT-systems and switching between cloud service providers and the second one to address the development of a possible European cloud security certification scheme.

The **Digitising European Industry (DEI) strategy** actively executes actions along the lines of the agreed innovation and digital industrial policies, thanks to a high-level governance with the European platform of national initiative, roundtables, stakeholder fora and specific mission-oriented working groups. The Leadership in Enabling and Industrial Technologies (LEIT-ICT) part of the H2020 Work Programme 2018-20 devotes substantial resources towards the implementation of the DEI strategy with further calls on **digital innovation hubs and digital industrial platforms**. Focused actions create a synergy of the DEI strategy in support to the Artificial Intelligence (AI) initiative as a key driver of the digitalisation in Europe, and prepare for a broad take-up of digital innovations by companies by reinforcing the development of Digital Innovation Hubs and its networking across Europe, laying down notably the path to the proposed Digital Europe Programme.

In important application areas such as cybersecurity, digitising healthcare, and public administration services, DG CONNECT supports the **development of pan-European digital infrastructures** in support of the DSM, in particular from CEF. The 3rd Mobility Package and the Digital Day 2 have been important occasions to take stock of the work done with industry and Member States on supporting the deployment of Connected Automated Driving and next steps towards setting a European framework for all relevant digital issues. In eHealth, the adoption and implementation of the Commission Recommendation to establish a format for European Electronic Health Record Exchange will support improved interoperability and portability of electronic health records across borders. This will be underpinned by continued support to a dedicated digital service infrastructure under CEF. In cybersecurity, the CEF programme will continue to support the functioning of the network of Computer Security Incident Response Teams (CSIRTs) and will start to support operators of critical infrastructures.

The **Next Generation Internet** seeks to build an internet of humans, an internet that is trustworthy, resilient, sustainable and inclusive. Work has started under H2020 with Research and Innovation projects in the areas of Artificial Intelligence, Internet of Things, the social sphere, interactive technologies, multilingual and inclusive technologies and open Internet. Several of the projects have a strong focus on Internet innovators (hi-tech startups and small and medium-sized enterprises, researchers, developers...) and the aim of quickly bringing research results to the market. Work also focuses on building a community of Internet innovators,

developing a cooperation strategy across Member States, and supporting a multi-stakeholder debate around new Internet developments. Further work in 2019 will include preparing the ground for Horizon Europe where the Next Generation Internet intervention area will bring together research and innovation across the whole Internet value chain, from network and service infrastructures up to Internet applications and services.

DG CONNECT will keep working on the implementation of the Commission **Communication on Artificial Intelligence** published in April 2018. To build up Europe's technological capacity in Artificial Intelligence (AI), a project developing an AI-on-demand platform that makes artificial intelligence widely available and democratising access to this technology will be launched in early 2019, with a first version of the platform expected by the end of the year. DG CONNECT will draw inputs from several consultation initiatives, including the online European AI Alliance community that has attracted in 2018 more than 2000 members. In addition, four major projects on Digital Innovation Hubs networks in robotics will be launched in January 2019, to bring robotics technology to their local ecosystems, helping the digital transformation of the local economy. Furthermore, an H2020 call focused on reinforcing and networking excellence research centers in AI will be launched. As set out in President Juncker's 2019 State of the Union, DG CONNECT is also drafting with the Member States a **Coordinated Plan on Artificial Intelligence**, which will be followed up in 2019 by its implementation and annual updates with the Member States Group on Digitising the European Industry and AI. The main actions DG CONNECT will lead, building on the European strategy, include continuous exchanges with the Member States, monitoring impact, paving the way to a new partnership on AI, a series of common actions to increase investments, boosting research and deployment, pooling data, fostering talent, life-long learning, raising awareness, ensuring trust in anchoring "ethics by design" in calls for proposal, discussing the creation of environments that are conducive to innovation, developing the use of AI in public sector (sharing experience with Member States, identifying areas for joint procurement, offering eTranslation services more widely), and developing international cooperation in promoting ethical approach and including AI in development policy.

DG CONNECT appointed a High Level Expert Group on AI and launched an AI Alliance for Europe, an on-line platform open to all, inviting a multistakeholder forum discussing the future of AI. The expert group will issue draft AI ethics guidelines and recommendations on policy and investment in the first half of 2019.

In the **Internet of Things (IoT)** cross-cutting domain, 5 large-scale pilots (smart living environments for ageing well, smart farming and food security, wearables for smart ecosystems, reference zones in EU cities and autonomous vehicles in a connected environment) plus a horizontal support action will continue their work in 2019 involving all value-chain actors and ensuring the longer-term evolution of the IoT. These pilots are also relevant for the work of the Alliance for Internet of Things Innovation (AIOTI), the DSM (with the link to hubs, platforms, skills, regulation) and the IoT-European Platforms Initiative. An additional cluster of projects funded under Horizon 2020 looking at the security and privacy aspects of IoT will continue in 2019. Finally, the expert group on Liability for Emerging Digital Technologies established in 2018, will assist the Commission in delivering the report on "the broader implications for, potential gaps in and orientations for, the liability and safety frameworks for AI, Internet of Things and robotics" by mid-2019.

Smart mobility action will continue to focus on **Connected and Automated Mobility (CAM)** and more specifically on integration with the developments that are essential for the future of the sector such as 5G, IoT and the data economy.

Following the adoption in May 2018 of the Communication 'On the road to automated mobility: An EU strategy for mobility of the future', DG CONNECT will seek the adoption in early 2019 of the recommendation on pioneer spectrum for 5G

Part 1. Main Outputs for the Year

connectivity, cybersecurity and data aspects for the testing and deployment of connected and automated cars. The recommendation will incorporate the results from a public consultation run in 2018. DG CONNECT will monitor the implementation of the recommendation and collect further data on governance models by organising stakeholder events with the Member States and industry.

In collaboration with the relevant services, DG CONNECT follows up on the third Mobility Package as concerns CAM with contributions to the Cooperative Intelligent Transport Systems (C-ITS) Delegated Act planned for adoption in early 2019. DG CONNECT will also continue to work with Member States towards a pan-European network of 5G Corridors for CAM and a pipeline of projects leading to this network including proposing new funding opportunities for additional 5G CAM corridors. The initial aim is to reach the deployment of 5G infrastructure for trialling purposes on three cross-border corridors by the end of 2019.

The Commission will put in place a single EU wide platform grouping all relevant public and private stakeholders to coordinate open road testing and make the link with pre-deployment activities. The platform will consist of public and private stakeholders and will integrate existing fora at EU level that are dedicated to coordinate CAM research and pre-deployment activities. DG CONNECT will work closely with DG Mobility and Transport, DG Research and Innovation, DG Internal Market, Industry, Entrepreneurship and SMEs and the Joint Research Centre on managing the platform and coordinating the expert groups.



The 5G Public Private Partnership (5G PPP) has emerged as the European structuring initiative to support the development of 5G technologies in Europe and globally. The 5G PPP will continue to address a wide range of 5G use cases, drawing on the end to end large scale validation platform for industrial actors launched in 2018. Also in view of the expected launch of first 5G commercial services in 2019, DG CONNECT will launch pilot trials with vertical industries on top of these platforms under Horizon 2020. These extensive 5G vertical trials and pilots will enhance European 5G readiness by derisking both technologies and business cases of 5G used by vertical industries and further stimulate the advent of 5G standards supporting the wider objectives of industry digitisation.

Common ICT Standards are needed to ensure interoperability and reap all benefits of the DSM. DG CONNECT will continue supporting through H2020 and CEF, and in

collaboration with the PPPs, the development of the necessary standards, in particular in the priority areas of 5G, IoT, Cloud, Data and Cybersecurity, which will impact other sectors such as smart cities, connected and automated vehicles or digitisation of industry. DG CONNECT will also support new priorities like Artificial Intelligence and blockchain. In collaboration with other services, in particular DG Internal Market, Industry, Entrepreneurship and SMEs, DG CONNECT will work to improve European standardisation framework to keep it fit for purpose to the digitisation of the economy, including actions to support EU vision on standards essential patents. DG CONNECT will also support international activities to increase presence of Europe in international ICT standardisation, promote European standardisation internationally, and foster cooperation towards global standards.

The **EU Strategy for Blockchain and Distributed Ledger Technologies** is being developed. Main actions include the work through the European Blockchain Partnership (involving currently 26 Member States and Norway) to establish a **European Blockchain Services Infrastructure (EBSI)**. The EBSI is to support the delivery of cross-border digital public services in Europe in the initial stages. The mid-term ambition is to turn EBSI into a global standard-based blockchain infrastructure opening up its use to industry stakeholders and civil society organisations. The EBSI will be developed based on specifications that support specific use-cases selected according to the criteria developed by the Partnership using distributed ledger technology that is trusted, interoperable, compatible with eIDAS, and meeting EU cybersecurity standards. The initial development of the EBSI is expected to start in 2019-2020 funded initially by the CEF and H2020, then by Digital Europe Programme and co-developed with the Partnership. The **EU Blockchain Observatory and Forum** involves private stakeholders and public authorities in studying use cases and holding technical and regulatory discussions for example on regulatory compliance with privacy and network information security, relationship to digital identity, scalability, interoperability and sustainability of blockchain infrastructure.

“ In the short-term future, every job will require new digital skills, already now 90% of jobs require basic digital skills. We need to invest in people in order to build a successful digital Europe.
Mariya Gabriel ”

The **eGovernment Action Plan 2016-2020** acts as a catalyst to coordinate public sector modernisation efforts in the field of eGovernment. The focus is on implementing the actions resulting from the 2017 Tallinn Ministerial Declaration on eGovernment, with the support of H2020 and CEF, and by engaging in particular with local and regional authorities via the eGOV4EU stakeholder engagement platform, policy guidance documents and public events. DG CONNECT supports Member States in deploying all CEF DSIs for cross border provisioning of eGovernment services, in particular those on eID, eSignature and eDelivery. This effort is particularly important as the eIDAS Regulation on mutual recognition of electronic identification and trust services became fully applicable on 29 September 2018. In 2019, DG CONNECT will continue promoting the adoption and optimal use of eIDAS services cross border and cross sectors, possibly via soft measures, also by ensuring the alignment of the eIDAS relevant standards to the latest technological developments and will also contribute to the consistency of sector specific legislation with the eIDAS Regulation.

The on-going large scale pilot “The Once-Only Principle Project”, which involves nearly all Member States, will complete the development and validation of the architectural and interoperability solutions for the application at the EU level of the Once-Only Principle for business. Its results have already been used for the negotiation of the Single Digital Gateway Regulation that was finally adopted by the European Parliament and the Council on 3 October 2018. In 2019, DG CONNECT will prepare, with other Commission services, an implementing act to define the implementation of the Once-Only Principle.

The Commission's 2018 Data Package puts forward a set of measures to increase the availability of data for the benefit of both economy and society, and includes the proposal for a revision of Directive 2003/98/EC on **the re-use of public sector information** as a the cornerstone of the EU's Open Data strategy. The proposal aims to improve availability of data held by the public sector across Europe as a basis for new information services and products and for innovation by bringing down the cost for re-using the data, facilitating the use of dynamic data (e.g. data coming from sensors), and enlarging the scope of the Directive to data held by public undertakings in the transport and utilities sectors, as well as research data. The proposal is being discussed in the European Parliament and the Council, with a view to adopt the Directive in the first half of 2019. Facilitated and harmonised access to European public information will continue to be supported by the Digital Service Infrastructure on Public Open Data under the CEF telecom programme.

To enable all Europeans to reap the full benefits of digital technology, whether they are consumers or in the workplace, they need to have the right level of **digital skills**. The Commission will continue to develop solutions and actions to boost digital skills through the Digital Skills and Jobs Coalition, in close collaboration with Member States and stakeholders.

