



Annual Activity Report 2021

Directorate-General for Communications
Networks, Content and Technology

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THE DG IN BRIEF

Making *Europe fit for the digital age* is one of the headline ambitions that Commission President Ursula von der Leyen set out in her political guidelines and was further developed in her mission letters to Executive Vice-President for A Europe Fit for the Digital Age, Margrethe Vestager and to the Commissioner for Internal Market, Thierry Breton. CONNECT supports the digital transformation of the Union's economy and society and fosters the internal market.

If for the past years digital has been central to people's and business' lives, the pandemic underscored the importance of the digital technologies as key enablers for the proper functioning of the society and economy. In addition to delivering on its policy objectives, the Directorate-General for Communications Networks, Content and Technology (CONNECT) played an active role in the 'digital response' to the COVID-19 crisis and helped Member States to overcome its impacts.

CONNECT invests in research, innovation, deployment and uptake of trustworthy and green digital technologies that improve Europe's economy and people's lives. We foster Europe's connectivity, a key enabler of the digital and green transitions, and the vitality of the internal market by ensuring that companies can invest and compete on equal terms. CONNECT promotes Europe's human-centric model of an innovative, fair and sustainable digital transformation of society, which respects our democratic values, our fundamental rights and cultural diversity. We help bridge the digital divide by supporting digital literacy and skills of EU citizens. The DG works towards making Europe a global leader in the data economy, in cybersecurity and on ensuring Europe's open strategic autonomy.

CONNECT managed funds directly (61.24%) and also entrusted the implementation of an important part of its budget (38.76%) mainly to executive agencies, to Joint Undertakings such as the Key Digital Technologies Joint Undertaking (KDT) and the European High Performance Computing Joint Undertaking (EuroHPC). Also, two decentralised agencies, the BEREC office (Body of European Regulators for Electronic Communications) and ENISA (the European Union Agency for Cybersecurity), work under CONNECT's remit.

2021 was the first year of implementation of the programmes of the new multi-annual financial framework (MFF) 2021-2027, i.e. *Horizon Europe*, *Digital Europe*, *CEF II - Digital* and *Creative Europe – Media*, whose implementation CONNECT partly delegated to executive agencies. Calls for proposals were delayed due to the late approval of the new MFF, resulting in a significant decrease in the amount of payments processed during the year compared to previous years.

CONNECT interacts with many other Commission DGs, and in particular with DG Internal Market, Industry, Entrepreneurship and SMEs and DG Defence Industry and Space, which are also under the lead of Commissioner Thierry Breton, and with DG Research and Innovation as well as DG Health and Food Safety.

EXECUTIVE SUMMARY

This Annual Activity Report is a management report of the Director-General of CONNECT to the College of Commissioners. Annual Activity Reports are the main instrument of management accountability within the Commission and constitute the basis on which the College takes political responsibility for the decisions it takes as well as for the coordinating, executive and management functions it exercises, as laid down in the Treaties ⁽¹⁾.

A. Key results and progress towards achieving the Commission's general objectives and DG's specific objectives (executive summary of section 1)

President Ursula von der Leyen's headline ambition ***A Europe fit for the Digital Age*** is the main objective of CONNECT for the coming years. The DG also contributes to other general objectives, in particular to *A European Green Deal*, *An economy that works for people*, and *A stronger Europe in the world*.

The COVID-19 pandemic brought about unprecedented challenges for Europe and the world and CONNECT took an active role in the Commission's response to the health crisis and its social-economic consequences. CONNECT led the technical development of the **EU digital COVID certificate system (EU DCC)**, which is a framework for the common issuance, verification and acceptance of digital COVID certificates, based on strong trust to ensure the privacy of citizens' personal health information. The system was set up in record time in a joint effort of several Directorates-General. Beyond connection of all EU and European Economic Area countries, CONNECT has also supported many countries around the world to make their digital certification process fully aligned with the EU DCC and connected to the EU Gateway. By the end of 2021, more than 1 billion certificates had been issued in the EU, and 60 countries have been connected to the system



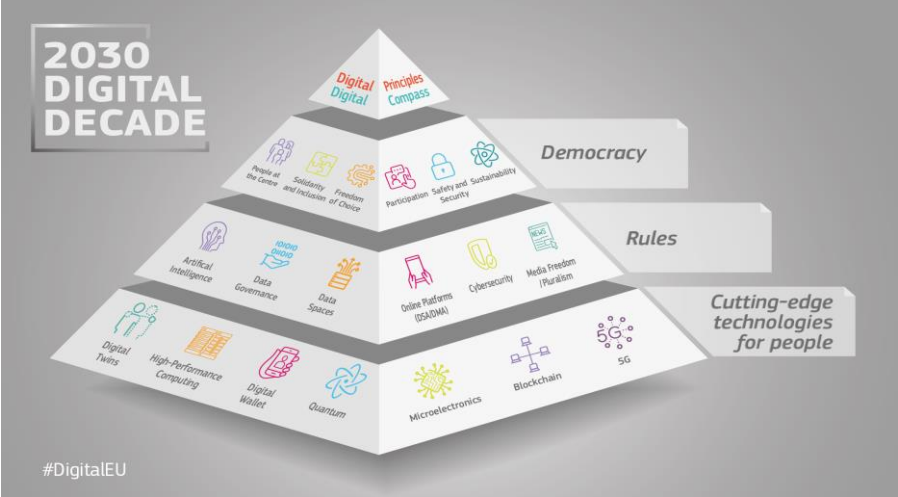
Another important action led by CONNECT was the donation of more than three hundred **disinfection robots** to hospitals in the Member States. These robots are able to disinfect a standard patient room in under 15 minutes.

CONNECT supported the implementation of the **Recovery and Resilience Facility (RRF)** of NextGenerationEU, making sure that digital contributes to the short-term recovery and long-term prosperity. CONNECT played a key role in the preparatory phase leading to the Commission's approval of 22 national plans under the *RRF*, with a total budget of EUR 445

⁽¹⁾ Article 17(1) of the Treaty on European Union.

billion. Of these, EUR 117 billion (approximately 26% of the budget) are dedicated to the digital transformation of Europe.

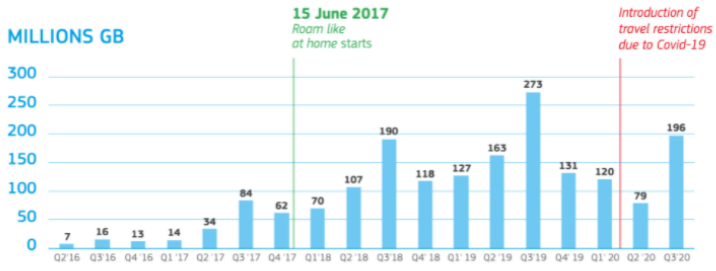
In parallel to the activities brought by the COVID-19 crisis, CONNECT also delivered important policy outputs: In March 2021, the Commission adopted the Communication ‘**The 2030 digital compass: the European way for the digital decade**’, which presents a vision, targets and avenues for a successful digital transformation of the EU by 2030. The EU's ambition is to be digitally sovereign in an open and interconnected world, and to pursue digital policies that empower people and businesses to seize the opportunity of a human centred, sustainable and more prosperous digital future. As a follow-



up, the Commission adopted on 15 September 2021 a proposal for a Decision of the European Parliament and of the Council establishing the **2030 policy programme ‘Path to the digital decade’**, providing a concrete plan to achieve the digital transformation of our society and economy by 2030.

On 21 April 2021, the Commission adopted the proposal for the **Artificial Intelligence Act**, which uses a risk-based approach, introducing specific requirements for AI applications that create risks for safety and fundamental rights. It also bans certain particularly harmful applications such as general-purpose social scoring.

In February 2021, the Commission proposed the revision of existing measures and prolongation of the **roaming Regulation** beyond 2022 to ensure a genuine ‘roam like at home’ experience to EU travelers.



On 3 June 2021, the Commission adopted a proposal for a **Regulation amending Regulation (EU) 910/2014 as regards establishing a framework for a European digital identity** in conjunction with a Commission **Recommendation on a common Union toolbox for a coordinated approach towards a European digital identity framework**. The aim is to propose to EU citizens, resident and businesses personal digital wallets that are safe, free, convenient to use, and that protect personal data. The wallets

would be issued by Member States and built based on trusted digital identities provided by Member States, improving their effectiveness, extending their benefits to the private sector.

CONNECT worked on a proposal for a **European Chips Act** which was announced by President Ursula von der Leyen on 15 September 2021 and adopted in early 2022. The European chips act will contribute to EU technology sovereignty by creating a state-of-the-art European chip ecosystem, including production, involving all stakeholders.

The Commission continued the work on the **EU strategy on standardisation** under the lead of DG GROW. The strategy was adopted in February 2022 and aims at strengthening the European Standardisation System supporting a resilient, green and digital Single Market, enabling EU leadership in global standardisation promoting EU values and interests.

Finally, CONNECT prepared the proposal for a **European declaration on digital rights and principles for the digital decade** which was adopted in January 2022. The declaration provides a reference for policymakers and digital operators about the human-centred digital transformation which Europe promotes and defends.

B. Key Performance Indicators (KPIs)

Key Performance Indicator 1: Number of EuroHPC systems installed in the EU ranking among the top 10 in the world

Baseline (2020)	Interim milestone (2022)	Target (2024)
0	3	4

Latest known results: There are currently no EURO HPC systems in the world top 10. The current expectation is to have 2 HPC systems in the top 10 by the end of 2022 (which is below the interim milestone) but the target for 2024 is likely to be reached

Key Performance Indicator 2: Impact of the data economy on EU GDP ⁽²⁾

Baseline (2018)	Interim milestone (2022)	Target (2024)
Estimated impact of the data economy on EU GDP: 2.4%	None	Estimated impact of the data economy on EU GDP to at least 3.6%

Latest known results: The current estimated impact of the data economy on EU GDP is 3.6%

Key Performance Indicator 3: Number of testing and experimentation facility sites in AI supported through Digital Europe Programme

Baseline (2020)	Interim milestone (2022)	Target (2024)

⁽²⁾ This indicator measures the contribution of the generation, collection, storage, processing, distribution, analysis elaboration, delivery, and exploitation of data enabled by digital technologies to EU GDP.

0	None	15
Latest known results: None in 2021 as it is the first year of implementation of Digital Europe		

Key Performance Indicator 4: Number of actions ⁽³⁾ launched under the Cybersecurity Competence Centre, including the deployment of common cyber infrastructures

Baseline (2021)	Interim milestone (2022)	Target (2024)
1 action launched	3 actions launched	7 actions launched
Latest known results: 0 actions. The Commission is working to establish the Cybersecurity Competence Centre (ECCC) and is implementing EU funding on its behalf during the establishment phase. The delay in the adoption of Digital Europe is not expected to affect the 2022 and 2024 milestone and target		

Key Performance Indicator 5: Estimated risk at closure

Baseline (2019)	Target (2024)
2.24% of the relevant expenditure	< 3% of relevant expenditure
Latest known results: 1.45%-1.49 % of the relevant expenditure	

**C. Key conclusions on Financial management and Internal control
(executive summary of section 2.1)**

In line with the Commission’s Internal Control Framework CONNECT has assessed its internal control systems during the reporting year and has concluded that it is effective and the components and principles are present and functioning well overall, but some improvements are needed as minor deficiencies were identified related to the internal control principles 8 and 13. Please refer to AAR section 2.1.3 for further details.

In addition, CONNECT has systematically examined the available control results and indicators, including those for supervising entities to which it has entrusted budget implementation tasks, as well as the observations and recommendations issued by the internal auditor and the European Court of Auditors. These elements have been assessed to determine their impact on management’s assurance about the achievement of the control objectives. Please refer to Section 2.1 for further details.

In conclusion, management has reasonable assurance that, overall, suitable controls are in place and working as intended; risks are being appropriately monitored and mitigated. Improvements are necessary concerning internal control principles 8 and 13. The following actions are/will be taken in this respect: the attendance of newcomers in anti-fraud training sessions will be increased and dedicated mandatory data protection training sessions will

⁽³⁾ The term ‘actions’ means here projects (supporting cybersecurity infrastructures, services, skills, etc), funded with budget from the EU and possibly also from Member States, managed by the Cybersecurity Competence Centre.

be done per Directorate. The Director-General, in his capacity as Authorising Officer by Delegation has signed the Declaration of Assurance.

D. Provision of information to the Commissioner

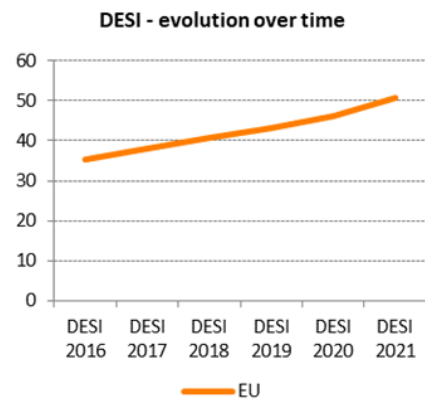
In the context of the regular meetings during the year between the DG and the Commissioner on management matters, the main elements of this report and assurance declaration, have been brought to the attention of Commissioner Thierry Breton, responsible for Internal Market.

1. KEY RESULTS and progress towards achieving the Commission's general objectives and DG's specific objectives

General Objective A Europe fit for the Digital Age

To help make **A Europe fit for the Digital Age**, CONNECT follows the path set in the digital compass communication for Europe's digital transformation by 2030. This digital compass for the EU's digital decade evolves around four cardinal points: skills, secure and sustainable digital infrastructures, the digital transformation of businesses, and the digitalisation of public services.

Europe's digital transition is reflected in the continuous increase of the Digital Economy and Society Index (DESI), a composite indicator developed and managed in-house by the DG. Used since 2015 for monitoring Europe's overall digital performance and tracking the progress of EU countries in digital competitiveness, it has increased from 34.3 to 50.7.



For CONNECT, policymaking is closely interlinked with financing from EU funding schemes and financial instruments. 2021 marked the first year of the new multiannual financial framework with the new programmes: the research framework programme *Horizon Europe*, the *Connecting Europe Facility II – Digital* to support investment in 5G and fibre infrastructures (especially in areas where the market alone is not able to deliver adequate quality of connectivity), *Creative Europe – Media* to support the audiovisual and news media sectors and *Digital Europe*, which aims to build the strategic digital capacities of the EU and facilitate wide deployment of digital technologies, such as supercomputing, artificial intelligence, cybersecurity and advanced digital skills, while helping the recovery and driving the digital transformation of Europe (4).