The 2018 **Digital Education Action Plan** pursues three priorities: i) making better use of digital technology for teaching and learning, ii) developing relevant digital competences and skills for the digital transformation, iii) improving education through better data analysis and foresight. A mentoring system, supported by H2020, foresees to scale up ICT-based innovative practices between schools with different levels of proficiency. The EU-wide awareness-raising campaign #SaferInternet4EU targeting educators, parents and learners to foster online safety, cyber hygiene and media literacy was launched in early 2018 on the Safer Internet Day, and will continue into 2019. Safer Internet Centres across Europe supported under the CEF telecom programme are developing many resources and organising numerous activities to raise awareness with the coordination of the betterinternetforkids.eu platform. The Commission will continue to fight to the dissemination of child sexual abuse material through funding to the international network of hotlines INHOPE, which contribute to a faster take-down of this illegal material. A study assessing progress in mainstreaming ICT in education feeds into a report which will be published in early 2019. Finally, the High-Level Group on the impact of digitisation on work and labour markets will present its recommendations in the first half of 2019, to inform policy-making at European level.

The **Digital Opportunity pilot** promoting cross-border traineeships in digital domains, funded with EUR 10 million from Horizon 2020 and implemented through Erasmus+, will offer up to 6,000 students and recent graduates the opportunity to go abroad to gain work experience and digital skills in areas like Artificial Intelligence, cybersecurity, HPC/ Quantum, big data, blockchain and programming. The Commission supports the **EU Codeweek**, with a focus to bring Codeweek to more schools in Europe, with a target to have 50% of all schools participating by 2020.

DG CONNECT remains strongly committed to implement the **Women in Digital Strategy**. Women are starkly under-represented in the digital economy, resulting in a gender digital gap, which is mirrored in the low and decreasing numbers of girls taking up STEM studies (Science, Technology, Engineering, and Mathematics), of women choosing ICT-related professions, in women's under-representation in management in the ICT industry and in the number of women-led and founded tech companies. Numerous DG CONNECT actions tackle specific aspects of the problem in digital skills, research and innovation, digital entrepreneurship and hardware manufacturing. DG CONNECT supports the unlocking of the growth potential women can bring to the digital economy by combating stereotypes in the media and promoting role models, promoting digital skills and education for women and enhancing female digital entrepreneurship and innovation.

Part 1. Main Outputs for the Year

Main outputs in 2019:		
Delivery on legislative proposals pending with the legislator		
Output	Indicator	Target date
<i>Recast of Directive 2003/98/EC on the re-use of public sector information (REFIT).</i>	<i>Adoption by the co-legislators.</i>	<i>Q2 2019</i>
All new initiatives and REFIT initiatives from the Commission Work Programme		
Output	Indicator	Target date
Important items from work programmes/financing decisions/operational programmes		
<i>For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the Draft Budget for 2019.</i>		
Output	Indicator	Target date
<i>Selection of hosting entities for the precursors to exascale and the petascale supercomputers.</i>	<i>Launch of the Call for Expression of interest.</i>	<i>Q1 2019</i>
<i>Selection of first EuroHPC R&I projects</i>	<i>Launch of the call for R&I proposals of the EuroHPC Joint Undertaking</i>	<i>Q3 2019</i>
Other important outputs		
Output	Indicator	Target date
<i>Communication on AI: AI-on-demand platform.</i>	<i>Launch of the AI-on-demand platform 1st version of the platform</i>	<i>Q1 2019 Q4 2019</i>
<i>Communication on AI: network of AI Digital Innovation Hubs (DIH).</i>	<i>Launch of 4 large networks of DIHs in robotics</i>	<i>Q1 2019</i>
<i>Informative guidance on the implementation of the Free flow of non-personal data Regulation, specifically with regard to the notion of on 'mixed data sets'.</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019 PLAN/2018/4773</i>
<i>Cross-border experimentation and pre-deployment projects on 5G for Connected and Automated Mobility Driving covering regulatory issues and 5G.</i>	<i>Pre-deployment of at least three 5G cross-border corridors through ongoing 5G-PPP projects and Ccall for at least two new projects covering at least two further corridors. in the context of the 5G PPP to support further large-scale trials on 5G corridors.</i>	<i>Q4 2019</i>
<i>Recommendation on the use of pioneer spectrum for 5G large scale testing, cybersecurity and on a data governance framework.</i>	<i>Adoption by the Commission.</i>	<i>Q1 2019 PLAN/2017/1784</i>
<i>5G PPP: launch of set of large scale validation trials/pilots with vertical industry building on the industry large scale validation platform for 5G in Europe.</i>	<i>Launch of at least 6 trials/pilots in multiple vertical domains validating the main 5G KPI's (bandwidth, latency, density, services, security, isolation).</i>	<i>Q2 2019</i>

Part 1. Main Outputs for the Year

<i>Better Digital Skills for all Europeans, accompanied by H2020 support.</i>	<i>Implementation of the Digital Opportunity pilot, reaching 4000 students by the end of 2019.</i>	<i>Q4 2019</i>
<i>Commission report on "the broader implications for, potential gaps in and orientations for, the liability and safety frameworks for AI, Internet of Things and robotics".</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019 PLAN/2018/3898</i>
<i>Amending Commission Implementing Decision amending Decision (EU) 2015/1506 laying down specifications relating to formats of advanced electronic signatures and advanced seals to be recognised by public sector bodies.</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019 PLAN/2018/3464</i>
<i>Amending Commission Implementing Decision (EU) 2016/650 laying down standards for the security assessment of qualified signature and seal creation devices.</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019 PLAN/2018/3465</i>
<i>Providing practical advice, best practices, methodologies and model contracts for data sharing between actors in the European data economy.</i>	<i>Launch of the Support Centre for data sharing.</i>	<i>Q3 2019</i>

Specific objective 1.4:

All Europeans enjoy effective world-class connectivity through future-proof and ubiquitous digital networks and service infrastructures as underlying basis for the digital society and data economy.

Related to spending programme(s):
CEF/EFSI/ESIF

The full economic and social benefits of the ongoing digital transformation will only be achieved if Europe can ensure widespread deployment and take-up of very high capacity fixed, wireless and mobile networks in urban and rural areas, and across all of society. The 2016 Communication **Connectivity for a Competitive Digital Single Market – Towards a European Gigabit Society** includes a set of strategic connectivity objectives for 2025. DG CONNECT works with the Member States to ensure that their National Broadband Plans take into account the targets for very high capacity and for 5G in line with the recommendations of the European Court of Auditors in its 2018 Special Report 'Broadband in the EU Member States: despite progress, not all the Europe 2020 targets will be met' and building on the results of the report to the Communications Committee working group on 5G on best practices concerning national broadband strategies and 5G "path-to-deployment". DG CONNECT actively collaborates with DG Regional and Urban Policy, DG Agriculture and Rural Development and DG Competition and with the representatives of broadband planning entities of national and regional authorities in the framework of the **Broadband Competence Offices' (BCO) network**, including through training activities, sharing of good practices and developing common tools and resources. In close cooperation with DG Informatics and the Innovation and Networks Executive Agency (INEA), DG CONNECT implements the Regulation to support local communities in providing free public Wi-Fi to their citizens – the **"WiFi4EU initiative"** – which is funded by the current CEF programme. DG CONNECT will set up an online community of WiFi4EU stakeholders (municipalities,

service providers, citizens) to share best practices, use cases and ideas for future developments, using the participatory platform Futurium.

DG CONNECT funds the development of an **EU platform for monitoring quality of broadband services** which, in consultation with relevant mapping entities at Member State level and with BEREC, develops a common methodology on mapping coverage of fixed and mobile convergence. DG CONNECT will draft a common methodology for broadband coverage and future investments, which should be ready by May 2019 and will then be consulted with BEREC members and other relevant national authorities. Still in 2019, the platform will serve to test the draft methodology and collect data at a sufficient level of resolution to sustain EU level tasks such as policy setting, regulation, state aid assessment, and EU funds programming, implementation and monitoring.

The 2017 **Action Plan for Rural Broadband** supports the rolling out of broadband connectivity in rural areas. It is implemented through the joint task force on rural broadband (DG CONNECT, DG Agriculture and Rural Development, DG Regional and Urban Policy, with the support of DG Competition). Two actions remain to be implemented in 2019, namely the update of the Guide on Very High-Speed Broadband investment together with DG Competition and the design of a rural broadband project framework in the form of a handbook with case studies on how rural and remote communities addressed challenges of broadband connectivity.

“Modern and efficient telecommunications are the starting point for everything. They are the foundation for the Digital Single Market.”
Andrus Ansip

DG CONNECT is continuously working with DG Economic and Financial Affairs on the implementation of the Investment Plan supported by the European Fund for Strategic Investments (EFSI). The broadband infrastructure investment fund – the **Connecting Europe Broadband Fund (CEBF)** – is backed by EUR 100 million from the CEF budget for broadband and EUR 100 million from EFSI. The fund was launched in June 2018 with EUR 420 million of assets at first closing. The Fund Manager aims to reach at least EUR 500 million of assets under management and is making significant progress on its project pipeline, currently comprising 31 potential projects spread over 17 different Member States.

DG CONNECT also provides technical assistance together with the World Bank to local project promoters within the **Connected Communities Initiative**, which works on the identification and appraisal of broadband projects across rural and suburban regions in Europe, contributing to a rich learning experience that can be actioned under phase two (transaction advisory and investor outreach) to the benefit of multiple programmes and projects.

DG CONNECT also works in conjunction with the Committee of the Regions in the joint Broadband Platform to promote the deployment of broadband across Europe and encourage investment in high capacity network roll out.

Both the DSM Strategy and the 2016 Communication on Connectivity for a Competitive DSM underline the importance of very high capacity networks like 5G as a key asset for Europe to compete in the global market. Complementary to DG CONNECT's efforts to advance 5G technologies and use cases, the **5G Action Plan** aims to foster the adequate European-wide deployment to build momentum for investment in 5G networks and to create new innovative ecosystems, thus enhancing European competitiveness and delivering concrete benefits to society. The implementation of the action plan will continue in 2019 to enable the launch of comprehensive commercial 5G services in 2020, with the deployment of Connected and Automated Mobility (CAM) remaining at the centre of the strategic applications for 5G in Europe.

Part 1. Main Outputs for the Year

The success of the 5G Action Plan relies on the cooperation between Member States in relation to the main actions. Following the finalisation of a working document in the framework of the Communication Committee as basis for national 5G roadmaps, DG CONNECT will follow up on cooperation actions identified therein. Of particular importance in 2019 will be follow-up work on informal spectrum coordination, facilitating small cells and enabling 5G innovation both in the areas of infrastructure and services.

DG CONNECT will continue to monitor the progress of the 5G Action Plan through the European 5G Observatory launched in 2018. DG CONNECT will also implement the 5G Pioneer Award to illustrate 5G readiness and best practices in Europe.



In addition, as set out in the 5G Action Plan, DG CONNECT works on **making relevant EU-harmonised frequency bands '5G-ready'**. In line with the Commission's 5G spectrum roadmap, this concerns the revision of the technical conditions for use of four EU-harmonised bands: 900 MHz, 1800 MHz, paired 2 GHz and 2.6 GHz as currently under study by the European Conference of Postal and Telecommunications Administrations (CEPT). The outcome of this work would enable the Commission to amend the respective implementing decisions and thus achieve 5G-readiness of all EU-harmonised spectrum for wireless broadband by early 2021. In addition, DG CONNECT will harmonise additional frequency bands for 5G use ('5G pioneer bands'). In 2019 this work will address the 3.6 GHz band, the 26 GHz band (both highly important in the run up to the 2019 World Radiotelecommunication Conference and the preparation of the EU positions). This will be done through Commission Implementing Decisions involving the Member States in the Radio Spectrum Committee.

DG CONNECT also works on the amendment of the technical conditions for radio equipment using ultra-wideband technology, the extension of the Intelligent Transport Systems safety-related band at 5.9 GHz (currently under study by CEPT), and the amendment of the Commission decision establishing the Radio Spectrum Policy Group. Discussions will advance with Member States on additional harmonised or new spectrum bands. The seventh update cycle of the Short-Range Device Decision, which makes unlicensed bands accessible for new, innovative spectrum usages for a broad variety of applications is on-going and will lead to further deliverables for short-range devices in 2019.

Digital services are key elements of a functioning DSM. CEF deploys solid trans-EU interoperable operational services based on mature technical and organisational solutions, as identified by the CEF Regulation: 17 Digital Service

Infrastructures (DSIs) which are ready to be deployed and will be sustainable and maintained over time. The DSIs for which funding is foreseen in 2019 are **Europeana, eIdentification and eSignature, EU Student eCard, eDelivery, eInvoicing, Public Open Data, Automated Translation, Cybersecurity, eProcurement, European Platform for the interconnection of European Business Registers, eHealth, Electronic Exchange of Social Security Information, European eJustice portal, eArchiving, Platform on Disinformation and Blockchain**. The CEF Work Programme 2019 will also support the WiFi4EU initiative. Additionally, CEF will contribute to the Euro HPC Joint Undertaking and in particular to the procurement of supercomputing infrastructure. In addition, to be noted that through the Open Data Portal DSI, a cloud-based big data test infrastructure will be deployed, for the sharing and analysis of 'big data'.

The goal is to increase the HPC and data capacities of the European data infrastructure, and to promote the use of HPC and data across borders in the public interest. Following the 2017/2018 calls that addressed the need for services providing access to HPC, storage and data management facilities, these measures will increase coordination between different programmes such as CEF or H2020 but also involve Member States in the development and federation of a large scale European HPC and Big Data service infrastructure facility serving a wide range of stakeholders. Therefore new, larger scale activities are expected to be included in future CEF work programmes. Finally, synergies between the Cybersecurity DSI and Cooperative, Connected and Automated Mobility (CCAM) will support the deployment of a specific Information Sharing and Analysis Centre and gateway services for CCAM.

DG CONNECT is actively developing possibilities to accommodate emerging ICT and digital funding needs within the framework of the next multi-annual financial framework. This includes working on a successor to the digital pillar of the Connecting Europe Facility.

Main outputs in 2019:		
Delivery on legislative proposals pending with the legislator		
Output	Indicator	Target date
<i>Regulation establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014.</i>	<i>Political agreement.</i>	May 2019
All new initiatives and REFIT initiatives from the Commission Work Programme		
Output	Indicator	Target date
Important items from work programmes/financing decisions/operational programmes		
<i>For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the <u>Draft Budget for 2019</u>.</i>		
Output	Indicator	Target date
<i>CEF Broadband fund.</i>	<i>Project pipeline of ongoing fundraising efforts and first projects financed by year end.</i>	Q1-Q4 2019
<i>CEF Telecom Work Programme 2019 financing projects of common interest in the form of Digital Service Infrastructures and connectivity through the WiFi4EU voucher scheme for local authorities.</i>	<i>Adoption of the CEF Telecom Work Programme.</i>	Q1 2019 PLAN/2018/4735

Part 1. Main Outputs for the Year

Other important outputs		
Output	Indicator	Target date
Implementing Decision amending Decision 2008/411/EC on the harmonisation of the 3400-3800 MHz 5G pioneer frequency band.	Adoption by the Commission.	Q1 2019 PLAN/2017/2282
Implementing Decision on the harmonisation of the 24.25 -27.5 GHz 5G pioneer frequency band.	Adoption by the Commission.	Q1 2019 PLAN/2017/1422
Implementing Decision amending Commission Decision 2007/131/EC on allowing the use of radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Union.	Adoption by the Commission.	Q2 2019 PLAN/2018/3424
Implementing Decision on the extension of the Intelligent Transport Systems (ITS) safety-related band at 5.9 GHz.	Adoption by the Commission.	Q3 2019 PLAN/2018/3230
Amendment to Commission Decision 2002/622/EC establishing a Radio Spectrum Policy Group.	Adoption by the Commission.	Q2 2019 PLAN/2018/3472
Council Decision on the Union Position for the ITU World Radiocommunication Conference 2019.	Adoption by the Council.	Q1 2019 PLAN/2018/2865
Implementing Decision on amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices (7 th update).	Adoption by the Commission.	Q1 2019 PLAN/2018/3496
Implementation of the 5G Action Plan: a) advanced pre-commercial trials; b) Quarterly reporting on 5G market introduction and progress of preparatory actions; c) 5G Release 16 availability (second version of a 5G standard that will allow for new industrial use cases); d) Hand over 5G Pioneer award at Mobile World Congress 2019.	a) Launch of a Call preparing for at least two additional 5G cross-border corridor projects; b) Implementation of the 5G observatory and of its second phase; c) 5G PPP and industry contributions; d) At least 1 award for illustrative 5G European initiative.	a) Q3 2019 b) Q3 2019 c) Q4 2019 d) Q1 2019
Action Plan for Rural Broadband: a) Update of the Guide on Very High-Speed Broadband; b) Design of a rural broadband project framework in the form of a handbook.	Implementation of the 2 actions.	a) Q2 2019 b) Q1 2019

Specific objective 1.5:

A modern, open and pluralistic society building on Europe's cultural diversity, creativity and respect of creators' rights and its values in particular democracy, freedom of expression and tolerance.

Related to spending programme(s): Horizon 2020, Multimedia Actions, Creative Europe MEDIA, CEF

In line with calls of the European Parliament and President Juncker, the Commission adopted a **Communication on online disinformation – a European approach** in April 2018, which comprises collaborative actions in various important areas:

- Code of Practice for online platforms and advertisers for curbing the spread of online disinformation which was published in October 2018 with implementation roadmaps for the main stakeholders (Google, Facebook, Twitter, advertising industry),
- setting up of a fact checkers network for Europe to identify and debunk 'fake news',
- increased media literacy collaboration in Europe to be more aware of unreliability of information from unknown sources and
- through such actions, ensuring election integrity.

Support for the creation of an European independent network of fact checkers has been deployed in collaboration with the European Parliament. In November 2018, an IT infrastructure for fact-checking activities has been made available to the fact-checking community through an H2020 support action ('SOMA'). The majority of the actions set out in the **Action Plan on disinformation**, presented in President Juncker's 2019 State of the Union, will be implemented in 2019, with a key priority being the safeguarding the democratic election process for the European Parliament elections. The first European Media Literacy Week will be organised in the first half of 2019 and the implementation of the Code of Practice requirements will be monitored and analysed and a report will assess the effectiveness of all these actions. With regard to the Code of Practice, the Commission may propose further actions, including actions of regulatory nature, if the results of the Code were unsatisfactory.



Tackling fake news & online disinformation

- Code of Practice for online platforms
- Independent European network of **fact-checkers**
- Collaborative **online platform** on disinformation
- Enhancing **media literacy**
- Quality and diversified information

#DigitalSingleMarket | #Disinformation



The role of **social media, networks and services** are now fundamental in our society and democracy and a main driver for media consumption and business opportunities. As they are the future way our societies will operate for communication, exchange, business, learning and knowledge, particular attention is given to them in the Horizon 2020 Work Programme 2018-20 (LEIT ICT) . The

objective is to build the foundation of next generation social media platforms towards a "Global Social Sphere", based on peer-to-peer/decentralised, community approaches and free/open source principles and to explore ways to verify the veracity of online information as part of the plan of action on fake news. These projects have started during the second half of 2018, and their implementation will continue in 2019, with a concertation meeting seeking and encouraging further collaboration.

Europe must support the **digital transformation of its creative and media sectors**. Key pre-conditions for the successful digital transformation are creative content appealing to audiences across borders in Europe and globally, digital innovation, open and competitive markets, respect for key societal values by all market players and a regulatory level playing field. Following the adoption of the revised Audiovisual Media Services Directive (AVMSD), the focus will be on the consistent and timely transposition of the new rules into national law. In line with the revised AVMSD, DG CONNECT will prepare, for adoption by the Commission, Guidelines on the practical application of the essential functionality criterion of the definition of a 'video-sharing platform service' and Guidelines on the calculation of the share of 30% of European works in the catalogue of non-linear service providers and on the definition of low audience and low turnover.

“ At the heart of my action lies the defence of citizens' right to qualify information which is a cornerstone of our democracies. I want to have an open and broad discussion about fake news to address this complex phenomenon in order to overcome the challenges ahead of us.

Mariya Gabriel ”

In addition, DG CONNECT will continue to facilitate the work of the Alliance to better protect minors online - the self-regulatory initiative gathering key ICT and media companies at EU and global level, civil society and UNICEF to tackle harmful content and behaviour - in line with the recommendations stemming from the evaluation of the Alliance which will be published in early 2019.

A healthy, plural, free and innovative media system is crucial for the development of democratic societies. The Commission will continue to fund - with the support of the European Parliament - **pilot projects and preparatory actions in the fields of quality journalism, media pluralism and media freedom**. In particular, three new calls for proposals will be launched for, respectively, an exchange programme for media practitioners; an internship programme for journalists working in minority language media; and a project to support Media Councils.

DG CONNECT is working on the **#Digital4Culture** strategy based on six pillars: ensuring broad and more democratic access to culture; promotion, marketing, and valorisation of cultural heritage; helping the cultural sector to embrace digital tools; skilling and nurturing talents; accessing finance; international cooperation and fostering the Union's soft power. **Europeana** addresses the first three pillars of the strategy. DG CONNECT will follow up the Commission's 2018 report to the Council and the European Parliament on the evaluation of Europeana and the way forward. Europeana will focus its priorities and actions on the needs of the cultural heritage sector as the primary stakeholders, in particular by supporting the cultural heritage institutions' efforts towards digital transformation, as outlined in the Report. Regarding more specifically the audiovisual sector, the Commission is supporting a Directory of European films through the Creative Europe programme. This directory will be operational by the end of 2019 and help professionals, public authorities and citizens to find information about European films and their availability on-line in video-on-demand services throughout the EU.

DG CONNECT will continue to support **media literacy** policies and activities both in Member States and at European level, in collaboration with the active ecosystem of

media literacy stakeholders, such as academia, social media platforms, fact checkers, Safer Internet Centres, NGOs and regulators. The Media Literacy Expert Group will have 1-2 meetings in 2019, bringing together the Member States' media literacy representatives and key stakeholders and focusing on the challenges of online media literacy. Due to the strengthened role of media literacy in the Audiovisual Media Services Directive (AVMSD), the European regulators will monitor closely implementation of media literacy actions. The principal focus in 2019 will be on the European Week of Media Literacy in March 2019 and the different media literacy actions set out in the 2018 Disinformation Communication. DG CONNECT will also continue implementation of the EP Pilot Project, and launch the new EP Preparatory Action "Media Literacy for All".

Moreover, DG CONNECT is working on the setting up of a new Member States Expert Group on Safer Internet for Children, which would provide a forum to support the ongoing work in Member States to ensure that they consistently address the challenges of child online safety, discussing practical implementation issues related to the current regulatory framework and exchanging good public sector practices. Under the **Cultural and Creative Sectors Guarantee Facility**, by end of 2018, 12 Guarantee Agreements were in place covering 9 Member States plus one agreement targeting international productions. Over EUR 75 million in guarantee backed loans have been made to SMEs. This fast implementation is also possible thanks to the first top-up from European Fund for Strategic Investment of EUR 60 million. DG CONNECT is now preparing a second top up, which will bring the total budget of the Facility to EUR 251 million. The Capacity Building Scheme was also launched to deliver training to banks and financial institutions. Efforts will now focus on the full execution of the budget to sign further guarantee agreements, deepening communication to reach out to potential beneficiaries and monitoring the results to ensure a balanced implementation.

The overall objective of **multimedia actions** is to strengthen independent reporting on EU issues from a European point of view. Television continues to be the most popular medium and **support to Euronews** will aim to ensure an objective, sustainable source of news with a pan-European focus delivered on a multi-lingual basis. Support to radio services networks will also provide an important contribution to an informed and objective debate on European affairs. Furthermore, the support to data driven journalism will continue in order to foster European projects which exploit the potential of digital technology to strengthen quality content.

European media innovation will be supported by the Commission's media policy and H2020 research and innovation actions which leverage on the potential enabled by the convergence and integration between traditional media (e.g. broadcasters, news providers), Internet-based services and social media. Such actions will develop new tools and services, based on advanced ICT technologies that will empower more immersive, interactive and personalised ways to consume media content. The Horizon 2020 Work Programme 2020 (LEIT ICT) call topic "Next Generation Media" will attract proposals innovating tools for trustworthiness and access to European content. Under the Next Generation Internet and Blockchains, collective intelligence and trustworthiness solutions via blockchain will be also developed providing valuable elements to put into effect the Communication on online disinformation.