In the context of the response to the COVID-19 pandemics, CONNECT supported the implementation of the *Recovery and Resilience Facility (RRF)* of NextGenerationEU, making sure that digital contributes to the short-term recovery and long-term prosperity and took part in the implementation of the *Emergency Support Instrument (ESI)* in particular for the procurement of the technical solution for the central EU Gateway for the EU Digital COVID Certificates (EU DCC) and the donation of disinfection robots to hospitals. In addition, ESI

(4) More details on the achievements, EU added value of the programme and work programme are available in the programme statements of the [Draft general budget of the European Union for the financial year 2022](#). The updated programme statements will be available in the proposal for Draft budget of the European Union for the financial year 2023.

provided the funds for grants supporting Member States to issue, verify and accept digital COVID certificates.

CONNECT closely works with the European Parliament, the Council and the Member States, other DGs, executive and decentralised agencies, joint undertakings and other bodies, which all contribute to the implementation and achievement of the DG objectives.

Based on the information the DG possesses, no substantial issues were reported that would affect the implementation of programmes entrusted to the executive agencies implementing CONNECT projects. On the contrary, apart from the efficient implementation of the calls and projects, which is the core task of executive agencies, their expertise and feedback from project implementation for policy purposes was of considerable value to help the DG achieve its objectives.

The success of CONNECT's activities depend significantly on actions of Member States. Therefore, monitoring and enforcement actions, if needed, are essential. CONNECT, together with the Legal Service and the Secretariat-General, initiated infringement procedures as regards the late transposition of the audiovisual media services Directive, the European electronic communications code, the Directive laying down rules on the exercise of copyright and related rights applicable to certain online transmissions of broadcasting organisations and retransmissions of television and radio programmes, the Directive on copyright and related rights in the digital single market and the Directive on open data and the re-use of public sector information. Further, CONNECT worked with Member States towards the proper application of the 112 emergency number and on the independence of one national regulatory authority.

Finally, CONNECT launched two bad application infringement cases on media freedom concerning the European electronic communications code and the audiovisual media services Directive. One of them, the LGBTQI case (INFR 2021/2130) relates to provisions in national law of a Member State that violates a number of EU rules concerning audiovisual media services, the prohibition of quantitative restrictions on imports and other measures having equivalent effect on the free movement of goods, rules on the protection of personal data as well as provisions of the Charter of Fundamental right, as they are based on sex and sexual orientation.

Relations with stakeholders are very important for CONNECT and communicating with the European citizens plays a central role for the DG. In addition to press releases and question and answers to journalists, CONNECT sought to create a direct link with citizens via social media, creating various in-house clips in multiple linguistic versions, which included interviews with experts helping the public be best informed on topics that, sometimes, are not easy to understand.

Specific objective 1	Related to spending programmes: Horizon 2020, Horizon Europe, Digital Europe, CEF - Digital
Europe's strategic autonomy is ensured in critical technology areas	

The Commission's objective to work towards the Union's open strategic autonomy balances the need to developing Europe's capacities in strategic areas while remaining open to trade.

For the objective towards strategic autonomy, microelectronics is a critical technology for Europe. **Microelectronics** efforts have focussed on the development of processors for artificial intelligence (AI) and edge-computing, and on increasing capacity in advanced semiconductor manufacturing.

A European industrial **alliance on processors and semiconductor technologies** involving the key EU actors of the microelectronics value chain, research and technology organisations, user companies, as well as Member States and regions, was launched on 19 July 2021. The alliance will set a basis for coordinating various public and private initiatives of research and development (R&D), innovation and deployment in electronic components and systems, and feed into other activities such as those under the European chips act.

A key instrument in this context is the proposal by Member States for a new **important project of common European interest (IPCEI) on microelectronics** which provides for research and development and first industrial deployment amongst industries across the participating Member States. Under the coordination of Germany, the prenotification was submitted on 20 December 2021, involving 20 participating Member States (compared to five in the previous IPCEI) and more than 110 prospective direct beneficiaries. The proposed projects show an effort to reinforce the processor and semiconductor ecosystem and to expand industrial presence across the whole supply chain.

The **Key Digital Technologies Joint Undertaking (KDT JU)** which will build on the achievements of the Electronic Components and Systems for European Leadership (ECSEL) Joint Undertaking. The KDT launched its first call on 16 December 2021 with a funding budget of more than EUR 360 million from the EU (via *Horizon Europe*) and from the national funding authorities of the participating Member States.



The European Chips Act will be a game changer for the global competitiveness of Europe's single market. In the short term, it will increase our resilience to future crises, by enabling us to anticipate and avoid supply chain disruptions. And in the mid-term, it will help make Europe an industrial leader in this strategic branch. With the European Chips Act, we are putting out the investments and the strategy.

President Ursula von der Leyen

CONNECT worked on a proposal for a **European Chips Act** which was announced by President Ursula von der Leyen on 15 September 2021 and adopted in early 2022. The European chips act will contribute to EU technology sovereignty by creating a state-of-the-art European chip ecosystem, including production, involving all stakeholders. Such an ecosystem grounded on European soil ensures security of supply of chips that are essential for many different industrial sectors.

The **Smart Networks and Services joint undertaking** (SNS JU) was launched in 2021. In parallel to preparing the operational autonomy of the joint undertaking, work with EU industrial stakeholders led to the finalisation of a comprehensive 6G work programme, including EUR 240 million funding from *Horizon Europe*, supporting EU leadership and sovereignty in the field of future 6G systems.

The **European alliance for industrial data, edge and cloud** that was announced in the European data strategy kicked off on 14 December 2021, with a virtual event hosted by Commissioner Breton that gathered the chief executive offices of the 39 founding members and was followed by the first working level meeting to set operational objectives and to structure the work in different working groups.

CONNECT launched a EUR 20 million call to deploy and operate an **EU online marketplace for cloud and edge services**, which will be the single point of access for trusted cloud and edge services, and more generally for any software and data processing services developed under EU programmes, such as *Digital Europe* or *Horizon Europe*.

Following the adoption of the **Connecting Europe Facility II Regulation** on 7 July, the **CEF-Digital work programme** was adopted on 16 December 2021. The first calls, for a total amount of EUR 278 million, will focus on 5G corridors, 5G for smart communications, backbone infrastructures for global gateways and cloud federations, including the deployment of a domain service name resolution service. Besides contributing to close the connectivity gaps, *CEF II - Digital* infrastructures will require secure and reliable equipment supply that guarantees compliance with the 5G cybersecurity toolbox and supports EU's strategic autonomy. Emphasis has been placed on ensuring the greatest cybersecurity protection for the deployed infrastructures, in particular for backbones and 5G networks.

In January 2022, the European Court of Auditors published its report on the Security of 5G networks and concluded that despite the Commission's support, there are delays in Member States' implementation of 5G networks. Regarding security, the Court recognises the usefulness of the Toolbox but sees still a risk for a non-concerted approach to 5G cybersecurity. CONNECT established an action plan to implement the Court's recommendations.

The **large-scale flagship research initiatives** (quantum technologies, graphene, human brain and battery technologies of the future) were pursued. For reasons linked to COVID-19, several grants required a six-months extension.

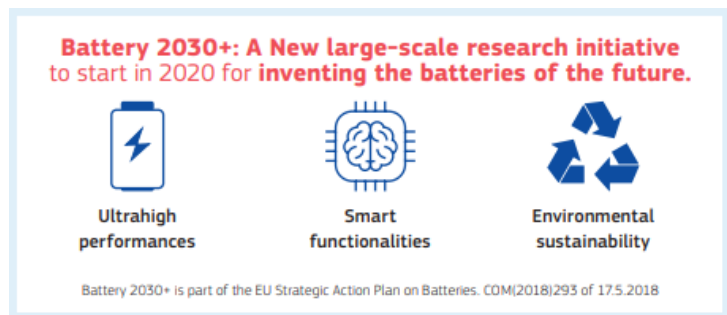
The **quantum technologies flagship** concluded its three-year ramp-up phase and laid the foundations for a pan-European ecosystem that will enable a world-leading quantum technology industry in Europe. The projects have reported major achievements in the main technology areas.

The **graphene flagship** has made significant progress in both fundamental science and in applied research and commercial applications and is well on its way to bring graphene and other two-dimension materials (2DM) technologies to a point where multiple industries will take over their exploitation. At the end of 2021 the graphene flagship counted 68 patents,

4 491 publications, 185 000 citations and 79 products. The 2D-experimental pilot line has also progressed towards its objective to establish a European ecosystem for prototype production of 2DM-based electronics, photonics, and sensors.

The **human brain project flagship** (HBP) has advanced in brain research showing scientific achievements, in particular in three-dimension brain atlases, multi-scale connectomics, understanding of consciousness and cognitive functions, but also in computing and simulation modelling or brain-inspired artificial networks. Leveraging on those scientific advances, HBP has also invested substantial effort in developing the **EBRAINS research infrastructure**, with the ambition to provide the scientific community at large with cutting-edge data and tools to accelerate brain research breakthroughs.

The **future battery technologies** long term research initiative (battery 2030+) started to deliver on its objectives across six research projects. As an illustration, the Spartacus project will have its first battery cell equipped with a full set of ultrasonic, temperature and stress sensors and extend the sensing devices to the battery management system.



The new partnership on battery was signed in 2021 and is already supporting the Commission in identifying future research priorities for *Horizon Europe*.

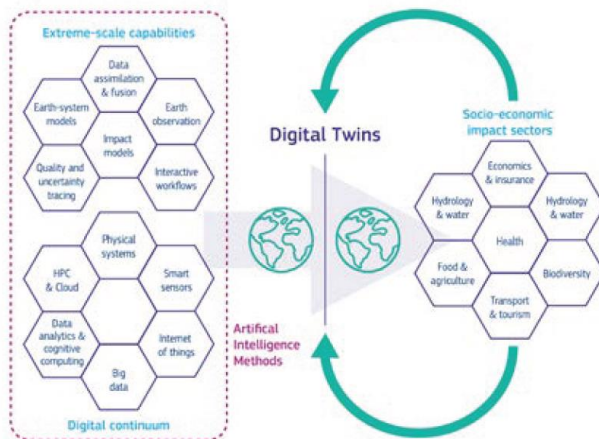
A coordination and support action under *Horizon Europe* in the field of **emerging enabling technologies** will set up a broad forum for identifying technologies that have the potential to become Europe's future industrial leading technologies.

The **pan-European quantum communication infrastructure (EuroQCI)** will ultimately enable public administrations to transmit and store information and data very securely and safeguard critical infrastructure across the EU. CONNECT manages the preparation of the terrestrial segment and the space segment by DG Defence Industry and Space and the European Space Agency. In April 2021 Member States approved an action plan setting out the architecture of the EuroQCI and its implementation roadmap. Both *Digital Europe* and *CEF II – Digital* support the EuroQCI.

The Council adopted the Regulation establishing the **European High Performance Computing Joint Undertaking** (EuroHPC JU) in July 2021. The work programme was adopted in December 2021 and the corresponding calls published. EuroHPC is already successfully delivering with the acquisition in 2021 of seven world-class supercomputers (two with pre-exascale and five with petascale capabilities). Four petascale systems are already in operation.

The **destination Earth initiative** develops a high-precision digital model of the Earth ('digital twin of the Earth'), which will serve for developing dedicated thematic applications

and services such as extreme weather monitoring and/or predictions to react to environmental crises. The digital twins will give users access to high-quality information,



services, models, scenarios, forecasts and visualisations. Contribution agreements with the European Space Agency, the European Centre for Medium-Range Weather Forecasts and the European Organisation for the Exploitation of Meteorological Satellites were signed on 15 December 2021. The delay of a few months was due to the late approval of the Digital Europe Regulation and the work programme. Numerous events have contributed to identification of user needs.

Additionally, explorative discussions on international collaboration (e.g. with India) look for possible synergies and collaboration.

The new **photonics partnership for research and innovation** successfully started in 2021. It is a co-programmed partnership of EU and private partners from industry, universities and research organisations, established under *Horizon Europe*. This year the first calls for proposals were launched for a total budget of around EUR 80 million. The private side organised twelve workshops with more than 1 100 participants and presented research and innovation priorities.

GÉANT maintained the operational excellence of its services, while achieving scale economies on the costs of the backbone network. The reliable, secure, and state-of-the-art pan-European network has further improved, via upgrades to fibre links, and the deployment of new routes to cope with the increased demand. GÉANT further enriched its service catalogue for national research and education networks. The submarine cable (BELLA-S1 project) was delivered, connecting the research communities of Latin America and Europe, through two 100 Gbps links, an enabler for many services, including Copernicus-based ones.

The **next generation internet (NGI) initiative** made good progress in growing its community of innovators, dedicated to building the technologies of the internet of tomorrow around people’s fundamental needs. To date, NGI has mobilised around 1 000 innovators and researches, almost 80% of whom new to a European funding programme. A catalogue with more than 500 concrete solutions delivered by NGI projects is now available online. The investment in NGI is continuing under *Horizon Europe*, with EUR 62 million allocated to the initiative under the work programme 2021-2022. The NGI Forum 2021 and the Policy Summit discussed future priorities. CONNECT also contributed to a new collaboration with Canada on mutual recognition of digital credentials.

The **tech review facility** continued to support the Commission and Member States, through security and privacy analysis, in the development of COVID-19 trustworthy technologies, in particular the contact tracing and information apps.

The Commission, all Member States, Liechtenstein and Norway are cooperating in the European blockchain partnership which is building a **European blockchain services infrastructure** (EBSI). The first operational version of the EBSI was delivered in the second quarter of 2021 and started to be exploited in pre-production in the context of the early adopter programme with more than 20 projects contributing to pilot this first implementation of EBSI. The **EU blockchain pre-commercial procurement** started in the second quarter of 2021 and aims to strengthen the strategic autonomy and resilience of the EU supply chain by developing and testing new innovative blockchain solutions that can enable the future EBSI to deliver higher capacity, more energy efficient and more secure cross-border blockchain services to EU citizens, businesses and public administrations.

The **Europe startups nations standard declaration** was presented in March 2021 at the Digital Day conference with the goal to make Europe the most attractive start-up and scale-up continent and was signed by ministers from 26 EU Member States and Iceland. The **Europe startup nations alliance** (ESNA) supports the signatory countries in implementing the best practices that underpin a growth friendly environment for startups, which were outlined in the declaration.