The **Science, Technology, and the ARTS (STARTS)** activity seeks to fully engage the creative forces that lie at the crossings of the arts with science and technology into innovation processes in Europe. The annual STARTS PRIZE gives visibility to successful art-technology collaborations, STARTS RESIDENCIES finances embedding of artists in technology institutions and STARTS LIGHTHOUSE PILOTS supports research projects involving engineers and artists jointly addressing societal challenges and new uses of technology. An emerging pillar is STARTS ACADEMIES where artists and engineers jointly teach digital skills to citizens. For 2019 it is planned to develop a strategy how STARTS could be used in the context of regional and urban development and as a means to help spread use of digital technologies.

Part 1. Main Outputs for the Year

Continuation of STARTS Prize and Residencies is planned via the H2020 Work Programme update. The dialogue with Korea, Japan and China on linking art and technology will be further developed. In addition, an 'AI and music' STARTS festival is planned with the Ars Electronica Festival.

Cultural institutions of all types are engaged in large-scale digitisation of their collections and archives to preserve and disseminate them. In case of orphan works, the holders of copyright and related rights are unknown or cannot be located, making it impossible to obtain prior consent to reproduce or making these art works available to the public. The **Orphan Works Directive** addresses these questions but its implementation faces several problems identified by two EU co-financed projects (FORWARD and ENDOW). The Directive foresees reporting on its application and on the possibility of extending the scope by including publishers and/or other protected material such as stand-alone photographs and other images. The evaluation of the Directive will take place in 2019.

The 2011 **Recommendation on digitisation, online accessibility and digital preservation of cultural material** will be monitored through the Expert Group on Digital Cultural Heritage and Europeana. DG CONNECT also follows the Member States' progress through their submission of national reports for 2017-2019 and will draft a consolidated Commission report on Member States' progress in 2019.

Member States had to transpose the **Web Accessibility Directive** by 23 September 2018. DG CONNECT will check the completeness of the national transposition measures and their conformity with the Directive.

Main outputs in 2019:

Delivery on legislative proposals pending with the legislator

Output	Indicator	Target date

All new initiatives and REFIT initiatives from the Commission Work Programme

Output	Indicator	Target date

Important items from work programmes/financing decisions/operational programmes

For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the [Draft Budget for 2019](#).

Output	Indicator	Target date
<i>Report on the implementation of the Code of Practice on Disinformation and of other actions included in the April 2018 Communication on disinformation.</i>	<i>Adoption by the Commission.</i>	<i>2019 PLAN/2018/3898</i>
<i>Full implementation of Cultural and Creative Sectors Guarantee Facility, including the top ups from EFSI.</i>	<i>Guarantee Agreements signed up to the ceiling of the Guarantee Facility, including the EFSI top up.</i>	<i>Q4 2019</i>
<i>Preparatory action 'The development and implementation of a Media Pluralism Monitoring tool in the digital environment'.</i>	<i>Completion of the action.</i>	<i>Q4 2019</i>
<i>Creative Europe MEDIA Work programme 2020.</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019</i>
<i>Financing Decision on Multi-media Actions (including contracts for Euronews and for Euranet).</i>	<i>Adoption by the Commission.</i>	<i>Q4 2019</i>

Other important outputs

Output	Indicator	Target date

Relevant general objective: A New Boost for Jobs, Growth and Investment

The Commission proposal for a multi-annual financial framework beyond 2020 will be followed by negotiations for the next generation of programmes. The Commission's work programme 2018 states that the Union must be equipped notably to harness the benefits of new and emerging technologies. In this context, DG CONNECT is actively exploring how to best serve the funding needs of the DSM and digital technologies.

One strand of these preparations is the **Digital Europe Programme**, which is a central element of the Commission's response to the challenge of digital transformation. It aims to provide a spending instrument tailored to the operational requirements of capacity building in the areas identified by the European Council, and to exploit the synergies between them. Its objectives are to reinforce Europe's capacities in high performance computing, artificial intelligence, cybersecurity and advanced digital skills and to ensure their wide use by businesses and public administrations. In all areas, the novelty is the focus on deployment of digital technologies, the broader scope, the increased level of collaboration between stakeholders and the scale of intervention. The components of the programme are all prerequisite to the digital transformation of the economy and society and are key to the future prosperity of Europe. They are complementary and synergetic. The programme will concentrate on the areas where no single Member State alone can ensure the level required for digital success. Focus will also be placed on those areas where public spending has the highest impact, notably on improving efficiency and quality of services in the areas of public interest such as health, justice, consumer protection and public administrations, and helping small and medium-sized enterprises (SMEs) in adapt to digital change. This programme will ensure the continuation of support to the Digital Services Infrastructures started in the current CEF-Telecom programme and the kind of activities currently supported by the Interoperability Solutions for European Public Administrations programme. The Digital Europe Programme is proposed for a budget of EUR 9.2 billion, with first calls to be launched as soon as possible after the entry into force of the programme.

“ The ultimate dream is that every family doctor will be able to access artificial intelligences and super-computing as a service at his desktop, very much like he accesses cloud services like email or electronic prescriptions today.

Roberto Viola ”

Another strand of these preparations is **Horizon Europe**, the successor to the Horizon 2020 programme for Research and Innovation, which comes with an ambitious EUR 100 billion proposal with first calls planned for 2020. Building on the achievements of previous programmes, Horizon Europe will boost the scientific, economic and societal impact of EU funding, ultimately increasing the prosperity and well-being of Europeans. DG CONNECT collaborates with DG Research & Innovation and other DGs to ensure a coherent presence of the digital topics and interests. As Digital technologies are pervasive, Horizon Europe will sustain and build on the prominent role played by digital in Horizon 2020. Horizon Europe will thus address research, innovation, prototyping, demonstration and piloting in the area of digital as well as industrial technologies, within a specific 'cluster' and other parts of the programme too. The Programme pillar on 'Global Challenges and Industrial Competitiveness' will strengthen the impact of research and innovation in developing, supporting and implementing Union policies, and support the uptake of innovative solutions in industry and society to address global challenges. Within this, a specific cluster covering 'Digital and Industry' will reinforce capacities and secure

Europe's sovereignty in key enabling technologies for digitisation and production. It will also provide the basis for advances and innovation in all global societal challenges such as manufacturing, health, education, security, transport or energy. It will cover, among other topics, digital technologies, artificial intelligence and robotics, next generation internet, manufacturing technologies, as well as high performance computing and Big Data. DG CONNECT will actively contribute to the Strategic Planning process that includes shaping the different elements such as Partnerships, Missions and initial work programmes.

DG CONNECT prepared the ICT parts of the **Horizon 2020 Work Programme 2018-20** for the strands under its responsibility. H2020 involves a very significant budget with around EUR 6.3 billion managed by DG CONNECT across the three pillars and constitutes an essential vehicle for the implementation of the Digitising European Industry Strategy. Outputs for 2019 will include the adoption of a significant update of the Work Programme 2018-20 for the part related to the 2020 budget and new research grant agreements in key emerging domains and project deliverables from initiatives started in the past.

DG CONNECT is also preparing the **CEF Work Programme 2019**, in contribution to the 'Jobs, Growth and Investment' priority of the Commission, involving EUR 127 million to transform European economy and society by deploying cross border interoperable digital services. Digital services funded through CEF are maximising the growth potential of the European digital economy by enabling public authorities, businesses and citizens to carry out cross-border activities that are seamless and technologically advanced. In addition, the Work Programme will also provide support to connectivity through the WiFi4EU voucher scheme and technical assistance to broadband. The first calls under the new Work Programme will be launched in early 2019.

Specific objective 2.1:

Europe maintains its position as a world leader in the digital economy, where European companies can grow globally, drawing on strong digital entrepreneurship and performing start-ups and where industry and public services master the digital transformation.

Related to spending programme: Horizon 2020, CEF

The achievements of the DSM Strategy give the opportunity for the EU to occupy a leading position in the reform of the global digital economy. Consequently, digital technology and services are quickly becoming a priority in our **external relations**. The Commission will continue to use all available tools, including cooperation and research programmes to promote regulatory convergence, develop the data economy based on a free, open and secure internet and to develop closer relations with key partners. Considerable progress has been made in mainstreaming digital issues into the cooperation with the countries in the Western Balkans and the Eastern Partnership. Digital technologies and services are now being integrated into EU development assistance, supporting prosperity and investments in Africa. The Commission will continue to promote the DSM as an example of integration in Latin America, Africa and, progressively with ASEAN; work with partners in the G7 and G20 exercises, and defend an ambitious set of proposals on telecoms and Digital in the many ongoing trade negotiations. DG CONNECT will continue to work to extend the benefits of the DSM to the Western Balkans through the implementation of the Digital Agenda for the Western Balkans. DG CONNECT will pursue efforts in cooperation with other DGs to ensure that an adequate proportion of the EU external financial assistance uses digital tools to meet the Sustainable Development Goals. DG CONNECT will support the gradual implementation of existing commitments in the Association Agreement/ Deep and Comprehensive Free Trade Area by Ukraine.

DG CONNECT staff working in EU delegations promote European values and digital policies, reciprocity in research cooperation and market access for European companies. Coordination will be ensured with the European External Action Service (EEAS), DG Trade and DG Justice and Consumers on issues such as the introduction of the GDPR which has a significant impact on the external outreach of the DSM. DG CONNECT will support EEAS and DG International Cooperation and Development to improve the digital capacities in the EU delegations around the world.

Startup Europe is the Commission's policy initiative supporting startups and scaleups ecosystems in Europe to build a "Startup and Scaleup Continent" by connecting innovation ecosystems across Europe. Startups' ecosystems are evolving rapidly and become mature in terms of talent and raising capital at local level. However, there are still problems related to access to procurement opportunities, level of connected among the European ecosystems, engagement of corporates into the ecosystem and to the level of participation of institutional investors and stock exchanges. Consequently DG CONNECT will reinforce its actions with a particular focus on these identified problems. In 2019, Startup Europe will:

- Interconnect around 60 hubs through networking activities and H2020 projects to support 3500 startups to raise EUR 850 Million from the market.
- Reinforce activities with South Mediterranean countries, Africa, India, Israel, Silicon Valley and Latin America to build bridges for EU startups to expand in those regions and vice versa.
- Scale up activities to create a culture of entrepreneurship across all Member States, such as: Startup Europe Week 2019, European Makers Week 2019, Startup Europe Comes to Universities, Startup Europe News and Startup Europe Awards.
- Reinforce the one-stop-shop for startups in Europe (Startup Europe Club), which provides information on EU funding and networking opportunities.
- Reinforce Startup Europe branding to act as a coordination umbrella of all EU initiatives towards strengthening startups and innovation ecosystems.
- Explore the feasibility of acting on stakeholders' requests to help startups to implement the General Data Protection Regulation.

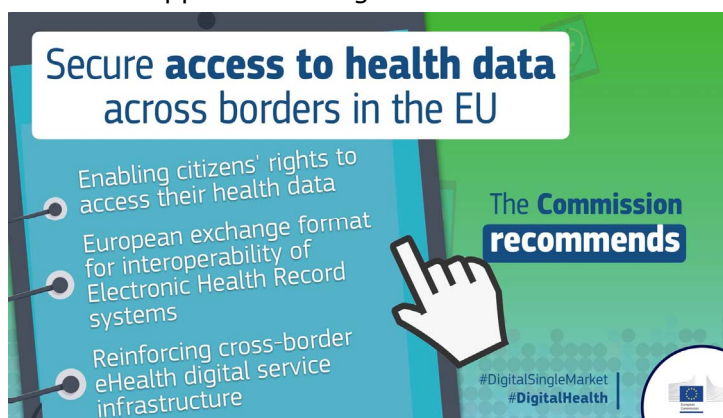
The **Innovation Radar** is a Commission initiative to identify high potential innovations and innovators in EU-funded research and innovation projects. In 2019 the Innovation Radar will:

- continue enhancing the IT tools supporting the Innovation Radar, in particular the public-facing platforms (website and smartphone apps) launched in 2018;
- scale up use of data sets and intelligence for policy actions and other EU initiatives beyond H2020;
- continue and reinforce cooperation with signatory countries of the Innovation Radar declaration;
- work towards migrating the Innovation Radar into H2020 tools and procedures;
- scale up its activities to nurture an ecosystem around the excellent EU-funded innovations identified by the Innovation Radar and the innovators developing them. This will be done in close cooperation with the signatory countries of the aforementioned Innovation Radar declaration; the Investor community; the 2 Innovation Radar Coordination and Support Actions (IRSUS and MERLIN) launched in 2018; and the European Enterprise Network;
- support the launch of the European Innovation Council (EIC) pillar of Horizon Europe by providing it with a 'data intelligence layer' that enhances its future operations.