The **innovation radar** identifies high potential innovations and innovators in EU-funded research and innovation projects. In 2021 the innovation radar, in cooperation with its dealflow.eu support action, grew to over 1 000 the number of European investors in its network. The growing awareness among investors of market-ready breakthroughs emerging from EU-funded research and innovation is contributing to EU's technological sovereignty goals.

In June 2021, the Commission published the **roadmap for an EU strategy on standardisation**, and consulted the relevant stakeholders including targeted consultations with the European Standardisation Organisations and the Multi-Stakeholder Platform on ICT Standardisation. The strategy was adopted on 2 February 2022.

For the wider adoption of **extended reality technologies** CONNECT works on a more in-depth understanding of the European extended reality (XR) hardware and components industry. CONNECT launched a study to contribute to the development of concrete commitments from the industry for optimum deployment of XR by 2026; and one on eXtended Reality in the area of health and education. Most importantly, the first calls for proposals under *Horizon Europe* were launched in December 2021.

CONNECT continued to analyse Member States' notifications in its domain of responsibility in the context of the **foreign direct investment screening Regulation**. For foreign investments that may represent a risk for security or public order in Member States or in the Union as a whole, the Commission issues an opinion which the Member State concerned takes into account in its assessment of the transaction and possible response.

The external communication activities focussed on HPC, quantum and supercomputers, 5G/6G, *Digital Europe*, and destination Earth. Audiovisual material, press releases, websites, frequently asked questions were the main communication tools.

Specific objective 2

Related to spending programmes:
Horizon Europe, Digital Europe

A European single market for data where data can flow for the benefit of all and where the rules for access and use of data are fair, practical and clear

On 30 November 2021, the co-legislators reached a political agreement on the 2020 Commission proposal for a Regulation on European Data Governance (**Data Governance Act**). The instrument aims to foster the availability of data for re-use by increasing trust in data intermediaries and by strengthening data-sharing mechanisms across the EU. It creates the basis for a new European way of data governance in accordance with EU rules, such as personal data protection, consumer protection and competition rules.

Digital Europe supports the deployment of a number of **common European data spaces**, including in particular specifications for 13 sectoral data spaces (green deal, smart communities, mobility, manufacturing, agriculture, cultural heritage, health, media, financial services, skills, language, public administrations, tourism).

The Commission adopted its proposal for a **Data Act** on 23 February 2022, which is a few months later than planned, which allowed to find a balanced approach to finalise the legal act. It addresses issues that affect relations between different actors in the data economy, to create a fair data economy, in which European companies and citizens have more control over their data, the processing conditions of their data and where governments can access big data held by the private sector in case of exceptional circumstances.

The Data Act will ensure that industrial data is shared, stored and processed in full respect of European rules. It will form the cornerstone of a strong, innovative and sovereign European digital economy.

Commissioner Thierry Breton

19 Member States still need to complete the transposition of the **open data Directive** and have been the object of an infringement procedure. The implementing act to define a selection of datasets of particular socio-economic importance (**high value datasets**) freely and openly available across the EU including through application programming interfaces is in preparation.

As part of the data act, CONNECT made significant progress on the **review of the database Directive** which provides for a *sui generis* intellectual property protection for databases. A recent evaluation showed that, while the database Directive provides added value, it could be revisited to facilitate data access and use. The review will have as its main objective to facilitate the sharing of and trading in machine-generated data and data generated in the context of rolling out the internet of things.

CONNECT designed the analytical framework, the methodology and the visualisation tool underpinning the **data flow monitoring for Europe** to estimate the volume of enterprise data flows to cloud infrastructures across the EU 27 Member States and with Iceland,

Norway, Switzerland, and the United Kingdom. The data flow visualisation tool and the accompanying study have been published in February 2022.

The new governance structure of the **European open science cloud** (EOSC) was put in place during 2021 and the first strategic research and innovation agenda marks a new implementation phase for the EOSC. New projects and planning for the procurement for the EOSC core service platform started. The year concluded with a successful EOSC tripartite meeting, bringing together Member States represented in the Steering Board, the EOSC Association and the Commission.

CONNECT is supporting DG Health and Food Safety on a **European health data space** which will facilitate secure access to health data for citizens, policy makers, researchers and innovators. *Digital Europe* supports the deployment health data related actions, in particular in relation to federated infrastructures for genomics and for anonymized cancer images. Subsequently, the call (EUR 20 million) to deploy a federated infrastructure for genomic data was launched.

Support for emerging **internet of things (IoT)** and data technologies resulted in several innovation actions under *Horizon 2020*, with a first set of common design principles for data spaces in an industrial context across the manufacturing, energy, agricultural and health sectors. For the next generation of IoT, which is characterised by significantly more computing power at the edge and at device level, new projects with a funding of nearly EUR 50 million were selected.

The *Digital Europe* work programme 2021-2022 supports data spaces and testing and experimenting facilities in strong synergies with artificial intelligence (AI) developments for industry, with calls for a preparatory action and two manufacturing data spaces. Similarly, the *Horizon Europe* work programme has called for innovation projects to strengthen AI and the management of distributed data in a manufacturing context.

Communication under this objective focussed on data, industrial data, the data act, the new rules on open data and the reuse of public sector information, and on data spaces.

<p style="text-align: center;">Specific objective 3</p> <p style="text-align: center;">Artificial intelligence that is human-centric, ethical, sustainable and that respects EU values</p>	<p>Related to spending programmes: Horizon 2020, Horizon Europe, Digital Europe</p>
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On 21 April 2021, the Commission presented a proposal for a legal framework on artificial intelligence (AI), the **Artificial Intelligence Act** and a **review of the coordinated plan on AI**. The AI package aims to promote the development of AI and to address the potential risks its use can pose to safety and EU values, while fostering strategic technological capacities and developing a dynamic AI ecosystem for European innovators. The legal framework

is based on a risk-based approach to keep the burden on economic operators to a

minimum, while ensuring that fundamental rights, safety and EU values are protected. The proposal aims to boost innovation in AI across the EU and help create a robust, lively AI ecosystem that can support a more democratic and better governed Europe. The package was proposed slightly later than planned due to the longer than expected time needed to analyse all inputs made by stakeholders in the public consultation and the horizontal nature of the act, which involved a large number of Commission services.

On 23 June 2021, the Commission and the newly established **AI, data and robotics association (Adra)** signed a memorandum of understanding that establishes the co-programmed partnership that will serve as the European focal point for AI, data and robotics. The partnership leverages EUR 1.3 billion of public investments through *Horizon Europe*, complemented with the same amount of private investments in the period 2021-2030 to address key challenges in European AI, data and robotics.

The first *Horizon Europe* calls on AI and robotics were launched in June, for a budget of EUR 200 million. The first work programme of *Digital Europe* has a budget of EUR 110 million for sectorial testing and experimentation facilities (TEFs), EUR 78 million for the Edge-AI TEF, and EUR 29 million for the AI-on-demand platform.

The **AI/blockchain equity investment scheme** has been fully deployed in collaboration with the European Investment Fund, leveraging the initial EUR 100 million investments. 14 venture capital funds were signed, raising more than EUR 1.3 billion of investments. Equity investments have been strengthened by an additional EUR 150 million co-investments by the European Investment Bank. This activity was reinforced by a support programme raising awareness and facilitating SMEs to identify sources of investments, including with several events and training material.

The communication efforts focused on several aspects of artificial intelligence, including on the artificial intelligence act.

<p>Specific objective 4</p> <p>A fair, competitive and resource efficient digital economy</p>	<p>Related to spending programmes: Horizon 2020, Horizon Europe, Digital Europe, CEF - Digital</p>
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On 9 March 2021, the Commission adopted the **2030 digital compass: the European way for the digital decade**. The



Communication presents a vision, targets and avenues for a successful digital transformation of the European Union by 2030. This transformation is also critical to achieve the transition towards a climate neutral, circular and resilient economy. The EU's ambition is to be digitally

sovereign in an open and interconnected world, and to pursue digital policies that empower people and businesses to seize the opportunity of a human centred, sustainable and more prosperous digital future. This includes addressing vulnerabilities and dependencies as well as accelerating investment. The Communication proposes to agree on a set of digital principles, to launch rapidly multi-country projects, and to prepare a legislative proposal. Furthermore, the digital compass Communication paves the way for the EU to globally promote the European human-centric approach to digital transformation and improve the connectivity between the EU and its partners, building on EU and Member States' investments to be mobilised under the global gateway.

On 15 September 2021, the Commission proposed a Decision of the European Parliament and of the Council establishing the **2030 policy programme path to the digital decade**, which sets out a concrete plan to translate the EU's digital ambitions for 2030 into a concrete delivery mechanism. It will set up a governance framework based on an annual cooperation mechanism with Member States to reach the 2030 digital decade targets at Union level in the areas of digital skills, digital infrastructures, digitalisation of businesses and public services. It also aims to identify and implement large-scale digital projects.

CONNECT also worked on a proposal for a **European declaration on digital rights and principles** which was adopted in 2022 and proposed to be signed by the presidents of the European Parliament, the Council and the Commission. The goal is to inform people and provide a reference for policymakers and digital operators in their actions in the digital environment and to ensure that the values of the Union and the rights and freedoms of individuals are applied both offline and online.

The **digital services act package**, consisting of the **digital services act** and **digital markets act** were negotiated with the co-legislators. Major milestones were achieved with first-reading mandates by the Council and the European Parliament less than a year after the Commission's proposal. Both proposals generated widespread media coverage and attention, and have formed the basis for international cooperation, including under the EU-US Trade and Technology Council.

Since 2020, CONNECT has worked with a broad range of stakeholders on a **European interoperability framework for smart cities and communities** (EIF4SCC). The framework was published in July 2021 and is gaining visibility in Europe and worldwide.

CONNECT is working with other Commission services to enhance the **circularity of electronics** and information and communication technologies, as set forth in the circular economy action plan and the EU digital strategy (which both refer to a Circular Electronics Initiative), with the objective of extending the lifetime of electronic devices (starting with mobile phones, tablets and laptops), avoiding premature obsolescence, reducing waste and increasing their overall sustainability. In 2021, CONNECT provided input on circular electronics for a Commission Communication on sustainable products, and launched a study on a 'Circular Electronics Initiative – Right to Repair'.

At the end of 2021, CONNECT finalised a study identifying possible policy measures for increasing the **energy and resource efficiency of data centres**.

The **digitising European industry initiative** promotes actions for digital leadership by supporting partnerships with industry on strategic digital research and innovation priorities. Large scale projects promoting the development of business-to-business platforms are actively running, and all digital innovation hubs projects foreseen in *Horizon 2020* are now active.

The Commission adopted in February 2021 a proposal for the **revision of existing measures and prolongation of the roaming Regulation** beyond 2022 to ensure a genuine ‘roam like at home’ experience to EU travelers. Political agreement was reached to prolong until 2032 the existing system



whereby citizens cannot be subject to extra charges for calls, SMS or data used while travelling within the EU. Citizens will also be able to call, text and use mobile data while travelling within the EU with the same quality they experience at home; they will have improved access to emergency communications regardless of where they are in Europe; and they will have the right to clear information when a service they use while roaming might cause inadvertent extra charges. The regulation will enter into force on 1 July 2022.

CONNECT has advanced with the preparation of **the review (REFIT) of the broadband cost reduction Directive** (Directive 2014/61/EU). The DG organised participatory workshops, requested an opinion of the Body of European Regulators for Electronic Communications (BEREC), processed more than 100 responses from a public consultation and published a factual report, in addition to organising various events with market and institutional stakeholders.

CONNECT participated in a number of working groups organised by the BEREC office, which were closely linked to its prioritised policy areas: market and economic analysis, open internet, end user, regulatory framework, roaming, remedies, statistics and indicators, wireless network evolution, planning and future trends, 5G cybersecurity and sustainability. BEREC has also provided input in the discussion and dialogues with Member State national regulatory authorities in order to ensure the correct and timely transposition of the European electronic communications code. CONNECT also continued to analyse the special reporting on the internet traffic situation in each Member State to be able to respond to capacity issues resulting from the increased use of networks caused by the COVID-19 pandemic, which was developed by BEREC in close cooperation with the national regulatory authorities.



In line with the 2020 Commission Recommendation on connectivity and in close cooperation with CONNECT, Member States agreed on a common **Union toolbox for connectivity** on 25 March 2021. The toolbox constitutes a common set of 39 best practices aiming to foster connectivity across the Union by boosting investment in both fibre and 5G networks infrastructure, in order to remove unnecessary administrative hurdles, build on synergies with other network operators (energy, transport,

water) and coordinate the assignment of radio spectrum for 5G networks under investment-friendly conditions, in particular for industrial cross-border use cases. 2021 activities focused on the acceleration of the deployment of 5G networks following delays due notably to the COVID-19 pandemic, the **harmonisation of spectrum for 5G**, 5G spectrum authorisation across the Member States and implementation of spectrum legislation, and shaping the future spectrum agenda in close coordination with the Radio Spectrum Policy Group (RSPG).

CONNECT continued working on the **review of the recommendations on access to broadband networks** envisaged for adoption in 2022, notably through the consultations procedures under Article 32 of the European electronic communications code (Directive (EU) 2018/1972).

CONNECT also intensified its actions to leverage public and private investment in **high capacity networks**, including with the launch of the *CEF II – Digital*, which includes mechanisms using financial instruments to leverage private investment in high capacity networks.

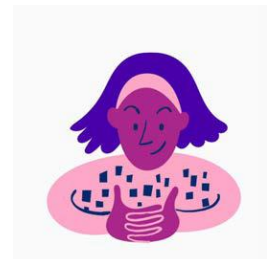
Finally, the updated **general block exemption Regulation** and the **new broadband guidelines for state aid** have been aligned to the new connectivity targets set for the end of the decade in the 2022 digital compass Communication.

CONNECT continued to follow the deployment of local wireless connectivity through the **WiFi4EU scheme** which now exceeds 7 000 installed networks and totals more than 70 000 active access points in Europe. The first pilot of the phase II of the initiative, i.e. the rollout of a single authentication system enabling secure and seamless roaming between wi-fi networks, was launched.

To address the **digital skills** gap, the Commission devises and implements actions to train, attract and retain talent in Europe. Under *Digital Europe*, the first calls for applications for advanced digital skills actions support the creation of new masters degrees in key technologies. The **digital skills & jobs platform** was launched in May 2021 and became the home of national coalitions for digital skills. The active community around the platform and the coalition is growing and many events were organised throughout the year.

The 2021 **EU code week** was again a great success and broke records: 73 000 activities allowed millions of students and pupils to explore coding.