Public Procurement is a key driver for the modernisation of public services and shortening the time-to-market for innovative ICT solutions. DG CONNECT will consolidate the results of the study on benchmarking Member States investments and policy frameworks on innovation procurement in ICT across different sectors on public interest in view of linking them to DESI and EPDR (Europe's Digital Progress Report). Based on these results, DG CONNECT will continue to explore (in

cooperation with other DGs) how to address some remaining barriers for innovation procurement. DG CONNECT will also reinforce the activities of the European network of national competence centers on innovation procurement in the digital economy and ensure the continuation of the activities of the European Assistance for Innovation Procurement. DG CONNECT will continue (in cooperation with other DGs such as DG Informatics) to step up the use of innovation procurement support both internally and in EU funding programmes (notably in Digital Europe Programme and Horizon Europe), particularly for strategic technologies and infrastructures like HPC, cybersecurity, blockchain, AI etc.

In the area of eHealth and ageing, DG CONNECT will implement the **Communication on Digital Transformation of Health and Care in the DSM**, elaborating on the three priorities: a) secure access and exchange of electronic health records; b) data infrastructure for personalised medicine; and c) innovation for user empowerment and integrated care. In particular, as set out in the 2019 State of the Union, the adoption and implementation of the Commission Recommendation to establish a format for European Electronic Health Record Exchange (expected to be adopted early 2019) will support improved interoperability and portability of Electronic Health Records across borders. This will be underpinned by continued support to a dedicated digital service infrastructure on eHealth under CEF. DG CONNECT will also work with the signatories of the Declaration of Cooperation "Towards access to at least 1 million sequenced genomes in the European Union by 2022" to link national and regional banks of genetic data and other data relevant for health in a secure and interoperable way. The implementation of the Communication is supported through the eHealth-related calls of Horizon 2020. In particular, 8 topics will be published in 2019 for a total budget of EUR 167.5 million. The European Innovation Partnership on Active and Healthy Ageing will remain an important policy instrument to deliver on actions under the DSM and H2020 and will align with the priorities defined in the Communication on enabling a Digital Transformation of Health and Care.



In the area of **smart living** - digitalisation, data management, deployment of data-enabled services, interoperability and standardisation in smart energy, smart cities and smart water continue to be key points of our work. Policy instruments for implementation remain - in close link with actions under the DSM - the European Innovation Partnership on Smart Cities and Communities (EIP SCC), the Energy Union, the Urban Agenda and H2020.

DG CONNECT contributed to the **development of a common language and standards**, which allows all kinds of household devices to exchange information with any energy management system and with the smart grid for a more efficient and flexible energy use (Smart Appliances REference ontology - SAREF). Work is ongoing to accelerate the adoption of SAREF across the three European Standards Developing Organisations (CEN-CENELEC-ETSI) and to extend SAREF from energy to smart cities, smart mobility, smart water and other relevant verticals to ensure interoperability. Some work on interoperability has been carried out as well in the context of the Urban Platform initiative of the EIP SCC, which resulted in key guidelines: one leadership guide and one management framework.

Work is ongoing to accelerate the adoption of the smart lamppost standard and of the open urban platform standard by the European Standards Developing Organisations

and market players. Additionally, the ETSI Industry Specification Group Context Information Management is to enhance the (FIWARE) specification's query capabilities, security, and other aspects. Finally, the ITU-T Study Group 20 & the Focus Group Data Processing and Management support Internet of Things and Smart Cities & Communities addressing data interoperability, classification, format and security issues. This Focus Group plays a role in providing a platform to share views, to develop deliverables, showcase initiatives, projects, and standards activities and IoT ecosystem solutions for data focused cities.

The 2009 **Green Digital Charter** originated from talks between EUROCITIES (the European network of major cities), Manchester City and the European Commission. 53 cities from 21 different countries and representing more than 26 million citizens have signed the Charter committing themselves to work together to deliver on the EU's objective of expanding the use of digital technologies that improve the life of their citizens and address the challenges of growth, sustainability and resilience. Given the rapid evolution of the digital solutions available for cities we are currently working towards reinvigorating and scaling-up of the charter in order to ensure the creation of a smart city ecosystem based on interoperability and replicability.

One of the European Innovation Partnership on Smart Cities and Communities (EIP SCC) action clusters delivered an open and affordable component-based city lighting solution; the idea is to integrate smart components like sensors, Wi-Fi, 4G and 5G and other smart components in one lamppost with led lighting. Work is currently ongoing to **aggregate demand to achieve a large scale EU smart lighting solutions deployment**.

Continued cooperation with DG Energy should result in the co-drafting of delegated/implementing acts **for both the EU energy data format/interoperability framework and the smart readiness indicator for buildings** proposed in the 2016 Clean Energy for All Europeans Package. They will take a form of guidelines with a planned adoption by the end of 2019.

DG CONNECT will work with DG Regional and Urban Policy on guidelines for the **Urban Agenda** under Structural Funds 2020-2027. These should have a strong digital dimension, inspired by the action plan agreed by the Digital Transition Partnership.

DG CONNECT will develop a system for **labelling cities** that are genuinely citizen centric. The label will be developed with 100 pilot cities, after an initial proof-of-concept by 15 cities through a DG CONNECT-led project. One of the key features of the label will be the use of eIDAS and the application of the 'once-only' principle.

Main outputs in 2019:

Delivery on legislative proposals pending with the legislator

Output	Indicator	Target date
<i>Regulation establishing the Digital Europe programme for the period 2021 -2027.</i>	<i>Political agreement.</i>	<i>May 2019</i>

All new initiatives and REFIT initiatives from the Commission Work Programme

Output	Indicator	Target date
<i>Commission Recommendation to establish a format for European Electronic Health Record Exchange.</i>	<i>Adoption by the Commission.</i>	<i>Q1 2019 PLAN/2018/3073</i>

Important items from work programmes/financing decisions/operational programmes

*For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the **Draft Budget for 2019**.*

Part 1. Main Outputs for the Year

Output	Indicator	Target
<i>Research and Innovation actions on eHealth, wellbeing and ageing under Horizon 2020 Work Programme 2018-2020.</i>	<i>Launch of 23 H2020 projects.</i>	<i>Q4 2019</i>
<i>Reinforced Startup Europe with 7 new projects to benefit 3500 startups and raising EUR 850 million from the market in two years.</i>	<i>Number of startups that benefit from Startup EuropeCapital raised from the market.</i>	<i>- 3500 startups - EUR 425 Million raised</i>
<i>Update of the H2020 Work Programme 2018-20 including Societal Challenges and international engagements (Digital for Development).</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019</i>
<i>Rolling enhancements of the Innovation Radar platform in line with the input received from signatory countries of the Innovation Radar declaration and engagement with the Investor community.</i>	<i>Regular releases of new functionality to the IR platform (website and smartphone apps).</i>	<i>Throughout 2019</i>
<i>H2020 – Societal challenges calls.</i>	<i>Timely launch of 2 calls (budget: EUR 87 million).</i>	<i>Q4 2019</i>
<i>H2020 IoT pilot in smart homes and smart grids.</i>	<i>Launch of the project.</i>	<i>Q1 2019</i>
Other important outputs		
Output	Indicator	Target date
<i>Implementation of the Digital Agenda for Western Balkans (DAWB).</i>	<i>Results announced at the Digital Summit in Belgrade.</i>	<i>Q2 2019</i>
<i>Green Digital Charter (GDC) 4.0.</i>	<i>New charter with 25% more signatories compared to the current Charter.</i>	<i>Q3 2019</i>
<i>Full implementation of the One Stop Shop for startups in Europe.</i>	<i>Number of unique visitors to the One Stops Shop and presence in social media.</i>	<i>100K unique visitors per month, 40K twitter followers, 40K Facebook group members.</i>

Specific objective 2.2:

Europe's research finds investment opportunities for potential technology breakthroughs and flagships, in particular through the Horizon 2020 programme and using Private Public Partnerships.

Related to spending programme(s):
Horizon 2020

This specific objective aims to ensure that research and innovation investment funds new breakthrough technologies and very-large scale flagship research initiatives. Given the strategic importance of Artificial Intelligence and the fast developments, a new topic will be introduced in the Horizon 2020 programme in order to strengthen Europe's position in the field. The objective is to develop **Networks of AI research excellence centres** supporting collaborative research addressing industrial and scientific challenges.

Public Private Partnerships (PPPs) play a strategic role and are of key importance in the support to ICT across all parts of Horizon 2020. In total, **seven PPPs** are now supported entirely or partly through LEIT-ICT: **5G, Photonics, Robotics, Big Data, Factories of the Future, HPC and Cybersecurity**. As part of the implementation mechanism of the Digitising European Industry strategy, PPPs are expected to play a reinforced role in 2018-20 and become real aggregation frameworks and ecosystems for digital industrial innovations.

In 2019, the **5G PPP** will advance validation trials across multiple value chains while engaging on the long term evolution of the technology and reinforcing international cooperation. The **Photonics PPP** will further support the set-up of pilot lines for manufacturing photonic components and research in applications of photonics to health and sensors for manufacturing. **The Factories of the Future PPP** will support research related to collaborative production, modular factories, handling of flexible materials, materials for additive manufacturing, and manufacturing of large area electronics. The **Robotics PPP** will foster research on robots outside the factory, notably to address the additional challenges faced in more open environments, including artificial intelligence and cognition. The **Big Data PPP** will continue supporting the emergence of data markets and economy, while fostering extreme-scale analytics. In addition, the **High Performance Computing PPP** will provide funding to large-scale testbeds for data intensive problems. The **Cybersecurity PPP** will support research on digital security for critical infrastructures and cities and will continue fostering research on digital security, privacy and data protection for citizens and SMEs.

The preparation, through studies and impact assessments, for a new set of partnerships will start in 2019 in view of preparing the implementation of Horizon Europe. The **planned partnership on Smart Networks and Services** is envisaged to cover roadmap-based R&I activities in the Next Generation Internet Intervention Area under Horizon Europe and build synergies with the CEF II Digital proposal in the field of 5G connectivity. DG CONNECT will also prepare the ground for a **new research and innovation partnership on Artificial Intelligence**, fostering collaboration between academia and industry in Europe and developing a strategic research and innovation agenda in AI for Europe.

In addition to the Contractual PPPs, DG CONNECT will continue to finance the **Electronic Components and Systems for European Leadership (ECSEL) Joint Undertaking**. The Commission has initiated a dialogue with industry (through the industrial associations) and member states in view of launching an institutionalised partnership that builds on ECSEL, addressing a broader scope of technologies and establishing links with relevant economy sector under a **Key Digital Technologies partnership**. There is clear interest on private and public members of ECSEL to continue the partnership in a broader and more ambitious format that covers a larger part of the value chains.

The two first **Future and Emerging Technologies (FET) Flagships**, namely the Graphene Flagship and the Human Brain Project, will prepare in 2019 their fourth phase of funding, building and exploiting an integrated and federated research infrastructure for neuroscience, brain medicine and future computing. The Graphene Flagship will further mature technology readiness levels of promising graphene enabled technologies and their exploitation. It will also prepare the grounds for the setting-up of manufacturing pilot lines to be funded in 2020.