CONNECT continued implementing the Commission's **gender equality strategy**. CONNECT is overseeing the implementation of the ministerial declaration on women in digital where EU countries committed to develop national plans on increasing women's participation in the digital economy. The DG took part in the organisation of the European day for women in digital, when seven countries held online events on the occasion of 22 April 2021.



Together with the European External Action Service (EEAS), the Member States and the European multi-stakeholder community, CONNECT engaged in the reform of the internet governance mechanisms including how it contributes to improving global digital cooperation and promoting EU values. In the context of Internet Corporation for Assigned Names and Numbers (ICANN), CONNECT contributed to important policy development processes pertaining to the Domain Name System (DNS) and participated in the WHOIS policy reform process, promoting a model for effective access to non-public domain name registration data on public policy grounds.

CONNECT achieved significant progress in the **implementation and functioning of the .eu top-level domain name** ⁽⁵⁾ in particular by selecting the next .eu top level domain (TLD) registry. CONNECT also relaunched the preparatory work for the adoption of an implementing act containing the lists of reserved and/or blocked .eu domain names by Member States but the adoption was delayed to October 2022 to better align with the timing of the entry into application of the contract with the .eu registry.

The communication efforts focused on the 2030 digital compass and the policy programme a path to the digital decade, green and the digital transformation, code week, digital skills, and connectivity (connectivity toolbox, spectrum).

Specific objective 5	Related to spending programme: Horizon Europe, Digital Europe
A cyber resilient Europe, promoting digital identities for all Europeans, while protecting their e-privacy	

As President Ursula von der Leyen expressed in her 2021 State of the European Union address: ‘If everything is connected, everything can be hacked.’ Recent events have once again shown and reminded us that Europe, and more generally the world, remains vulnerable to cyber-attacks. CONNECT strengthened the EU framework to protect and respond against such attacks, notably through the implementation of the **cybersecurity package**, and by preparing other initiatives announced in the State of the European Union speech, in particular the future cyber resilience act.

CONNECT has been implementing the various initiatives of the **EU cybersecurity strategy**, including the preparation of the recommendation for the Joint Cyber Unit that will act as a platform to ensure an EU coordinated response to large-scale cyber incidents and crises, and offer assistance in recovering from these attacks; the organisation of two workshops with Member States; the preparatory actions towards a proposal for an initiative defining

The Joint Cyber Unit is a building block to protect ourselves from growing and increasingly complex cyber threats. We have set clear milestones and timelines that will allow us - together with Member states- to concretely improve crisis management cooperation in the EU, detect threats and react faster. It is the operational arm of the European Cyber Shield.

Commissioner Thierry Breton

⁽⁵⁾ Regulation (EU) 2019/517.

horizontal rules on connected products planned for the third quarter of 2022; the preparation of a strategic concept document and of the launch of a call for expression of interest to develop a cross-border system on a chip platform planned for the second quarter of 2022.

CONNECT provided continuous support to the co-legislators in the legislative process for the **revision of the Directive of the security of network and information systems** (NIS2 proposal), allowing the start of the triologue negotiations in January 2022.

CONNECT continued to monitor the implementation of the EU 5G toolbox and to provide active support to Member States within the NIS cooperation, in order to promote alignment, exchange of information and capacity building. A new key action was the launch of an analysis of the security implications of open radio access networks conducted by the NIS Cooperation Group, with the support of CONNECT and the European Union Agency for Cybersecurity (ENISA). CONNECT also requested ENISA to start preparing a 5G candidate certification scheme under the cybersecurity act.

CONNECT continued the preparation of the implementing act establishing the first cybersecurity certification scheme referred to as the **European Union common criteria scheme**. Adoption of the implementing act was delayed due to ongoing political negotiations and is now expected in 2022. In parallel, ENISA continued its preparatory activities for the cybersecurity certification scheme for cloud services.

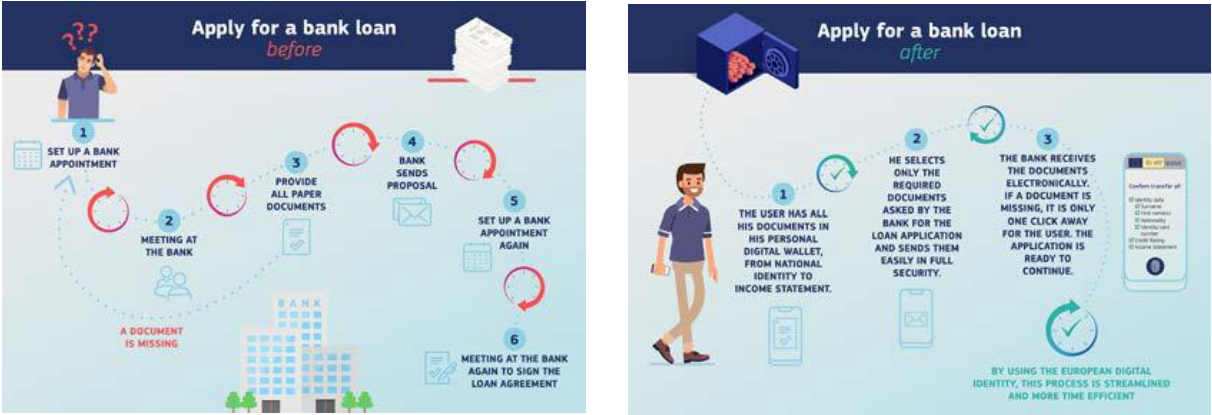
CONNECT pursued the work towards setting up the **European Cybersecurity Competence Centre** (ECCC), whose governing board is operational and already took a number of decisions, notably on governance, budgetary aspects, and key projects. First steps were also taken to prepare the forthcoming 'strategic planning' for *Horizon Europe* and *Digital Europe*. Delays in the adoption of *Digital Europe* led to the first calls and evaluations taking place only in early 2022. Action was also taken to establish the national coordination centres, including guidelines on the assessment of their capacity to manage EU funds and a dedicated workshop for the centres.

The procurement of the **core service platform for cybersecurity certification** under *CEF II – Digital* was completed, enabling the kick-off of the platform in early 2022. CONNECT manages the platform in close coordination with ENISA.

CONNECT also contributed to the elaboration of the legislative proposal setting out new cybersecurity rules for EU institutions, bodies, and agencies, to be published in 2022. In the area of crisis response, CONNECT organised and conducted an internal exercise to improve preparedness and response at Commission level, with support from ENISA.

On 3 June 2021, the Commission adopted a proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 910/2014 as regards establishing a framework for a **European digital identity** in conjunction with a Commission Recommendation on a common Union toolbox for a coordinated approach towards a **European digital identity framework**. The objective is to offer to citizens and businesses personal digital wallets that are safe, free, convenient to use, and that protect

personal data. The wallets will be issued by Member States and built on the basis of trusted digital identities provided by Member States, improving their effectiveness, extending their benefits to the private sector. Member States started the work to define the technical wallet architecture in September 2021, under the toolbox Recommendation.



The legislative process concerning the **ePrivacy Regulation** made progress with the Council adopting its negotiation mandate in February 2021. Triilogue negotiations with the European Parliament and Council started in May 2021 and a second triilogue was held in November 2021. CONNECT provided continuous support to the co-legislators.

The **interim Regulation on a temporary derogation from certain provisions of the ePrivacy Directive** was adopted by the co-legislators in July and entered into force in August 2021. CONNECT, together with DG Migration and Home Affairs, provided support to the co-legislators throughout this process. The Regulation ensures that providers of certain online communications services, like webmail or messaging services, can continue voluntary measures for the detection, reporting and deletion of child sexual abuse online, provided that these measures are lawful.

The eGovernment action plan Steering Board wrapped up its mandate with a conclusion paper '**Conclusions of the eGovernment action plan Steering Board on a new digital government policy in light of the digital decade**', which sets out actions, principles and targets that can feed into the digital decade process.

The communication efforts focused on different aspects of cybersecurity and eID mainly through press releases, videos, and web content.

<p style="text-align: center;">Specific objective 6</p> <p style="text-align: center;">A modern, open and pluralistic society in the digital age where online disinformation is countered and diverse cultural content is available to all Europeans</p>	<p>Related to spending programmes: Horizon Europe, Creative Europe – Media, CEF – Digital, InvestEU</p>
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CONNECT continued to monitor the actions taken by the signatories of the code of practice on disinformation to limit the impact of disinformation campaigns related to the pandemic,

including disinformation related to COVID-19 vaccines. In May 2021, the Commission published **guidance on strengthening the code of practice on disinformation**. CONNECT called upon signatories and relevant stakeholders' groups to strengthen the code of practice according to the guidance. The signatories are working towards delivering the new code by the end of the first quarter of 2022.

Eight national hubs of the **European digital media observatory** (EDMO) are now operational, enabling the development of a network of multidisciplinary teams of independent fact-checkers and academic researchers focussing on disinformation topics. In November 2021, CONNECT published a new call for proposals under *Digital Europe* to increase the geographical coverage of EDMO through additional national hubs.

Several actions have been launched to address specific issues linked to disinformation including a EUR 13 million call for proposals under *Horizon Europe* to support the development of innovative AI based technology to identify disinformation online.

The European Court of Auditors examined the Union's efforts to fight disinformation and concluded that the EU action plan against disinformation was relevant but incomplete, and even though its implementation was broadly on track and there was evidence of positive developments, some results have not been delivered as intended. CONNECT received a number of recommendations that are being implemented.

The 2019 **Directive on copyright in the digital single market** and the **Directive on online television and radio programmes** needed to be transposed by Member States by June 2021. CONNECT continued to assist in the transposition process and launched several infringement proceedings against Member States for failure to notify complete transposition of the Directives. In addition, on 4 June 2021, the Commission published the **guidance on Article 17 of the Directive on copyright in the digital single market**, laying down new copyright rules applicable to content-sharing platforms. The new rules aim to modernise EU copyright rules and to enable consumers and creators to make the most of the digital world.

On 23 November 2021, the Commission published a **report assessing the application of the Directive on the collective management of copyright and related rights** and a report on **the application of extended collective licenses mechanisms**.

In relation to the **Marrakesh Directive**, the Commission launched a targeted consultation to gather information about the availability of works in accessible formats and for disabilities not covered by the Directive.

To facilitate the transposition of **the revised audiovisual media services Directive (AVMSD)**, CONNECT continued working with experts in the Contact Committee and the European Regulators Group for Audiovisual Media Services (ERGA). Moreover, together with ERGA and other experts, and in dialogue with video-sharing platforms, CONNECT held numerous meetings focussing on the consistent implementation and enforcement of the new AVMSD framework, on the completion of the EU regulatory framework relevant for media, and on disinformation.

CONNECT started a **dialogue with the audiovisual sector to agree on concrete steps to improve the access to and availability of audiovisual content across borders in the EU**. The dialogue gathers representatives of the different segments of the audiovisual sector, as well as consumers and users. CONNECT asked stakeholders to propose industry-led solutions to make more audiovisual content available online and to facilitate consumers' access to content across Member States.

CONNECT continued to participate and drive forward the copyright negotiations in the framework of **World Intellectual Property Organisation**, in particular regarding the Broadcasting Treaty.

The implementation of the **media and audiovisual action plan** is on track. In particular, the MedialInvest product fiche has been developed with the European Investment Fund. The NEWS bundle of actions has been implemented, for example through the European news media forum held in November. Studies for the media outlook report have been contracted. The dialogue on access to content was launched in December 2021.

The budget of the new **Creative Europe MEDIA Programme 2021-27** increased by about 60%, which, together with significant changes in the way support is delivered, addresses recent market developments, including the stronger position of global distribution platforms. The Commission adopted the first annual work programmes and the European Education and Culture Executive Agency published the first calls.

A three-year framework partnership agreement with the TV broadcaster **Euronews** was signed in July 2021, followed by two specific grant agreements supporting the production and dissemination of EU programmes as well as a multilingual offer. In addition, CONNECT signed a new contract for producing Euronews' digital service in Farsi. Finally, a one-year contract was signed with the radio network **Euranet Plus** following a call for proposals.

The preparatory action **media literacy for all** (2016-2020) came to an end in 2021 but will be mainstreamed under the new *Creative Europe – Media*. The media literacy expert group and the annual European media literacy week supported the dissemination of good practice and amplified awareness raising activities across the EU.

The 2020 **rule of law report** made it clear that journalists and independent media are crucial stakeholders in the upholding of the rule of law and highlighted a number of issues affecting media freedom and pluralism



across the EU. Based on the European democracy action plan, the Commission adopted a **Recommendation on ensuring the protection, safety and empowerment of**

journalists and other media professionals in the European Union on 16 September 2021.

In line with the revision of the Recommendation on the digitisation and online accessibility of cultural material and digital preservation, CONNECT prepared the Commission **Recommendation on a common European data space for cultural heritage** which was adopted on 10 November 2021. This Recommendation aims at increasing high-quality digitised assets and making them available for further reuse by different sectors such as the cultural and creative industries and tourism.

The data space for cultural heritage will build on and expand **Europeana**. To this effect, CONNECT continued to strengthen the robustness of its infrastructure, make more high quality data available and increase support to cultural heritage institutions' capacity building. CONNECT commissioned a **study on 3D digitisation of tangible cultural heritage** which developed a comprehensive mapping of parameters, formats, standards, benchmarks, methodologies and guidelines.

The development of the **European student eCard core service platform** continued. A tested cross-border authentication system was rolled out to enable students to authenticate via eIDAS and via eduGAIN on the pan-European student e-services Erasmus+ App and Erasmus online learning agreement. The overall number of students having authenticated through the authentication system reached 88 400.



A series of targeted consultations fed into the update of the **better internet for children strategy**, due for adoption in 2022. The strategy will support implementation of the audiovisual media services Directive and other relevant EU legislation. A series of targeted consultations, including more than 70 focus groups with children across Europe, fed into the update

of the Better internet for children Strategy as well as into the preparation of the digital principles.

S+T+ARTS, **innovation at the nexus of Science, Technology, and the Arts**, successfully mainstreamed art-technology collaboration in support of innovation both in Commission actions (e.g. digital innovation hubs took up artistic contributions in support of uptake of digital in the local economy and the idea of human compatible digital innovation facilitated by the arts) and in Member States via STARTS regional centres.

The communication efforts focused on disinformation and media freedom.

2. MODERN AND EFFICIENT ADMINISTRATION AND INTERNAL CONTROL

This section explains how the DG delivered on the achievements described in the previous section. It is divided into two subsections.

The first subsection reports the control results and other relevant information that supports management's assurance on the achievement of the financial management and internal control objectives ⁽⁶⁾. It includes any additional information necessary to establish that the available evidence is reliable, complete and comprehensive. It covers all activities, programmes and management modes relevant to the DG.

The second subsection deals with the other components of organisational management: human resources, better regulation principles, information management and external communication.

2.1. Financial management and internal control

Assurance is provided on the basis of an objective examination of evidence of the effectiveness of risk management, control and governance processes.

This examination is carried out by management which monitors the functioning of the internal control systems on a continuous basis, and by internal and external auditors. The results are explicitly documented and reported to the Director-General. The following reports have been considered:

- The reports submitted by the Authorising Officers by Sub-delegation which include the outcome of the internal control monitoring taking place in each Directorate;
- The reports from Authorising Officers in other Directorates-General managing budget appropriations in cross-delegation;
- The reports on control results from entrusted entities as well as the result of the Commission supervisory controls on the activities of these bodies;
- The contribution of the Director in charge of Risk Management and Internal Control, including the results of internal control monitoring at Directorate-General level;
- The reports on recorded exceptions, non-compliance events and any cases of confirmation of instructions (Art 92.3 FR);
- The results of the ex-post audits;
- The limited conclusion of the internal auditor on the state of control, and the observations and recommendations reported by the Internal Audit Service (IAS);
- The observations and recommendations reported by the European Court of Auditors (ECA).

⁽⁶⁾ Art 36.2 FR: a) effectiveness, efficiency and economy of operations; b) reliability of reporting; c) safeguarding of assets and information; d) prevention, detection, correction and follow-up of fraud and irregularities; and e) adequate management of risks relating to the legality and regularity of underlying transactions.

These reports result from a systematic analysis of the available evidence. This approach provides sufficient guarantees as to the completeness and reliability of the information reported and results in a complete coverage of the budget delegated to the Director-General of CONNECT.

This section covers the control results and other relevant elements that support management's assurance. It is structured into 2.1.1 Control results, 2.1.2 Audit observations and recommendations, 2.1.3 Effectiveness of internal control systems, and resulting in 2.1.4 Conclusions on the assurance.

2.1.1. Control results

This sub-section reports and assesses the elements identified by management which support the assurance on the achievement of the internal control objectives (ICO) ⁽⁷⁾. The DG's assurance building and materiality criteria are outlined in AAR Annex 5. The AAR Annex 6 outlines the main risks together with the control processes to mitigate them and the indicators used to measure the performance of the relevant control systems.

In 2021, CONNECT implemented an **overall budget of EUR 965.70 million**. CONNECT implemented directly 61.24% of the overall budget (EUR 591.36 million). The remaining 38.76% of the overall budget was implemented by entrusted entities and other DGs which have been granted budget implementation tasks by CONNECT (EUR 374.35 million).

2021 was the **first year of implementation of the programmes of the new multi-annual financial framework (MFF) 2021-2027** i.e. *Horizon Europe, Digital Europe Programme, CEF II Digital and Creative Europe - Media*. There were very limited payments made for *Horizon Europe* and no payments for the other programmes during 2021 due to late adoption of the MFF 2021-2027 which led to the late adoption of the new basic acts for the establishment of the joint undertakings to which CONNECT is delegating certain budget implementation tasks, the late adoption of the work programmes and consequently also to delays in the launching of the calls.

On 1 April 2021, the Executive Agencies implementing Union programmes in the MFF 2021-2027 were established ⁽⁸⁾ and were allocated new budget implementation tasks. In this context, **CONNECT has delegated to the Executive Agencies**, i.e. to the Executive Agency for Small and Medium-sized Enterprises (EISMEA), the European Health and Digital

⁽⁷⁾ 1) Effectiveness, efficiency and economy of operations; 2) reliability of reporting; 3) safeguarding of assets and information; 4) prevention, detection, correction and follow-up of fraud and irregularities; and 5) adequate management of the risks relating to the legality and regularity of the underlying transactions, taking into account the multiannual character of programmes as well as the nature of the payments (FR Art 36.2). The 2nd and/or 3rd Internal Control Objective(s) (ICO) only when applicable, given the DG's activities.

⁽⁸⁾ Commission Implementing Decision (EU) 2021/173 of 12 February 2021 establishing the European Climate, Infrastructure and Environment Executive Agency, the European Health and Digital Executive Agency, the European Research Executive Agency, the European Innovation Council and SMEs Executive Agency, the European Research Council Executive Agency, and the European Education and Culture Executive Agency and repealing Implementing Decisions 2013/801/EU, 2013/771/EU, 2013/778/EU, 2013/779/EU, 2013/776/EU and 2013/770/EU.

Executive Agency (HaDEA) and the European Research Executive Agency (REA), part of its former legacy portfolio, more specifically *Horizon 2020* projects and *CEF Telecom* projects. CONNECT also delegated budget implementation tasks for the new MFF programmes to the Executive Agencies. More information is presented in the section 'Budget implemented by entrusted entities and Annex 7, section 1, point B.

In this context the amount of the total payments made by CONNECT during 2021 has significantly decreased compared to the previous year. Another contributing factor is that the legacy programmes of the previous MFF 2014-2020 (*Horizon 2020*, *CEF Telecom*, *Creative Media*) are phasing out, thus the respective payments have also decreased.

In the context of the COVID-19 pandemic, CONNECT took part in the implementation of part of the **Emergency Support Instrument** (ESI) ⁽⁹⁾. CONNECT procured the technical solution for the central EU Gateway for the EU Digital COVID Certificates (EU DCC) drawing on an existing framework contract. In addition, ESI provided the funds for grants supporting 24 Member States to issue, verify and accept digital COVID certificates. This followed usual control mechanisms established for grants. CONNECT also procured 305 ultraviolet disinfection robots which it then donated to hospitals in all 27 Member States. The contract was awarded through an exceptional procedure without prior publication because of extreme urgency brought about by the crisis. The control measures were tailor-made to the fact that the Commission's contractor shipped the donated devices directly to the hospitals with which the Commission had concluded donation agreements.

CONNECT carried out an exercise to identify the changes and **improvements** needed in order to **adapt the DG's internal control systems to the new portfolio of programmes** (including the new MFF programmes), to the new delegation of programmes to its entrusted entities and to the new environment.

The DG adopted the **CONNECT control strategy for Digital Europe**, a new programme in its portfolio whose implementation involves several implementing bodies and various implementation mechanisms which require a wide variety of controls. It is a high-level document covering all types of necessary controls (grants, procurement) including the supervision arrangements, which contribute to the mitigation of risks and to the achievement of objectives.

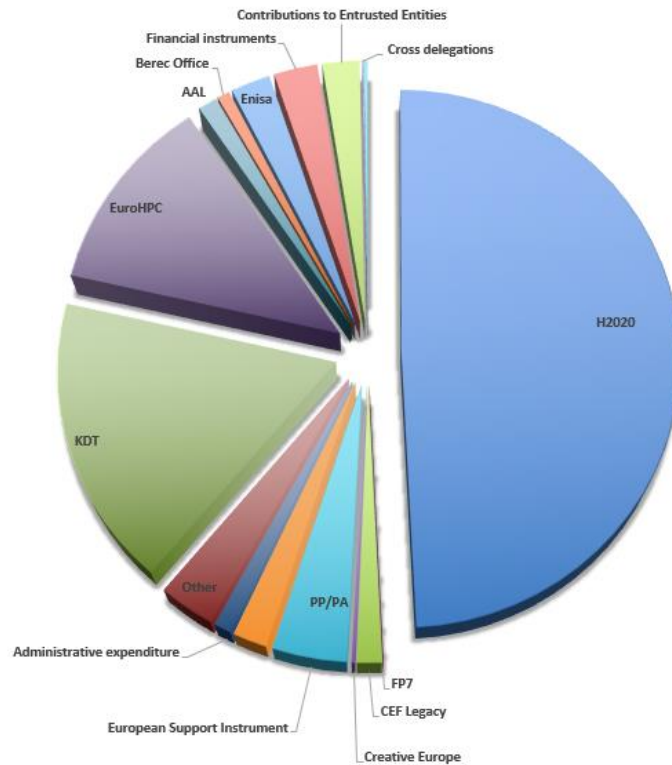
Horizon 2020 represented 80% of CONNECT's payments in 2021 and will therefore receive special attention in this report.

This report presents the elements supporting the assurance on the internal control objectives in two different segments: direct budget implementation by CONNECT and budget implementation tasks entrusted to other DGs and entities.

⁽⁹⁾ The Emergency Support Instrument helps Member States respond to the coronavirus pandemic by addressing needs in a strategic and coordinated manner at European level.

Budget implemented by CONNECT (EUR million)	
Horizon Europe	0.90
H2020	474.47
FP7	0.03
CEF I	13.51
Creative Europe (new)	1.83
Creative Europe (legacy)	0.84
ESI	40.48
PP/PA	18.72
Other	30.84
Administrative expenditure	9.74
Sub-Total	591.36
Budget implementation tasks entrusted to other DGs and entities (EUR million)	
1- Implementing Bodies	
KDT (HE)	53.99
KDT(H2020)	113.28
EuroHPC (H2020)	84.08
EuroHPC(CEF)	32.01
AAL	11.16
Berec Office	7.28
Enisa	22.83
Financial instruments (EIB-PBI, CCSGF,CEBF)	25.25
Contributions to ESA, EUMETSAT, ECMWF, UN	21.41
2- Cross delegations to other Commission DGs	
DIGIT, PMO, GROW	0.94
Sub-Total	372.23
Contribution to EAs (HaDEA)	2.11
TOTAL	965.70

The amounts in the table above represent the 'payments made' during the year.



Overview of 2021 CONNECT budget implementation (as payments made)

Furthermore, CONNECT was a **parent DG for five Executive Agencies** which processed operational payments for a value of EUR 676.80 million linked to CONNECT activities. The budget implementation tasks delegated to the Executive Agencies were (re)allocated through the Commission Implementing Decision (EU) 2021/173 as from 01/04/2021. On this occasion CONNECT has also increased the budget delegated to the Executive Agencies. The budget implementation tasks related to *CEF Telecom* (legacy programme) were transferred from CINEA to HaDEA. For more information refer to the section on Budget implemented by the Entrusted Entities, and to Annex 7, section 1 point B.

Executive Agency (EA)	Operational payments implemented by the EAs linked to CONNECT activities
CINEA	0.20
HADEA	255.31
REA	120.10
EISMEA	219.05
EACEA	82.14
TOTAL (EUR million)	676.80

Overview table (amounts in EUR million)

Risk-type / Activities	Grants (e.g. actual costs based, or lump sums, or entitlements)	Procurement (e.g. minor or major values)	Cross-delegations to other DGs (other AOXDs)	Contributions and/or funds to EE (EU Agency, EA, JU)	Delegation / Contribution agreements with EE (EIB, Int-Org, etc)	Other (any other expenditure not covered by the previous columns)	Total Expenditure
Horizon Europe	-	0.01	-	-	-	0.89	0.90
H2020	464.98	7.44	-	-	-	2.05	474.47
FP7	0.03	-	-	-	-	-	0.03
CEF Legacy	-	13.50	-	-	-	0.01	13.51
Creative Europe	1.03	0.80	-	-	-	-	1.83
Creative Europe Legacy	-	0.84	-	-	-	-	0.84
Emergency Support Instrument	17.00	23.48	-	-	-	-	40.48
PP/PA	16.88	1.82	-	-	-	0.02	18.72
Administrative expenditure	-	9.69	-	-	-	0.05	9.74
Other	27.58	2.81	-	-	-	0.45	30.84
AAL (H2020)	-	-	-	11.16	-	-	11.16
BEREC	-	-	-	7.28	-	-	7.28
ENISA	-	-	-	22.83	-	-	22.83
EuroHPC	-	-	-	116.09	-	-	116.09
KDT	-	-	-	167.27	-	-	167.27
Financial Instrument - CCSGF	-	-	-	-	11.79	-	11.79
Financial Instrument - CEBF	-	-	-	-	13.45	-	13.45
EUMETSAT	-	-	-	-	1.39	-	1.39
ESA	-	-	-	-	10.50	-	10.50
ECMWF	-	-	-	-	9.40	-	9.40
UNDESA	-	-	-	-	0.12	-	0.12
Cross-delegation (DEP)	-	-	0.82	-	-	-	0.82
Cross-delegation admin	-	-	0.13	-	-	-	0.13
Subsidy to HaDEA	-	-	-	2.11	-	-	2.11
Totals (coverage)	527.51	60.38	0.94	326.74	46.66	3.47	965.70
Links to AAR Annex 3	<i>Overall total (m EUR); see Table 2 – payments made</i>					<i>Overall total (m EUR)</i>	965.70

In line with the 2018 Financial Regulation, CONNECT's assessment for the new reporting requirement is as follows:

- Cases of 'confirmation of instructions' (FR art 92.3): no such cases.
- Cases of financing not linked to costs (FR art 125.3): no such cases.
- Cases of Financial Framework Partnerships >4 years (FR art 130.4): no such cases.
- Cases of flat-rates >7% for indirect costs (FR art 181.6):

According to the *Horizon 2020* and *Horizon Europe* rules for participation⁽¹⁰⁾, indirect eligible costs of *Horizon 2020* and *Horizon Europe* grants are determined by applying a flat rate of 25% of the total direct eligible costs.

It is the basic act that derogates from the Financial Regulation. This applies to all *Horizon 2020* and *Horizon Europe* grants. However, in *Horizon 2020* and *Horizon Europe*, in some cases the 25% is directly embedded within a unit cost (e.g. in *Horizon 2020*, unit cost for clinical studies and in *Horizon Europe*, unit costs for providing trans-national and virtual access in research infrastructures actions). In other cases, the indirect costs are included within a larger unit cost or lump sum and the percentage of indirect costs cannot be determined separately (e.g. SME instrument phase 1 or the unit costs for institutional cost under Marie Skłodowska-Curie actions).

For the *Seventh Framework Programme* and for *Media/Euronews* CONNECT also uses flat rates for indirect costs which exceed the 7% ceiling. Such flat rates have been decided to make the preparation of proposals and the management of projects simpler and less error prone. For *Media/Euronews* framework partnership agreement signed in July 2021, the indirect cost used in the unit costs was determined by an external audit firm, specifically appointed for this, at 17.92%.