By the end of 2019 the first round of projects of the **Quantum Technologies Flagship** will have been running for their first year covering the main areas of the Flagship: quantum computing, quantum simulation, quantum communication and metrology and sensing. Also, the preparation of a **Flagship initiative on "Future Batteries technologies"** will materialise with a Manifesto followed by a Strategic Research Agenda, in view of a possible first call for proposals under the 2020 work programme. Finally, up to 6 preparatory actions will be launched to mature the

plans for potential new initiatives (i.e. develop their consortia, governance and a science and technology roadmap). This will feed the process of identifying science & technology missions in Horizon Europe.

The **Future and Emerging Technologies** Open Scheme, which is part of the European Innovation Council (EIC) pilot since 2017-18, supports scientific and technological breakthroughs. The FET Open call "Challenging Current Thinking" with an initial budget of EUR 167 million (and a possible second call cut-off date with funds from the 2020 budget bringing the total amount to EUR 321,3 million) will support laying the foundations for radically new future technologies in any domain. The Innovation Launchpad call aims at turning results from FET-funded projects into genuine societal or economic innovations

The FET Proactive Scheme will be part of a new EIC pilot and will receive an additional budget of around EUR 65 million for launching 2-3 additional topics in 2019 as part of the call on "Boosting emerging technologies". It will also include a "Transition to Innovation Activities" part aiming to help FET projects move towards innovation.

The notifications of Member States to engage in the **Important Project of Common European Interest on micro- and nano-electronics** are expected to be completed by the end of 2018. If approved by the Commission, DG CONNECT will monitor their execution and implementation.

The **Implementation Plan of the EU Strategy on Electronic Value Chains** is planned to be delivered by the Electronics industry early 2019 and disseminated through an event in the first quarter of 2019. The plan will contain specific actions addressing the 2018 industry recommendations of its report 'Boosting Electronic Value Chains in Europe'. The actions derived from this plan could be implemented within existing (H2020, ECSEL) and future initiatives.

DG CONNECT will support through calls for proposals the **Platform for benchmarking and experimentation of hardware technologies for innovative computing concepts** involving major research and technology organisations. This Platform of networked facilities provides the necessary infrastructure (equipment, software, communication) to experiment and validate hardware for new computing notions, neuromorphic and quantum in particular.

Main outputs in 2019:

Delivery on legislative proposals pending with the legislator

Output	Indicator	Target date
<i>Regulation establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination.</i>	<i>Political agreement.</i>	<i>May 2019</i>

All new initiatives and REFIT initiatives from the Commission Work Programme

Output	Indicator	Target date

Important items from work programmes/financing decisions/operational programmes

*For a complete listing of expenditure-related outputs please refer to the Programme Statements published together with the **Draft Budget for 2019**.*

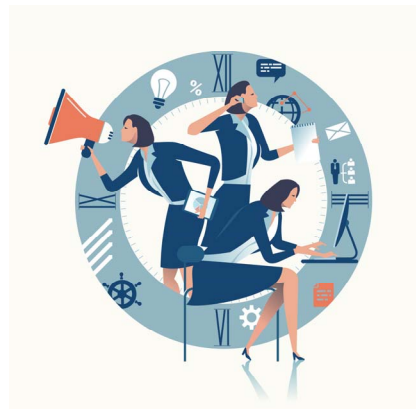
Output	Indicator	Target
<i>Update of the H2020 Work Programme 2018-20 to reflect emerging political priorities: - Artificial Intelligence</i>	<i>Adoption by the Commission.</i>	<i>Q2 2019</i>

Part 1. Main Outputs for the Year

<ul style="list-style-type: none"> - Next Generation Internet / Blockchain - Excellent Science (FET, e-infrastructures), - Industrial Leadership (LEIT ICT, LEIT ICT ECSEL), - Cross-cutting activities. 		
Revision of the H2020 Work Programme 2018-20 for the new European Innovation Council pilot.	Adoption by the Commission.	Q2 2019
H2020 - Excellent Science calls.	Timely launch of 2 calls (budget: EUR 36,5 million).	Q1 2019 & Q3 2019
H2020 - Industrial Leadership calls.	Timely launch of 4 calls (budget: EUR 629 million).	Q1 2019 & Q3 2019
FET-Flagships: the Graphene Flagship and the Human Brain Project.	Preparation of Specific Grant Agreements for the fourth phase of the Flagships (EUR 300 million).	Q4 2019
Preparatory actions providing inputs to the future Horizon Europe strategic planning.	Signature of Grant agreements for up to 6 preparatory actions under Horizon 2020 (EUR 6 million).	Q1 2019
FET Flagship on future batteries technologies - Community building and roadmapping action.	Signature of Grant agreement (EUR 0.5 million).	Q2 2019
Other important outputs		
Output	Indicator	Target date

A. HUMAN RESOURCE MANAGEMENT

DG CONNECT has made progress in the female representation in middle management positions in line with the 2017 Commission Decision setting the target of 6 first female appointments to middle management functions. To reach the 2019 target of 40% female representation overall in senior and middle management positions, DG CONNECT only needs to make one further first female appointment in middle management positions. DG CONNECT is confident that it will reach the target in view of the ongoing and future selection procedures. DG CONNECT provides pre-management opportunities to talented AD-women and supports talented AD-women in their career aspirations. This includes a 2018-2019 career development programme with a 360° development component, internal mentoring programme to build managerial pipeline and regular training and information sessions for women in pre-management functions including mock interviews and coaching by senior/middle managers.



As far as staff engagement is concerned, the outcome of the 2016 staff survey for DG CONNECT reflects a relatively stable employee engagement score (60% vs. 61% in the previous survey). The DG CONNECT main trends mirror the ones at Commission level. The lowest scoring questions relate to the allocation of human resources (in a context of resources constraints) and career development opportunities. DG CONNECT's 2017 action plan addressed those weaker points which have been carefully monitored and duly implemented. This was acknowledged in the outcome of the 2017 internal staff survey where the employee engagement score increased to 72%, presumably as an outcome of the actions taken by the Management Team in follow-up to the 2016 staff survey. DG CONNECT is now awaiting the outcome of the 2018 staff survey conducted in the fourth quarter of 2018. In the meantime, DG CONNECT also launched the "We are CONNECT" staff engagement campaign in order to increase the sense of belonging to DG CONNECT and to ensure that colleagues are better aware of the DG activities and achievements. In addition, DG CONNECT will define further learning and development priorities as identified in the annual learning and development needs analysis which will help to ensure that people are properly equipped to deliver on political and operational priorities and for career development (e.g. the above mentioned 2018-19 career development programme with a 360°/180° component).

As regards well-being, the outcome of the 2016 staff survey reflected an overall improvement of DG CONNECT's score and a recognition of efforts made in this area, which are being pursued in close cooperation with the Account Management Centre 3 (AMC3) and have been largely extended on Beaulieu site, within the context of the corporate Fit@work programme. Additionally, the active Diversity and Inclusion Network - chaired by the Deputy Director- General - regularly discusses topics of concern to staff and takes actions for improvement (e.g. annual diversity and inclusion days, managers discussions on how to capitalize better on the cognitive diversity in the DG, actions for older staff, parents and staff with disability/caring responsibilities).

DG CONNECT's key challenge will be to make the best use of the (decreasing) available talents to deliver on the political and operational priorities, taking into account the current resources constraints. This entails ensuring that DG CONNECT is equipped with committed and qualified staff who will deliver on its priorities and meet the targets agreed with the central services concerning the reduction of staff and support levels and the increase of its presence in Luxembourg.

Part 2. Main Organisational Management Outputs for the Year

In line with the HR modernisation project set out in the 2016 Communication on Synergies and Efficiencies, HR services are delivered by an Account Management Centre (AMC) inside DG Human Resources and Security. Each DG has an HR Business Correspondent, responsible for defining HR strategy and taking HR decisions, in consultation with the management of the DG, as well as ensuring that the DG gets the HR service it needs, in cooperation with the AMC. DG CONNECT has been participating in this pilot since 2017 and is supported by AMC3, located in Beaulieu, which also serves three other Directorates General. The pilot is expected to come to an end at the end of 2018.

Thanks to a close monitoring and a strict policy of assigning to Luxembourg most of its posts falling vacant in Brussels, DG CONNECT increased its presence within the Commission's Digital Pole in Luxembourg, beyond the yearly targets defined by DG Human Resources and Security. DG CONNECT is therefore confident that the cumulative targeted increase due by end of 2019/2020 (100 full-time equivalents including 60 officials) will be reached.

The Digital Pole in Luxembourg will be a centre of excellence with the following priority areas:

- European digital infrastructures and technologies including super-computing, quantum-computing, high-speed networks, data centres, robotics.
- Building the European data economy, including open data and data analytics.
- Public service innovation and modernisation, including eGovernment, interoperability, digital trust.
- Digital solutions for health, ageing and wellbeing; learning, multi-lingualism and inclusion; culture and creativity.

Objective 1: The DG deploys effectively its resources in support of the delivery of the Commission priorities and core business, has a competent and engaged workforce, which is driven by an effective and gender-balanced management and which can deploy its full potential within supportive and healthy working conditions.

Main outputs in 2019:

Output	Indicator	Target
<p><i>Women in management:</i></p> <ul style="list-style-type: none"> - 2018/2019 Career development programme which includes a 360 degree feedback and coaching sessions, - close monitoring of all females in pre/middle-management positions, - steering the women in pre-management network including ad hoc workshops and trainings. 	<p><i>Number of female applicants shortlisted in each pre/middle-management selection procedure.</i></p>	<p><i>At least 1.</i></p>
<p><i>Close monitoring and management of job quotas / budget and careful assessment of replacements for every departure, in light of the operational and political priorities.</i></p>	<p><i>Taxation targets met within the deadlines set by the budgetary authority.</i></p>	<p><i>Staff reduction laid down in the 2019 allocation of establishment plan posts (-1%) and the appropriations for external personnel.</i></p>
<p><i>Learning & Development Strategy tailored to the skills/ competences/ knowledge required for the completion of our operational and political priorities.</i></p>	<p><i>L&D priorities to be adopted as part of the overall HR strategy for the DG.</i></p>	<p><i>Complete curriculum reflecting newly identified requirements.</i></p>

<i>Reduction of support functions to focus resources on operational activities.</i>	<i>Reduction of FTEs in support functions under scrutiny by DG Human Resources and Security.</i>	<i>FTE reduction in support functions -20 for 2019/2020; -95 cumulative over 2016-2019/2020.</i>
<i>Increase of DG CONNECT presence in Luxembourg within the Digital Pole.</i>	<i>Increase of FTEs in Luxembourg.</i>	<i>FTE increase +40 for 2019/2020; +100 cumulative over 2017-2019/2020</i>
<i>Develop and monitor the implementation of the DG action plan as a follow-up to the 2018 Commission staff satisfaction survey.</i>	<i>Staff Engagement Index within the 2018 Commission staff satisfaction survey.</i>	<i>Staff Engagement Index of 65.</i>
<i>Action plan as follow-up on staff opinion survey 2018</i>	<i>Approval of action plan by Director-General</i>	<i>By end of Q2 2019</i>
<i>Well-being activities organised at DG CONNECT within the context of the Fit@Work Programme.</i>	<i>Number of well-being activities organised within DG CONNECT in close cooperation with AMC3.</i>	<i>- 2 series of well-being trainings per year, - 3 blood donation sessions, - weekly well-being activities, - ad hoc workshops to build resilience depending on staff needs (based on staff survey).</i>

B. Financial Management: Internal control and Risk management

In 2019, the major part of DG CONNECT's expenditure will be related to H2020 and FP7 grants. Ex-ante controls are rigorously implemented for each transaction (commitments and payments), but the internal control system is designed to gain assurance mainly from ex-post audits. The Common Audit Service (CAS) of the Common Support Centre (CSC) is responsible for the implementation of the H2020 and FP7 audit strategies. The ex-post audits clean the budget from errors and prevent them from happening again in the future. The audit implementation ensures the recovery of all unjustified financial contribution paid to the beneficiary and the application of liquidated damages. The DGs of the Research Family make continuously huge efforts on training and informing beneficiaries about the rules (Coordinators' Day, Participant Portal, communication campaigns).



DG CONNECT contributes to the definition of the common approaches applied for H2020 by cooperating at various levels, providing structural feedback and contributing to the decision making process. Furthermore, it supervises the Executive Agencies entrusted with the implementation tasks through exercising its governance role.

Part 2. Main Organisational Management Outputs for the Year

Beside the results of the control efforts expressed in terms of error rate, the control output of DG CONNECT must also meet other legal requirements of the Financial Regulation: time-to-grant (time elapsed between the call deadline and the signature of the grant agreement), time-to-inform (time elapsed between the call deadline and when applicants are informed of the outcome of the scientific evaluation) and time-to-pay are major performance indicators. Respecting them also contributes to the regularity of the operations.

Fraudulent cost claims in research grant agreements is the main sectorial fraud risk. The 2015 Research Anti-Fraud Strategy is accompanied by an action plan. The Fraud and Irregularities in Research Committee is the main platform of coordination between the research family members in the field of anti-fraud and monitors the implementation of the action plan. At the end of 2018, the action plan was considered implemented, with some actions to be carried over to the updated action plan scheduled for early 2019. The Committee's action is complemented by the local anti-fraud correspondents' working meetings and a common anti-fraud training and common tools (guidance, IT developments).

The main fraud prevention measure set out in the Strategy lies in raising fraud awareness amongst a target population (agents involved in public procurement and direct grant management). The anti-fraud training course focussing on grants is in place since 2011 and has been revamped in 2015. In addition, another anti-fraud training course focussing on procurement is in place since 2016. One of the main outputs of the fraud detection work consists in referring fraud suspicions to OLAF. They are then, together with other OLAF cases relevant for DG CONNECT, regularly monitored and reported upon to the management and to the Commissioner. The CAS, which conducts FP7/H2020 audits, including fraud risk audits, is also responsible for transmitting information to OLAF about alleged fraud cases brought to light by financial audits.

The 2016 DG CONNECT anti-fraud strategy (updated in February 2018), communicated to all staff, focusses on the areas of activity not covered by the Research Anti-Fraud Strategy. The implementation of its action plan is monitored on a regular basis. By November 2018 all one-off actions were implemented, while the recurrent actions are continuously carried out. The strategy will be reviewed following the update of the Commission Anti-Fraud Strategy and the update of the Research Anti-Fraud Strategy in 2019.

DG CONNECT has implemented the 2017 principles based Internal Control Framework in 2018 and will assess the state of internal control according to the new framework for the preparation of the 2019 Annual Activity Report.

Objective 1: Effective and reliable internal control system giving the necessary guarantees concerning the legality and the regularity of the underlying transactions.		
Main outputs in 2019:		
Output	Indicator	Target
<i>Ex-ante controls</i>	<i>Coverage</i>	<i>100%</i>
<i>Ex-post audit plans</i>	<i>Implementation of the 2019 audit plan</i>	<i>95% at 31/12/2019</i>
<i>Implementation of the audit results</i>	<i>Cumulative implementation rate (FP7+H2020) audit results</i>	<i>85% at 31/12/2019</i>
<i>Implementation of extrapolations</i>	<i>Cumulative implementation rate (FP7+H2020) audit results</i>	<i>85% at 31/12/2019</i>
<i>Open recommendations from European Court of Auditors (ECA)</i>	<i>Number of critical recommendations from ECA overdue for more than 6 months</i>	<i>None</i>

Part 2. Main Organisational Management Outputs for the Year

<i>Legality and regularity of transactions under FP7 and H2020</i>	<i>Error rate within the agreed range</i>	<i>FP7: residual error rate as close as possible to 2% H2020: representative error rate between 2-5% - residual error rate as close as possible to 2%.</i>
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Objective 2: Effective and reliable internal control system in line with sound financial management.

Main outputs in 2019:

Output	Indicator	Target
<i>Timely execution of payments</i>	<i>Payments on the administrative budget made within the time limits</i>	<i>>95%</i>
	<i>Time-to-pay</i>	<i>95% compliant by 31/12/2019</i>
<i>Timely information to the participants</i>	<i>Time-to-inform</i>	<i>95% compliant by 31/12/2019</i>
<i>Efficient grant management process</i>	<i>Time-to-grant</i>	<i>95% compliant 31/12/2019</i>
<i>Cost of control / economy</i>	<i>Cost of control/operational payments</i>	<i>a) budget managed by DG CONNECT: <2% b) budget implementation tasks entrusted to other DGs and entities: <1%</i>

Main outputs in 2019:

Output	Indicator	Target
<i>Implementation of the anti-fraud strategies (Research Anti-Fraud Strategy, DG CONNECT)</i>	<i>% of implementation of actions planned for 2019 in the anti-fraud strategies</i>	<i>100%</i>
<i>Fraud And Irregularities in Research Committee</i>	<i>Number of meetings</i>	<i>2</i>
<i>Fraud risk awareness raising trainings and similar anti-fraud trainings</i>	<i>Number of participants from DG CONNECT</i>	<i>50 in 2019</i>
<i>In the context of the revision of the Research Anti-Fraud Strategy.</i>	<i>Timely contribution to the Fraud and Irregularities in Research Committee</i>	<i>Q1 2019</i>
<i>Use of the anti-plagiarism tool</i>	<i>Number of requests to use the anti-plagiarism tool</i>	<i>More than 8 requests (increase compared to previous period)</i>

C. Better Regulation

The main planned outputs linked to the Better Regulation objective in the Strategic Plan are listed in Part 1 under the relevant specific objective. They are presented in the tables under the headings "All new initiatives and REFIT initiatives from the Commission Work Programme" and "Other important items".

D. Information management aspects

The corporate strategy for data, knowledge and information management aims to improve the way we manage data, information and knowledge assets within the Commission and to enable collaborative working. The strategy is implemented by a multi-annual Work Programme, which is defined by the Information Management Team and adopted by the Information Management Steering Board. DG CONNECT is represented in the Board by one of the Deputy Directors-General and within the Information Management Team by the Head of the Knowledge Management and Support Systems unit. DG CONNECT's strategy for data, knowledge and information management contributes to the IMSB Work Programme while leaving room to address specific needs.



Examples of actions under the leadership of DG CONNECT:

- Development of a data analytics module to classify information and documents based on a supervised taxonomy;
- Consolidation and generalisation of data oriented services (DORIS) to enable any staff member to analyse data through a Web interface;
- Development of an API (Application Programming Interface) to make DORIS available to other information systems.

1) Improving information retrieval and delivery

DG CONNECT asked DG Informatics to early participate in the corporate search function. Furthermore, we developed a semantic-driven approach (based on taxonomies) to improve search and retrieval of information on our platforms (Connected, MyIntraComm Collaboration and Ares).

Processes for information retrieval and knowledge management rely on corporate tools and practices. We have developed principles and rules, including information security on how to register and file documents. Awareness campaigns have been launched to inform staff on the use of Eurolook and new security markings. To face a drastic reduction of clerical and support staff, we reviewed DG CONNECT Standard Operating Procedures to make them simpler and easy to retrieve.

External communication is managed through Web platforms based on corporate solutions, and on publicly available commercial tools, such as social media.

2) Working together and sharing information and knowledge

DG CONNECT developed the Connected platform which is now used by several DGs and has been taken over by the Joint Research Centre (system owner) and DG Informatics (system supplier), with strong contributions by DG Human Resources and Security and DG Internal Market, Industry, Entrepreneurship and SMEs. Following a large cleaning exercise which eliminated obsolete and inconsistent spaces, groups and tags, the content has been reorganised according to a new DG CONNECT taxonomy and a new navigation structure, also taking into account the creation of new policy priorities and organisational entities (reorganisation of July 2018). Furthermore, once the SharePoint-Connected integration will be completed by DG Informatics, the use of Connected for collaborative work will be even easier.



Stakeholder Relation Management (SRM) is designed to share knowledge regarding stakeholders. Advanced Virtual Assistant (AVA) helps preparing meetings with stakeholders as well as drawing up meeting reports, managing and sharing stakeholder information, informing participants, etc. The tool is linked with the Commission's transparency register. SRM/AVA are now available to the entire DG with enriched information on stakeholders with data from other systems (Corda, Orbis...). In 2019, we will extend the use of SRM/AVA by integrating it with other systems (e.g. Basis) as well as by using it as a data integration tool.

On external collaboration, we made the Futurium available as a toolkit to build scalable and adaptable citizen engagement platforms. The Futurium hosts a growing number of thematic communities including the European AI Alliance, Innovation Radar Prize, WiFi4EU, Digitalising European Industry, eGov4EU and eIDAS Observatory, Digital4Science, as well as communities launched by other DGs (three by the DG Regional and Urban Policy) and agencies. Currently, there are 26 communities with approximately 13000 members, and the site has attracted more than 620.000 visits in 2018.

In 2019 we will extend the Futurium's semantic-driven approach to support informal consultations, complementing the formal Better Regulation's Portal and eSurvey. This new version will be hosted on a cloud infrastructure provided by DG Informatics and will allow a better look and feel, an easier way to co-create content and more flexibility to implement specific communities' needs.

We contributed to the definition of corporate vocabularies (lists, taxonomies) under the coordination of the Publication Office. We defined a first draft of a DG CONNECT taxonomy which is consistent with the ARES/NOMCOM nomenclature and which will be consolidated and enriched with a number of relations to allow linkages between content.

3) Maximising use of data for better policy-making

DORIS (Data Oriented Service) is our flagship system providing data analytics services to policy. Through collaboration between Secretariat General, DG Informatics and DG CONNECT, the DORIS Public Consultation Dashboard has been integrated in the Better Regulation Portal and is now accessible for all Commission services. DG CONNECT will continue to enhance the tool to address local needs, to improve its underlying algorithm and to contribute to the creation of the future Commission-wide data analytics service envisioned in the Data4Policy@EC strategy.

DG CONNECT will strengthen its contribution to the Data4Policy@EC strategy by taking the leadership or co-leadership of key objectives therein.

Through the development of the DORIS, Drive-In, many text analytics services are available to all staff and services. Users are able to run their own analyses without manual intervention: keyword extraction, named entity recognition, sentiment analysis, etc. The Drive-In has been launched in 2018 but further enhancements may be possible depending on the actual users' feedback.

4) Creating a culture of knowledge sharing and learning

Cultural change will be pursued by the "Knowledge Management and Innovative Systems" unit in collaboration with the HR Business Correspondent and the Diversity and Inclusion Network, in order to improve use of collaborative platforms, information sharing, opening up access to systems and developing dashboards to support multiple procedures and roles (secretaries, policy officers, accountants, managers, etc).

The new Customer Relationship Management function supports users and provides one-to-one knowledge transfer so as they become acquainted and improve their experience with tools and equipment. We also deliver a comprehensive programme of trainings and coaching in knowledge management and IT, which includes new working methods and a modern use of mobile devices.

In 2018, DG CONNECT, with the support of DG DIGIT, moved to the new Windows 10 and office automation software, and introduced the Unified Communication and Collaboration tool to enhance the integration of staff on the Luxembourg and Brussels sites.

The following additional measures are planned for 2019:

- Continuously updating the DG's filing plan,
- Training and raising awareness about document management and knowledge sharing,
- Ensuring widespread use of SharePoint and Connected for collaborative working across the DG,
- Intensifying the use of the Stakeholder Relationship Management (SRM) tool across the DG as the common tool for managing relations with our stakeholders,
- Extending the use of Futurium to support MFF engagement along the 4 programmes under (co-)responsibility of DG CONNECT,
- Further consolidating and mainstreaming of DORIS as a corporate service under the Luxembourg pole project.