- **Cases of "Derogations from the principle of non-retroactivity [of grants] pursuant to Article 193 FR" (Financial Regulation Article 193.2):**

There were 36 cases, out of which 25 in respect of the *ESI*, three in respect of *Horizon 2020* grants, five in respect of *Preparatory Actions and Pilot Projects*, two in respect of *Multimedia* grants and one in respect of *Creative Europe - Media*.

All *ESI* grants had retroactive start dates, in line with Article 5(5) of Regulation (EU) 2021/521⁽¹¹⁾, and Commission Decision C(2020) 2794 final, with the amendments done by the Commission Decision C(2021) 2347 final.

⁽¹⁰⁾ Article 29 of Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)" and Article 39 Regulation (EU) 2021/65 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination.

⁽¹¹⁾ COUNCIL REGULATION (EU) 2020/521 of 14 April 2020 activating the emergency support under Regulation (EU) 2016/369, and amending its provisions taking into account the COVID-19 outbreak.

In all above cases, costs incurred prior to the date of submission of the grant application were not eligible.

CONNECT has systematically examined the available control results and indicators, including those aimed to supervise entities to which it has entrusted budget implementation tasks, as well as the observations and recommendations issued by the Internal Audit Service and the European Court of Auditors. These elements have been assessed to determine their impact on the management's assurance as regards the achievement of the various internal control objectives mentioned above.

CONNECT has put in place cost-effective controls. They fulfil the intended control objectives⁽¹²⁾ in an efficient manner and at a reasonable cost. To support this conclusion, here below we present the assessment of the **effectiveness, efficiency and economy of the controls**.

1. Effectiveness of controls

In order to be considered effective, controls are expected to meet the internal control objective (to be detailed hereafter). Control results are detailed hereafter regarding the legality and regularity of the operations, the fraud prevention, detection and correction and other control objectives. The benefits of the controls for the direct grant management are also described.

a) Legality and regularity of the transactions

CONNECT uses internal control processes to ensure sound management of risks relating to the legality and regularity of the underlying transactions it is responsible for, taking into account the multiannual character of programmes and the nature of the payments concerned.

CONNECT's portfolio consists of several segments. Some have a relatively low error rate, such as the segment of financial instruments, and others with a relatively higher error rate, such as the segment containing the *Horizon 2020* grants.

CONNECT estimated that the cumulative residual error rate for *Horizon 2020* grants at 31/12/2021 was 1.62% (see section below), lower than the materiality objective for the programme. However, the research grants' historically higher risk of error is linked to the applicable funding model which is based on the reimbursement of eligible costs. Most of the errors relate to incorrect claims for personnel costs that are mainly due to beneficiaries' lack of thorough understanding of the rules. New entrants and small and medium-sized enterprises are more prone to this type of error in comparison to other, more experienced beneficiaries. There is evidence that the simplifications introduced under *Horizon 2020*

⁽¹²⁾ Art 36.2 FR: a) effectiveness, efficiency and economy of operations; b) reliability of reporting; c) safeguarding of assets and information; d) prevention, detection, correction and follow-up of fraud and irregularities; and e) adequate management of risks relating to the legality and regularity of underlying transactions.

along with the ever-increasing experience are reducing the number of errors made by the beneficiaries, especially when compared to the *Seventh Framework Programme*. Notwithstanding these efforts, however, beneficiaries still make errors.

Annex 7, section 1, point A includes information about the actions taken and communication campaigns focused on more error-prone types of beneficiaries, enhanced training to project officers and external auditors and actions for improving ex-ante checks which contributed to the lower risk of error.

Budget directly implemented by CONNECT

Horizon 2020 research programme (2014-2020)

In 2020, the Commission refined its methodology for calculating the *Horizon 2020* error rates in line with the European Court of Auditors' observations in its 2018 and 2019 Annual Reports⁽¹³⁾. The methodology applied is described in Annex 5 'Materiality criteria'. As of January 2020, DG RTD applied the revised methodology on a sample of 1 304 audit conclusions. This results in the following error rates for Horizon 2020⁽¹⁴⁾ on 31 December 2021:

- Representative detected error rate: **2.29%**⁽¹⁵⁾
- Cumulative residual error rate for the Research and Innovation Family DGs: **1.60%** (**1.62 % for CONNECT**⁽¹⁶⁾).

The error rates presented above should be treated with caution. Since not all audit results are available yet, the error rate is not fully representative of the expenditure under control.

In line with the Financial Statement⁽¹⁷⁾ accompanying the Commission's proposal for the *Horizon 2020* regulation, a reservation is not necessary for the related expenditure if the cumulative residual error rate for the programme falls within the target range of 2-5%. In

⁽¹³⁾ When calculating the multi-annual error rate, the Commission took into account the results of the audit re-performed by the ECA as part of Module 2 of the DAS 2018-2019.

⁽¹⁴⁾ The Horizon 2020 audit campaign started in 2016. At this stage, four Common Representative Samples with a total of 629 expected results have been selected. By the end of 2021, cost claims amounting to EUR 31.8 billion have been submitted by the beneficiaries to the services. The audit coverage for Horizon 2020 is presented in annex 7. In addition to the Common Representative Samples, Common Risk Samples and Additional Samples have also been selected. The audits of 3 424 participations were finalised by 31/12/2021 (of which 514 in 2021).

⁽¹⁵⁾ Based on the 418 representative results out of the 629 expected in the four Common Representative Samples.

⁽¹⁶⁾ It has to be noted that in 2021 many Horizon 2020 actions managed by CONNECT were transferred to Executive Agencies. Hence, this figure is based only on the actions that remained with CONNECT at the end of 2021.

⁽¹⁷⁾ The legislative financial statement accompanying the Commission's proposal for the Horizon 2020 regulation states: 'The Commission considers therefore that, for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2-5% is a realistic objective taking into account the costs of controls, the simplification measures proposed to reduce the complexity of rules and the related inherent risk associated to the reimbursement of costs of the research projects. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, corrections and recovery measures will have been taken into account is to achieve a level as close as possible to 2%.'

2021, and despite the above-mentioned caveats, the cumulative residual error rate for *Horizon 2020*, calculated at 1.62%, more than fulfils this condition and is below the materiality threshold. Despite the absence of reservation, the root causes of errors have been identified and targeted actions taken to address any identified weaknesses.

Since *Horizon 2020* is a multi-annual programme, the error rates, and the residual error rate in particular, should be considered within a time perspective. Specifically, the cleaning effect of audits will tend to increase the difference between the representative detected error rate and the cumulative residual error rate, with the latter finishing at a lower value.

These error rates are calculated on the basis of the audit results available when drafting the Annual Activity Report. They should be treated with caution as they may change subject to the availability of additional data from audit results.

The decrease of the error rates in year 2021 could be due, among other reasons, to the beneficiaries' increased knowledge of the eligibility rules and its inherent learning curve, as well as to the results of the communication campaigns, targeted webinars and trainings, addressed in particular to newcomers and SMEs.

Given the results of the audit campaign up until 2020, and the observations made by the European Court of Auditors in its Annual Reports, the Common Implementation Centre, in close cooperation with central Commission services, is defining actions aimed at significantly simplifying the rules, and paving the way for a significant reduction of the error rate in *Horizon Europe*. Actions including further simplification, increased use of simplified forms of funding (including lump sums and unit costs), focused communication campaigns to more 'error-prone' types of beneficiaries with higher-than-average error rates, such as SMEs and newcomers, and enhanced training to external audit firms performing audits on behalf of the Commission (the last three measures also target *Horizon 2020* grants and beneficiaries). Focusing on the most common errors, these events will be short and simple, reaching more participants and achieving higher impact.

In the context of further reducing the error rates, the Common Implementation Centre will revisit the existing tools for ex-ante controls. It will consult the stakeholders in order to collect their views on possible improvements in the grant management risk module.

Horizon Europe

2021 was the first year of implementation of the Horizon Europe framework programme. The adoption of its Regulation later than initially planned, delayed the starting of its implementation. CONNECT did not make any payments in respect of Horizon Europe grants. Consequently, no detected error rate is reported for Horizon Europe grants in 2021.

The Seventh Framework Programme for Research and Innovation (2007-2013)

The error rates based on the audit work for the Seventh Framework Programme for Research and Innovation on 31 December 2021 ⁽¹⁸⁾ were:

- Representative detected error rate ⁽¹⁹⁾: **5.44%** ⁽²⁰⁾
- Cumulative residual error rate: **3.22%** for CONNECT.

The target cumulative residual error rate of 2% has not been attained. Nevertheless, the lessons learned from the *Seventh Framework Programme's* audits contributed significantly to the development of the improved *Horizon 2020* control framework.

Given that the *FP7* payments now only represent around 0.003% of the total payments made during 2021 (EUR 0.03 million) with a financial impact of EUR 0.17 million ⁽²¹⁾, no reservation on the *FP7* programme was made ⁽²²⁾.

Legacy programmes - CEF Telecom and Creative Europe - Media (2014-2020)

The payments made during 2021 for the *CEF Telecom* and *Creative Europe - Media* were very low as they are phasing out i.e. EUR 13.50 million for *CEF Telecom* and EUR 0.84 million for *Creative Europe - Media*. The associated level of error is estimated as low as the implementation was done mostly through procurement.

Digital Europe, CEF II Digital, Creative Europe – Media, Emergency Support Instrument and Pilot projects and preparatory actions

The work programmes of the new MFF 2021-2027 programmes in CONNECT's portfolio were adopted late during 2021, hence the related calls were postponed toward the end of 2021 and to 2022. The payments made by CONNECT during 2021 were therefore very limited.

CONNECT adapted the DG's internal control systems to the new portfolio of programmes (including the new MFF programmes), to the new delegation of programmes to its entrusted entities and to the new environment. **Internal control action plans** were adopted for several priority areas (for *Digital Europe* for which CONNECT is lead DG, for the *CEF II Digital* and for the establishment of the European Cybersecurity Competence Centre (ECCC), a new Union body for which CONNECT is parent DG) and have been monitored

⁽¹⁸⁾ The last Common Representative Sample for the Seventh Framework Programme for DG RTD was launched in 2016. With all Common Representative Sample items closed, the audit strategy for the Seventh Framework Programme was already considered to be fully implemented in 2020. The audit coverage for the Seventh Framework Programme is presented in Annex 7.

⁽¹⁹⁾ This is calculated on a multi-annual basis.

⁽²⁰⁾ This is based on 481 cost statements for which the audit has been completed.

⁽²¹⁾ Calculated as *FP7* relevant expenditure multiplied by the *FP7* residual error rate, EUR 5.39 million *3.22% = EUR 0.17 million.

⁽²²⁾ In accordance with the 'de minimis rule' - quantified AAR reservations related to residual error rates above the 2% materiality threshold, are deemed not substantial for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million. In such cases, quantified reservations are no longer needed. Also refer to Annex 5 – Materiality Criteria.

during the year to ensure that CONNECT’s internal control systems are adequately prepared.

In addition, CONNECT, as lead DG for *Digital Europe*, prepared the **DG’s Control Strategy** for the programme which documents the strategy and the focus of the controls to be implemented by CONNECT for the management of the programme (under direct management and through entrusted entities).

For some segments under the Emergency Support Instrument and CEF legacy, CONNECT estimated a detected error rate within the range of 2%-3%. For these, considering the historical average recoveries and corrections of 1.09% ⁽²³⁾, the estimated residual errors would be below the materiality threshold of 2%.

For the Pilot Project and the Preparatory Actions, CONNECT estimated a detected error rate of 3%. Given the limited payments of EUR 18.72 million, the de-minimis rule applies.

Budget implemented by entrusted entities

CONNECT has entrusted parts of its budget for implementation to other Commission services, to the Key Digital Technologies (KDT) ⁽²⁴⁾ and to the European High-Performance Computing (EuroHPC) joint undertakings; to the Body of European Regulators for Electronic Communications (BEREC) office and European Union Agency for Cybersecurity (ENISA) (decentralised agencies); to the Active Assisted Living (AAL) Association (body pursuant to Article 185 of the TFEU), and to the following Executive Agencies: the European Health and Digital Executive Agency (HaDEA), the Research Executive Agency (REA), the European Innovation Council and SMEs Executive Agency (EISMEA) and the European Education and Culture Executive Agency (EACEA).

CONNECT has also entrusted budget to the European Space Agency (ESA), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the European Centre for Medium-Range Weather Forecasts (ECMWF) and to the United Nations Department of Social and Economic Affairs (UNDESA).

A number of financial instruments managed by the European Investment Bank (EIB), the European Investment Fund (EIF) and by Cube Infrastructure Managers are also used ⁽²⁵⁾.

The total amount of payments made to these entities amounts to EUR 1 027.61 million (out of which EUR 374.35 million transferred directly by CONNECT).

Entity	Legal form	Purpose	Payments made (EUR)
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⁽²³⁾ Estimation based on the historical seven year average of recoveries and corrections for CONNECT (i.e. 1.093%).

⁽²⁴⁾ Former Electronic Components and Systems for European Leadership (ECSEL) Joint Undertaking.

⁽²⁵⁾ Financial instruments to the EIB established under the CEF Broadband, the Connecting Europe Broadband Fund, and the Cultural and Creative Sectors Guarantee Facility managed by the EIF.

			million)
Other Commission Services through cross delegations	EU Institution	In the interests of sound budget implementation, the authorising officer by delegation ('the delegator') may, by way of exception, sub delegate management of a budget line or part of a line to another Director-General or Head of Service ('the delegatee'). CONNECT both gives and receives sub delegations.	0.94
REA	Executive Agency	REA manages legacy of the parts of the Horizon 2020 Framework Programme from previous MFF. In a new mandate REA started the implementation of the Horizon Europe programme. CONNECT delegated parts of the Horizon Europe Research Infrastructures (RI).	120.1
CINEA	Executive Agency	CINEA implemented the Connecting Europe Facility (CEF) Telecom (legacy) delegated by CONNECT. On 01/04/2021 this was transferred to HaDEA for implementation.	0.2
EISMEA	Executive Agency	EISMEA continues the implementation of the legacy of the parts of H2020 and COSME (ex EASME) and the Consumer Programme legacy (ex CHAFAEA). Implementation of Horizon Europe pillar III – European Innovation Council (partially delegated from CONNECT) and the European Innovation Ecosystems.	219.05
EACEA	Executive Agency	EACEA continues the implementation of parts of the EU funding programmes in the fields of education, culture, audio-visual, sport, citizenship and volunteering and implements parts of the Creative Europe MEDIA sub programme delegated from CONNECT.	82.14
HaDEA	Executive Agency	HaDEA was set up on 01/04/2021 to implement EU4Health, parts of Horizon Europe, parts of Digital Europe Programme, Connecting Europe Facility cluster Digital and Single Market Programme. Parts of Digital Europe Programme, CEF 2 Digital and parts of Horizon Europe cluster 1&4 were delegated by CONNECT.	255.31
KDT	Joint Undertaking	KDT is a partnership between the private and the public sectors for electronic components and systems. It, inter alia, contributes to the development of a strong and globally competitive electronics components and systems industry in the EU.	167.27
EuroHPC	Joint Undertaking	The EuroHPC is a partnership between the private and the public sectors for High Performance Computing. It, inter alia, contributes to the creation of the European supercomputing and data infrastructures, allowing to develop the necessary technologies, applications and skills for reaching exascale capabilities in Europe.	116.09

SNS	Joint Undertaking	The Smart Networks and Services Joint Undertaking (SNS) JU has been established on 30 November 2021 and is expected to become autonomous in 2023. It builds on two pillars: research and innovation under the Horizon Europe programme on technologies and systems for Smart Networks and Services towards 6G, and coordination of 5G deployment actions funded by European or national funding programmes (e.g. Digital Europe Programme, CEF 2 Digital, InvestEU).	Established on 19/11/2021, no activities during 2021.
ECCC	Union body	The European Cybersecurity Network and Cybersecurity Competence Centre was established on 20/05/2021. It helps the EU retain and develop cybersecurity technological and industrial capacities. It implements parts of Horizon Europe and Digital Europe.	Implemented directly by CONNECT until ECCC autonomy
BEREC Office	Decentralised Agency	BEREC contributes to the development and better functioning of the internal market for electronic communications networks and services.	7.28
ENISA	Decentralised Agency	ENISA carries out the tasks assigned to it under the Cybersecurity Act for the purpose of achieving a high common level of cybersecurity across the Union, including by actively supporting Member States, Union institutions, bodies, offices and agencies in improving cybersecurity. ENISA acts as a reference point for advice and expertise on cybersecurity for Union institutions, bodies, offices and agencies as well as for other relevant Union stakeholders. ENISA contributes to reducing the fragmentation of the internal market by carrying out the tasks assigned to it under the Cybersecurity Act.	22.83
Active and Assisted Living (AAL) Association	Private Law Body	The AAL Joint Programme is a public partnership funding activities that aim to create better conditions of life for the older adults and to strengthen the international industrial opportunities in the area of information and communication technology.	11.16
European Investment Bank (CEF Debt Instrument)	Financial Instrument	Enable long-term capital market financing of infrastructure projects including, but not limited to, those carried out under project finance structures (on a risk-sharing basis).	0
European Investment Fund - Cultural and Creative Sectors Guarantee Facility	Financial Instrument	The CCS GF is managed by the EIF on behalf of the Commission in the context of the Creative Europe programme. The Facility benefits micro, small and medium-sized enterprises in the cultural and creative sectors, often facing difficulties in accessing loans, based in any of the participating countries.	11.79

Cube Infrastructure Managers S.A. - Connecting Europe Broadband Fund	Financial Instrument	Investment Fund to provide equity and quasi-equity financing to smaller-scale, higher-risk broadband projects, which do not have sufficient access to financing, in (under-served) suburban and rural areas. Cube Infrastructure Managers S.A. manages the Fund. They were selected through a public procurement process carried out by the EIB.	13.45
TOTAL			1 027.61

In all cases, the supervision arrangements for the entrusted entities are based on the principle of controlling 'with' the relevant entity and are described in annex 6. For further details on the supervision arrangements and on the control results of each of the entrusted entities please see Annex 7, section 1, point B.

Executive Agencies

On 1 April 2021, the Executive Agencies implementing Union programmes under the 2021-2027 MFF were established⁽²⁶⁾ and were allocated new budget implementation tasks. In this context, CONNECT has delegated to the Executive Agencies part of its former legacy portfolio (i.e. to EISMEA, HaDEA and REA) and delegated further budget implementation tasks to the Executive Agencies for the MFF 2021-2027 programmes. On this occasion, *CEF Telecom* legacy programme implementation was transferred from the European Climate, Infrastructure and Environment Executive Agency (CINEA) to HaDEA.

All **executive agencies** for which CONNECT is parent DG reported in their annual reports that they have in place cost-effective control systems and reported positive control results for the year. Several specific points are mentioned:

HaDEA has reported for the *CEF Telecom* Digital Service Infrastructure (DSI) segment, delegated by CONNECT, the residual error rate of 3.84%, above the materiality threshold of 2% expected for a multi-annual period. Despite the low financial exposure of EUR 2.38 million which is well below the threshold of EUR 5.00 million, its share in the budget implemented in 2021 represents 5.23% of the total payments, which is above the 'de minimis' threshold of 5%. Consequently, the Agency is issuing a reservation.

The Agency considers this as a 'one-off' event, as this segment is phasing out and its share within HaDEA's portfolio will gradually decrease in the coming years. In addition, the necessary improvements have been already implemented, resulting in a lowered residual error rate⁽²⁷⁾ and a net amount at risk representing 0.17% of the total payments in 2021. CINEA implemented that segment of the programme until 1 April 2021. Because of the limited payments, the 'de minimis rule' applied and CINEA did not issue a reservation.

⁽²⁶⁾ Commission Implementing Decision (EU) 2021/173 of 12 February 2021.

⁽²⁷⁾ In 2019, a de-minimis rule for financial reservations was introduced stipulating that quantified AAR reservations related to residual error rates above the 2% materiality threshold are deemed not substantial and are no longer needed for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million.

Joint Undertakings

The **joint undertakings** KTD and EuroHPC implement parts of *Horizon Europe*, *Horizon 2020*, *Digital Europe* and *CEF*.

The **Smart Networks and Services Joint Undertaking (SNS) JU** was established on 19/11/2021 through Council Regulation 2021/2085. CONNECT is responsible for the initial operations until it becomes autonomous, which is foreseen for the beginning of 2023. There were no activities/payments during 2021 and thus no control results to report.

EuroHPC JU manages budget implementation tasks delegated by CONNECT related to *Horizon Europe*, *Horizon 2020*, *Digital Europe* and the *CEF* programmes (legacy and *CEF II - Digital*). The JU became autonomous on 23 September 2020 when it successfully took over the operations from CONNECT (which carried out EuroHPC activities prior to its autonomy).

For the **KDT JU**, the European Court of Auditors stated in its 2019 annual report, as in previous years, that it is not possible for the KTD to calculate a single reliable weighted error rate nor a residual error rate for *FP7* payments. To be noted that during 2021 and 2020, KDT did not make any *FP7* payments.

The supervision arrangements for the joint undertakings are described in detail in Annex 7, section 1, point B. CONNECT in its supervisory role, did not identify any particular issues to report upon in this report.

Decentralised agencies

For the decentralised agencies, **BEREC Office** and **ENISA**, CONNECT considers that its supervision has been effective and appropriate in 2021.

Other entrusted entities

The annual on-site review of the **AAL Joint Programme** assessed the overall performance of the AAL Association and confirmed sound financial situation and good operation of the AAL JP.

The **European Cybersecurity Network and Cybersecurity Competence Centre (ECCC)** was established on 20/05/2021 ⁽²⁸⁾ and will be responsible for parts of *Digital Europe* and *Horizon Europe*. CONNECT is responsible for ECCC's operations until it becomes autonomous which is foreseen for end of 2022 or early 2023. In 2021 this already included the adoption of *Digital Europe* and *Horizon Europe* work programmes 2021-2022 and in 2022 will include the evaluation of the calls for proposals, the signature of grants and the management of the projects retained for funding. In doing so, CONNECT uses the same control systems in place as for its own operations.

⁽²⁸⁾ Regulation (EU) 2021/887 of the European Parliament and the Council establishing the European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres.

ESA, EUMETSAT, ECMWF, UNDESA

CONNECT signed contribution agreements on 15 December 2021 with **the European Space Agency, the European Organisation for the Exploitation of Meteorological Satellites (EUMESAT)** and **the European Centre for Medium-Range Weather Forecasts (ECMWF)** to entrust budget implementation tasks in respect of the Destination Earth initiative under the *Digital Europe* work programme 2021-2022. Payments were made after the signature of the contribution agreements in December 2021 but as the implementation of the tasks will start in 2022, no control results are reported for year 2021.

CONNECT signed a contribution agreement with the **United Nations Department of Social and Economic Affairs (UNDESA)** on 27/05/2021 with a view to delegate the implementation of one of the actions of the Communication of the Commission 'Internet Policy and Governance: Europe's role in shaping the future of Internet Governance'. A payment of EUR 0.12 million was effected during 2021. From the available monitoring and communication received from UNDESA during the year, CONNECT can conclude that its supervision has been effective and there is no weakness to report.

Financial Instruments

As regards the **financial instruments** (CEF Debt Instrument, CEF equity instrument: Connecting Europe Broadband Fund and the Cultural and Creative Sectors Guarantee Facility (CCS GF)), CONNECT considers that its supervision and controls have been effective and appropriate in 2021. In particular, CONNECT considers that the reporting of the European Investment Bank and European Investment Fund is sufficient and provides relevant information.

Overall, we can conclude that CONNECT has set up strong internal control processes aimed at ensuring the adequate management of the risks relating to the legality and regularity of the underlying transactions, taking into account the multiannual character of programmes as well as the nature of the payments concerned. We are aware of the higher error rate of *CEF Telecom* reported by HaDEA (for which HaDEA issued a financial reservation in their annual activity report). Nevertheless, we do not consider that it represents a weakness in CONNECT's supervision.

CONNECT 's portfolio consists of:

- segments with a relatively higher error rate, related to grant management implemented directly or entrusted to other entities (e.g. *Horizon 2020, FP7*);
- segments with a relatively low error rate, related to direct or indirect implementation of administrative expenditure or operational expenditure through procurement.

This is, respectively, thanks to the risk profile of the beneficiaries, the inherent risks of the spending modalities and the performance of the related control systems, taking into

account the complexities of the programmes, as well as the overall control strategy followed.

Through recoveries and financial corrections, CONNECT has in place an effective mechanism for correcting errors. During the reporting year the executed corrective capacity amounted in total to EUR 2.65 million ⁽²⁹⁾ representing 0.23% of the relevant expenditure. This is made of the amount of recoveries and financial corrections following the results of ex post controls of *H2020*. For more details see Annex 7.

The real **benefits of the ex-ante controls** cannot be fully quantified. Indeed, many interactions take place between the consortia and the DG's operational services in order to clean the costs statements from substantial errors still before the official submission of the latter. Therefore, the costs accepted for reimbursement are often very close to the one submitted in the 'pre-cleaned' financial statements. As a consequence, the difference between the accepted costs and the ones claimed with the latest submission of the financial statements cannot fully measure the 'gain' from the ex-ante control measures. Nevertheless, it can be reported that **the rejection of the costs as non-eligible amounts in cost claims at the time of ex-ante controls** led to a reduction of EUR 5.4 million of EU contribution in 2021.

Estimated overall risk at closure

CONNECT's relevant expenditure, its estimated overall risk at payment, estimated future corrections and risk at closure are set out in Table X: Estimated risk at payment and at closure.

The estimated overall risk at payment for 2021 expenditure is between EUR 25.08 million and EUR 25.53 million, representing 2.06% - 2.09% of the DG's total relevant expenditure for 2021. This is the AOD's best, conservative estimate of the amount of relevant expenditure during the year not in conformity with the contractual and regulatory provisions applicable at the time the payment was made.

This expenditure will subsequently be subject to ex-post controls and a proportion of the underlying errors will be detected and corrected in subsequent years. The conservatively estimated future corrections for 2021 expenditure amount to EUR 7.3 million.

The difference between those two amounts results in the estimated overall risk at closure of between EUR 17.78 million and EUR 18.22 million, representing 1.46% - 1.50% of the DG's total relevant expenditure for 2021.

The estimated overall risk at closure for 2021 (EUR 17.78 and EUR 18.22 million) is lower than the estimated overall risk at closure for 2020 (EUR 33.57 and 34.56 million) mainly because of a considerable decrease in the 2021 payments made of EUR 965.70 million as compared to the 2020 payments made of EUR 1 919.79 million. The estimated overall

⁽²⁹⁾ Calculated as Recoveries (EUR 1.35 million) plus Compensations on payment (EUR 1.3 million). For more information, refer to Annex 7, point A.

amount at risk at payment (EUR 25.13 and EUR 25.57 million) is also lower than last year (EUR 45.04-46.03 million) for the same reason.

For an overview at Commission level, the DGs' estimated overall risk at payment, estimated future corrections and risk at closure are consolidated in the AMPR.

Table X: Estimated risk at payment and at closure (amounts in EUR million) ⁽³⁰⁾ ⁽³¹⁾

The full detailed version of the table is provided in Annex 9.