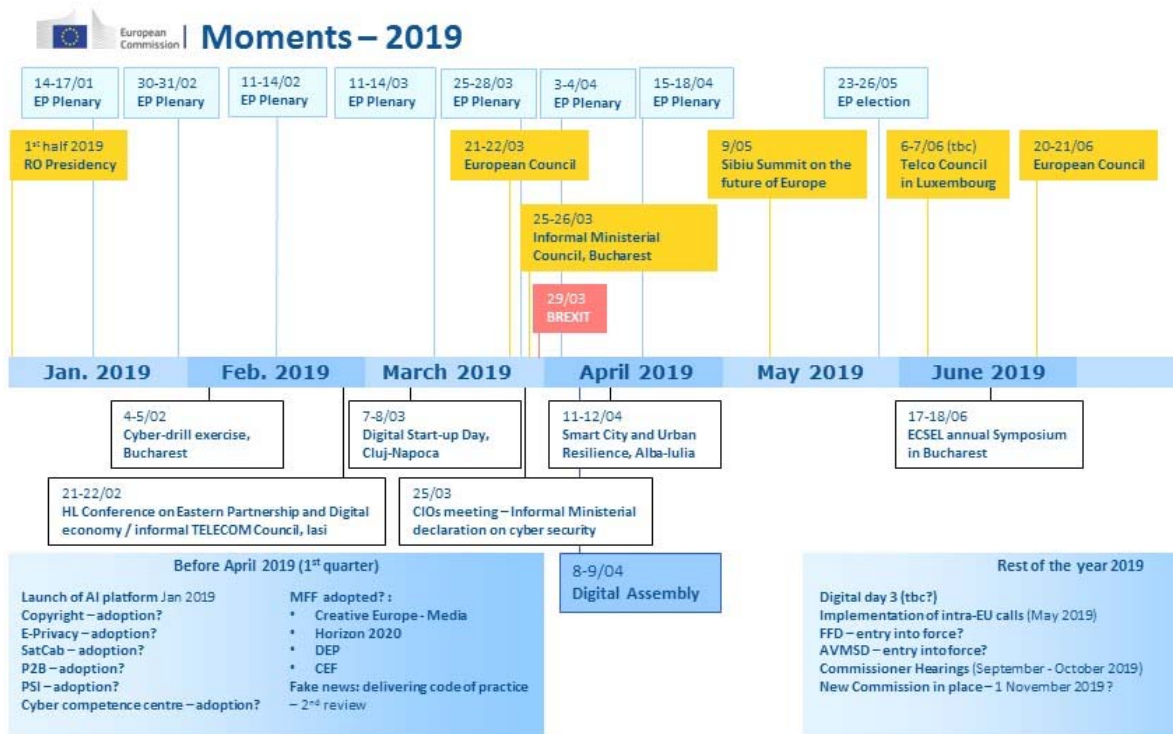
Objective 1: Information and knowledge in your DG is shared and reusable by other DGs. Important documents are registered, filed and retrievable.		
Main outputs in 2019:		
Output	Indicator	Target
<i>Provide training and coaching on document registration and filing</i>	<i>Training/coaching of unit secretariat and DMO correspondent</i>	<i>100% of units trained/coached</i>
<i>Awareness campaigns</i>	<i>2 for Areslook and Eurolook 1 for Connected and SharePoint (including bridges with Ares)</i>	<i>Q4 2019</i>
<i>Doris Drive-In available to all staff to perform analysis of documents and data</i>	<i>75% of operational units using the service at least once</i>	<i>Q3 2019</i>
<i>Application of a taxonomy reflecting the scope of DG CONNECT</i>	<i>To review and re-organise the content of Connected, SharePoint and Ares to make it more retrievable and linked</i>	<i>Q1 2019</i>

Part 2. Main Organisational Management Outputs for the Year

Enhancement of Stakeholder Relationship Management (SRM)	Integration with Basis workflow.	Q1 2019
Extension of Futurium to more communities in view of MFF engagement campaigns to support digital policies	Porting Futurium on DIGIT cloud and enhancing its usability and functionalities	Q2 2019

E. External communication activities

Key communication moments in 2019 are outlined in the table below and can be summarised in two parts. Firstly, the DG will communicate around the adoption of all outstanding DSM proposals by co-legislators, in time for the European elections in May 2019. Secondly, following the appointment of the new Commission in Autumn 2019, the DG will focus communication activities on the priorities of the new Commission.



In the context of the discussions around the EU's multi-annual financial framework and the proposed Digital Europe Programme, our external communication will continue to highlight the impact and benefits of EU investment in ICT and digital with different external audiences in Brussels and in the Member States.



DG CONNECT will continue to focus on joined-up, digital-first communications in partnership with the spokesperson service, the Commissioner's and VP's Cabinets, the DSM family DGs as well as the research & innovation family DGs and their policy teams. We will strengthen our stakeholder communication and ensure coherence with top-level communications priorities through DG CONNECT's internal networks, including a reinforced CONNECT communications network and throughout the Commission by continuing to be part of the corporate communication campaigns EU INVEST, EU EMPOWERS and EU PROTECTS.

Part 2. Main Organisational Management Outputs for the Year

The impact of DG CONNECT's communications outputs are measured in terms of overall communications activity across the full range of digital-first communications channels. The overall outputs and targets can be seen in the table below.

Objective 1: Citizens perceive that the EU is working to improve their lives and engage with the EU. They feel that their concerns are taken into consideration in European decision making and they know about their rights in the EU.		
Main outputs in 2019:		
Output	Indicator	Target
<i>How many people we have reached through our communication activities</i>	<i>1) People reading the Digital Single Market website</i>	<i>Yearly median 7,329 unique browsers per day (baseline 7,329) (keep at least stable)</i>
	<i>2) People participating in our events</i>	<i>Total of registrations for events (currently Event in the Box accounts only 91,500 (baseline 83,960) (increase by 9%)</i>
	<i>4) People reading any of the DSM Newsletters</i>	<i>Total of Newsroom subscription for newsletters 254,000 (baseline 249,968) (increase by 1.5%)</i>
	<i>5) People following DSM Facebook page</i>	<i>Total of DSM Facebook likes 32,000 Likes (baseline 28,967) (increase by 10%)</i>
	<i>6) People following DSM Twitter account</i>	<i>Total of DSM Twitter followers 101,000 (increase by 10%)</i>
<i>How people interacted with us on the base of our communication activities</i>	<i>1) Engagement with DSM Facebook page</i>	<i>Cumulative monthly average 1,190 points engagement (baseline 1,189) (keep stable)</i>
	<i>2) Engagement with DSM Twitter account</i>	<i>Cumulative monthly average 8,000 points engagement (baseline 7,991) (keep stable)</i>
<i>Participation in Code Week 2019 events</i>	<i>People attending</i>	<i>2 million participants</i>
<i>Participation in Digital Day III</i>	<i>People attending</i>	<i>500 participants</i>
<i>Participation in Digital Assembly</i>	<i>People attending</i>	<i>1300 participants</i>
<i>ICT Proposers' Day 2019</i>	<i>People attending</i>	<i>3000 participants</i>

Annual communication spending (based on estimated commitments):

Baseline (2017)	Estimated commitments (2019)
EUR 5,4 Million	950 000 EUR

Note: The 2017 figure corresponds to the total amount for all the events, including all cost: catering, contractor to set up stands, invited speakers, logistics etc and not purely the communication expenditure part. This year we highlight here the communication related spending.

F. Example of initiatives to improve economy and efficiency of financial and non-financial activities of the DG

The Digital Europe Programme structure and implementation are aimed at minimising the cost of setting up a new programme. It is planned that the Programme will use existing (or currently being set up) implementation mechanisms including the Joint Undertaking for High Performance Computing, a specific body for Cybersecurity and the network of Digital Innovation Hubs, subject to final approval of the Commission proposal by the co-legislators and in full compliance with the procedure foreseen for renewal of joint undertakings. It is envisaged that the funding relating to digitisation of areas of public interest and skills could be managed by an executive agency, subject to the outcome of a cost-benefit analysis, whereas DG CONNECT would directly implement actions for areas like artificial intelligence and Digital Innovation Hubs, taking advantage of existing in-house resources.



The programme will be implemented through a toolkit of available instruments that would be used depending on the policy need to be addressed and favouring those having the least distorting effect on the market. Also, given that the programme is new it can make use from its very beginning of all simplification measures foreseen in the new Financial Regulation (e.g. wider use of lump sums and simplified forms of grants). For most of the areas covered by the programme, procurement will be used and benefit from a strategic and rational planning developed together with the Member States (also though the use of joint procurement).

For their implementation, Horizon Europe and the Digital Europe Programme would align operating procedures (e.g. common processes, IT tools, etc.), inter alia using services provided by the Horizon Europe Common Support Centre. The overarching objective is to reach the simplest and most effective implementation solutions that do not significantly deviate from existing programmes, while appropriately responding to the specific needs of the programme.

A

- AI= Artificial Intelligence
- AIOTI= Alliance for IoT Innovation
- AMC= Account Management Centre
- API= Application Programming Interface
- AVA= Advanced Virtual Assistant
- AVMSD= Audiovisual Media Services Directive

B

- BCO= Broadband Competence Offices
- BEREC= Body of European Regulators in Electronic Communications

C

- CAD= Connected and Automated Driving
- CAS= Common Audit Service
- CCAM= Cooperative, Connected and Automated Mobility
- CEBF= Connecting Europe Broadband Fund
- CEF= Connecting Europe Facility
- CEPT= Conference of Postal and Telecommunications Administrations
- CSC= Common Support Centre
- COCOM= Communications Committee (Council)
- CSIRT= Computer Security Incident Response Team

D

- DAWB= Digital Agenda for Western Balkans
- DEI= Digitising European Industry
- DG= Directorate-General (Commission)
- DG DIGIT= DG Informatics
- DG EAC= DG Education and Culture
- DG FISMA= DG Financial Stability, Financial Services and Capital Markets Union
- DG GROW= DG Internal Market, Industry, Entrepreneurship and SMEs
- DG HR= DG Human Resources and Security
- DG JUST= DG Justice and Consumers
- DG MOVE= DG Mobility and Transport
- DG REGIO= DG Regional and Urban Policy
- DG RTD= DG for Research and Innovation
- DESI= Digital Economy and Society Index
- DIH= Digital Innovation Hubs
- DMO= Document Management Officer
- DORIS= Data Oriented Services
- DSI= Digital Service Infrastructure
- DSM= Digital Single Market

E

- EBSI= European Blockchain Services Infrastructure
- EC= European Commission
- ECA= European Court of Auditors
- ECSEL= Electronic Components and Systems for European Leadership
- EEAS= European External Action Service

- EFSI= European Fund for Strategic Investments
- EIC= European Innovation Council
- EIP= European Innovation Partnership
- EP= European Parliament
- EPDR= Europe Digital Progress Report
- ESIF= European Structural and Investment Funds
- EOSC= European Open Science Cloud
- EuroDIG= European Dialogue on Internet Governance
- EUROCITIES= European Network of Major Cities

F

- FET= Future and Emerging Technologies
- FP= Framework Programme
- FTE= Full Time Equivalent

G

- GDC= Green Digital Charter
- GDPR= General Data Protection Regulation

H

- H2020= Horizon 2020
- HBP= Human Brain Project
- HPC= High Performance Computing
- HR= Human Resources

I

- ICANN= Internet Corporation Assigned Names and Numbers
- ICT= Information and Communication Technologies
- IMT= Information Management Team
- IMSB= Information Management Steering Board
- IoT= Internet of Things
- IRSUS= Innovation Radar Coordination and Support Actions
- ITS= Intelligent Transport Systems

L

- LEIT= Leadership in Enabling and Industrial Technologies
- L&D= Learning & Development

M

- MFF= Multiannual Financial Framework

N

- NIS= Network Information Security

O

- OLAF= European Anti-Fraud Office
- OMC= Open Method of Cooperation

P

- PPP= Private Public Partnership

Q

- Q= Quarter

R

- R&D= Research and Development
- R&I= Research and Innovation
- REFIT= Regulatory Fitness and Performance programme

S

- SAREF= Smart Appliances REference ontology
- SCC= Smart Cities and Communities
- SMEs= Small and medium-sized enterprises
- SRM= Stakeholder Relation Management
- STARTS= Science, Technology; and the ARTS

V

- VP= Vice-President (Commission)

W

- WACC= Weighted Average Cost of Capital

3

- 3GPP= 3rd Generation Partnership Project