CNECT	Payments Made	Relevant Expenditure	Estimated risk (error rate %) at payment				Estimated future corrections and deductions				Estimated risk (error rate %) at closure			
			EUR		%		EUR		%		EUR		%	
Horizon Europe : Procurement	7,447.30 €	7,447.30 €	37.24 €	37.24 €	0.50%	0.50%	- €	- €	0.00%	0.00%	37.24 €	37.24 €	0.50%	0.50%
Horizon Europe : Other	892,442.34 €	892,442.34 €	4,462.21 €	4,462.21 €	0.50%	0.50%	- €	- €	0.00%	0.00%	4,462.21 €	4,462.21 €	0.50%	0.50%
H2020 : Grants	464,981,433.19 €	767,487,989.34 €	17,575,474.96 €	17,575,474.96 €	2.29%	2.29%	5,142,169.53 €	5,142,169.53 €	0.67%	0.67%	12,433,305.43 €	12,433,305.43 €	1.62%	1.62%
H2020 : Procurement	7,440,632.03 €	7,432,774.83 €	37,163.87 €	37,163.87 €	0.50%	0.50%	- €	- €	0.00%	0.00%	37,163.87 €	37,163.87 €	0.50%	0.50%
H2020 : Other	2,047,341.52 €	2,047,341.52 €	10,236.71 €	10,236.71 €	0.50%	0.50%	- €	- €	0.00%	0.00%	10,236.71 €	10,236.71 €	0.50%	0.50%
FP7 : Grants	29,138.76 €	5,392,017.76 €	293,325.77 €	293,325.77 €	5.44%	5.44%	119,702.79 €	119,702.79 €	2.22%	2.22%	173,622.97 €	173,622.97 €	3.22%	3.22%
CEF Legacy : Procurement	13,500,130.07 €	13,500,130.07 €	67,500.65 €	67,500.65 €	0.50%	0.50%	- €	- €	0.00%	0.00%	67,500.65 €	67,500.65 €	0.50%	0.50%
CEF Legacy : Other	6,300.00 €	6,300.00 €	126.00 €	189.00 €	2.00%	3.00%	68.86 €	68.86 €	1.09%	1.09%	57.14 €	120.14 €	0.91%	1.91%
Creative Europe : Grants	1,032,793.76 €	528,312.43 €	7,924.69 €	10,566.25 €	1.50%	2.00%	5,774.88 €	5,774.88 €	1.09%	1.09%	2,149.81 €	4,791.37 €	0.41%	0.91%
Creative Europe : Procurement	796,338.45 €	796,338.45 €	3,981.69 €	3,981.69 €	0.50%	0.50%	- €	- €	0.00%	0.00%	3,981.69 €	3,981.69 €	0.50%	0.50%
Creative Europe Legacy : Grants	- €	808,304.82 €	12,124.57 €	16,166.10 €	1.50%	2.00%	8,835.42 €	8,835.42 €	1.09%	1.09%	3,289.15 €	7,330.67 €	0.41%	0.91%
Creative Europe Legacy : Procurement	840,698.61 €	840,698.61 €	4,203.49 €	4,203.49 €	0.50%	0.50%	- €	- €	0.00%	0.00%	4,203.49 €	4,203.49 €	0.50%	0.50%
Emergency Support Instrument : Grants	17,004,103.96 €	4,156,570.06 €	83,131.40 €	124,697.10 €	2.00%	3.00%	45,434.66 €	45,434.66 €	1.09%	1.09%	37,696.74 €	79,262.45 €	0.91%	1.91%
Emergency Support Instrument : Procurement	23,478,484.59 €	23,478,484.59 €	117,392.42 €	117,392.42 €	0.50%	0.50%	- €	- €	0.00%	0.00%	117,392.42 €	117,392.42 €	0.50%	0.50%
PP/PA : Grants	16,881,890.63 €	10,715,675.97 €	321,470.28 €	321,470.28 €	3.00%	3.00%	- €	- €	0.00%	0.00%	321,470.28 €	321,470.28 €	3.00%	3.00%
PP/PA : Procurement	1,822,372.61 €	1,822,372.61 €	9,111.86 €	9,111.86 €	0.50%	0.50%	- €	- €	0.00%	0.00%	9,111.86 €	9,111.86 €	0.50%	0.50%
PP/PA : Other	19,845.00 €	19,845.00 €	396.90 €	396.90 €	2.00%	2.00%	- €	- €	0.00%	0.00%	396.90 €	396.90 €	2.00%	2.00%
Administrative Expenditure : Procurement	9,686,753.01 €	9,686,753.01 €	48,433.77 €	48,433.77 €	0.50%	0.50%	- €	- €	0.00%	0.00%	48,433.77 €	48,433.77 €	0.50%	0.50%
Administrative Expenditure : Other	50,179.21 €	50,179.21 €	250.90 €	250.90 €	0.50%	0.50%	- €	- €	0.00%	0.00%	250.90 €	250.90 €	0.50%	0.50%
Other : Grants (E-comm multimedia prerogative)	27,580,492.07 €	26,682,676.07 €	400,240.14 €	533,653.52 €	1.50%	2.00%	291,663.13 €	291,663.13 €	1.09%	1.09%	108,577.01 €	241,990.39 €	0.41%	0.91%
Other : Procurement	2,808,483.61 €	2,727,006.12 €	13,635.03 €	13,635.03 €	0.50%	0.50%	- €	- €	0.00%	0.00%	13,635.03 €	13,635.03 €	0.50%	0.50%
Other : Other	449,837.41 €	629,837.41 €	12,596.75 €	12,596.75 €	2.00%	2.00%	6,884.63 €	6,884.63 €	1.09%	1.09%	5,712.12 €	5,712.12 €	0.91%	0.91%
Entrusted Entities : AAL (H2020)	11,161,482.43 €	- €	- €	- €	-	-	- €	- €	-	-	- €	- €	-	-
Entrusted Entities : BEREC	7,282,800.13 €	7,049,627.65 €	35,248.14 €	70,496.28 €	0.50%	1.00%	- €	- €	0.00%	0.00%	35,248.14 €	70,496.28 €	0.50%	1.00%
Entrusted Entities : ENISA	22,833,060.00 €	20,409,560.00 €	102,047.80 €	204,095.60 €	0.50%	1.00%	- €	- €	0.00%	0.00%	102,047.80 €	204,095.60 €	0.50%	1.00%
Entrusted Entities : EuroHPC (CEF) Procurement	32,009,195.00 €	32,009,195.00 €	160,045.98 €	160,045.98 €	0.50%	0.50%	- €	- €	0.00%	0.00%	160,045.98 €	160,045.98 €	0.50%	0.50%
Entrusted Entities : EuroHPC (H2020)	84,082,631.49 €	84,082,631.49 €	1,925,492.26 €	1,925,492.26 €	2.29%	2.29%	563,353.63 €	563,353.63 €	0.67%	0.67%	1,362,138.63 €	1,362,138.63 €	1.62%	1.62%
Entrusted Entities : KDT (Horizon Europe)	53,988,000.00 €	53,988,000.00 €	1,236,325.20 €	1,236,325.20 €	2.29%	2.29%	361,719.60 €	361,719.60 €	0.67%	0.67%	874,605.60 €	874,605.60 €	1.62%	1.62%
Entrusted Entities : KDT (H2020)	113,279,537.00 €	113,279,537.00 €	2,594,101.40 €	2,594,101.40 €	2.29%	2.29%	758,972.90 €	758,972.90 €	0.67%	0.67%	1,835,128.50 €	1,835,128.50 €	1.62%	1.62%
Financial Instrument - CCSGF	11,793,873.44 €	11,793,873.44 €	- €	58,969.37 €	0.00%	0.50%	- €	- €	0.00%	0.00%	- €	58,969.37 €	0.00%	0.50%
Financial Instrument - CEFB	13,454,114.57 €	13,454,114.57 €	- €	67,270.57 €	0.00%	0.50%	- €	- €	0.00%	0.00%	- €	67,270.57 €	0.00%	0.50%
Entrusted Entities : EUMETSAT (DEP)	1,393,000.00 €	- €	- €	- €	-	-	- €	- €	-	-	- €	- €	-	-
Entrusted Entities : ESA (DEP)	10,500,000.00 €	- €	- €	- €	-	-	- €	- €	-	-	- €	- €	-	-
Entrusted Entities : ECMWF (DEP)	9,400,000.00 €	- €	- €	- €	-	-	- €	- €	-	-	- €	- €	-	-
Entrusted Entities : UNDESA	119,871.52 €	- €	- €	- €	-	-	- €	- €	-	-	- €	- €	-	-
Cross-delegations to other DGs	942,046.17 €	942,046.17 €	4,710.23 €	4,710.23 €	0.50%	0.50%	- €	- €	0.00%	0.00%	4,710.23 €	4,710.23 €	0.50%	0.50%
A: Total without contribution to EA's operating budget	963,596,749.88 €	1,216,718,082.84 €	25,081,192.30 €	25,526,453.34 €	2.06%	2.09%	7,304,580.03 €	7,304,580.03 €	0.60%	0.60%	17,776,612.26 €	18,221,873.31 €	1.46%	1.50%
DG's contribution to HaDEA's operating budget	2,106,335.91 €	2,106,335.91 €	- €	- €	0.00%	0.00%	- €	- €	0.00%	0.00%	- €	- €	0.00%	0.00%
B: Total of DG's contributions	2,106,335.91 €	2,106,335.91 €	- €	- €	0.00%	0.00%	- €	- €	0.00%	0.00%	- €	- €	0.00%	0.00%
Total DG A+B	965,703,085.79 €	1,218,824,418.75 €	25,081,192.30 €	25,526,453.34 €	2.06%	2.09%	7,304,580.03 €	7,304,580.03 €	0.60%	0.60%	17,776,612.26 €	18,221,873.31 €	1.46%	1.50%

⁽³⁰⁾ Incomplete transfers: "In 2021, a number of files and their financial transactions were transferred (with their commitments and underlying financial transactions) from DGs to Executive Agencies. However, due to ABAC limitations, the current transfer procedure allows only transfers of commitments (and their financial transactions) with an outstanding balance. Hence, in 2021, for a limited number of transferred pre-financings (16) with commitments having no outstanding balance at the moment of the transfers, the pre-financings payments were transferred to the recipient agency from an accounting side (to EISMEA and HADEA agencies), but the payments implementation stayed with the giving DG (CONNECT). This produces a discrepancy in the AAR reports of CONNECT, EISMEA and HADEA entities, as payments are attributed in the payment implementation to the giving DG (CONNECT), whereas the ownership and the clearing responsibility of the pre-financings is attributed to the recipient entity (EISMEA and HADEA). After analysis of the amounts for the 3 concerned entities, the difference does not impact materially the amount at risk."

⁽³¹⁾ Cross-subdelegation: "For projects implemented through cross subdelegated budget lines, the pre-financings amounts from 2021 appear in the payment implementation of the 'delegator' entity (as the paying authorising DG), whilst the pre-financing and clearing are reported by the 'delegated' entity. The split reporting (budgetary and accounting) is regularized in the next year AAR, when the cross sub-delegations become co-delegations of type II."

b) Fraud prevention, detection and correction

CONNECT has developed and implemented its own anti-fraud strategy, based on the methodology provided by the European Anti-Fraud Office (OLAF). It was last updated in January 2022. Its implementation is being monitored and reported to management. All actions in the Anti-fraud Strategy were fully implemented.

In the period 2017-2021, nine financial recommendations were addressed to CONNECT which the DG followed up 100%. Four recommendations related to a national grant scheme co-financed by the European Social Fund (ESF) which funded staff cost that were also claimed under FP7 projects. After the ESF funding was withdrawn, OLAF confirmed that its recommendations did not require recovery under FP7 anymore. One recommendation was fully implemented (20% of the total number of the five maintained financial recommendations). For the remaining four cases, recovery orders have been established. One of them has been subject to a judgement of the General Court, to which the economic operator appealed. For three cases, the entities concerned are in liquidation: for two of them judicial proceedings are ongoing.

Furthermore, CONNECT follows and implements the Common Anti-Fraud Strategy in the Research Family (RAFS) and its action plan. The RAFS was first established in 2012, and updated in 2015 and 2019 to respond to the new challenges. The implementation of the action plan is regularly monitored by the Steering Board and the Executive Committee of the CIC and the Fraud and Irregularities in Research (FAIR) Committee, in which CONNECT actively participates. The deadline of several actions of the 2019 action plan had to be postponed due to the reorganisation of DG Research and Innovation. At the end of 2021, around 95% for the action plan of the RAFS was implemented.

CONNECT continues to transmit information to OLAF about suspicions of fraud and other irregularities. The DG is in constant contact with OLAF concerning ongoing and closed investigations and participated in the Fraud Prevention and Detection Network organised by OLAF.

In 2021, CONNECT has taken action in the following areas targeting fraud prevention, detection and correction:

- Ethical behaviour of staff ⁽³²⁾.
- Awareness of fraud risks ⁽³³⁾ for policy and financial officers and staff involved in grants and/or procurement.
- Timely implementation of OLAF reports.
- Good cooperation with stakeholders.
- Consideration of fraud risks when drafting legislative acts.

⁽³²⁾ Ethics related training sessions.

⁽³³⁾ Anti-fraud training sessions.

As regards the fraud risk awareness raising training and similar anti-fraud training, the % of newcomers trained (=staff involved in procurement and grant management for less than 2 years) was 31% while the target was set at 90%. In 2021, two training sessions on anti-fraud were organised in January and June totalling 85 participants. The number of newcomers in the last two years was 39 staff. In 2022, CONNECT will organise at least one training session on anti-fraud which will target especially the newcomers.

During 2021, OLAF closed two investigations without recommendations and one with a financial recommendation. The latter concerned a recovery which had already been subject to an enforceable decision of the Commission prepared by CONNECT. The DG is implementing the financial recommendations from previous years and reports regularly to OLAF and DG Budget on the status of the recoveries. CONNECT also reported to OLAF on the implementation of the administrative recommendations (mainly linked to the Early Detection and Exclusion System).

CONNECT transmitted information related to a possible fraud or irregularity detrimental to the EU financial interest concerning two beneficiaries to OLAF which decided to dismiss one case while the other one is currently under evaluation by the Office. OLAF did not open new investigations involving CONNECT projects but informed the DG about one investigation which the Office had already opened in 2018 and which concerns also one CONNECT project.

The results achieved during the year are described in more detail in Annex 7, section 1, point C.

On the basis of the available information, CONNECT has reasonable assurance that the anti-fraud measures in place are effective and that an adequate fraud prevention, detection and correction system is in place. CONNECT will start in 2022 the implementation of the action plan for the updated anti-fraud strategy 2022-2024.

Entrusted entities

CONNECT ensures through its supervisory role that the entrusted entities have appropriate fraud prevention and detection measures in place.

The Commission Anti-Fraud Strategy is binding for all Commission services and the executive agencies. The DGs and executive agencies of the research family also adhere to the Common Anti-Fraud Strategy in the Research Family. CONNECT ensures compliance of the BEREC Office, ENISA, EuroHPC and KTD JU with anti-fraud requirements through its participation in their government boards.

KDT's Governing Board adopted the Common Anti-Fraud Strategy in the Research Family in 2015 and is represented in the Fraud and Irregularities in Research (FAIR) Committee. The majority of its staff members participated in anti-fraud trainings.

Both ENISA and the BEREC Office implement their own anti-fraud strategies and action plans. The BEREC Office updated its strategy and action plan in 2020. ENISA revised its strategy in late 2020.

As regards the AAL Association, anti-fraud management is addressed in the risk management and ex-post audit strategy of the AAL Joint Programme agreed between the Commission and the AALA in 2015. National programme management agencies provide an overview of their audit system. In particular, they provide the AAL Association – and in turn the Commission – with information about the audit and control procedures to prevent fraud and irregularities.

For the Financial Instruments under management by the EIB, the fraud prevention strategy is based on the principles agreed between the Commission and the EIB. Specifically for the CEF Broadband Fund, since the project bond financing has already been executed and bonds are transparently traded on the Paris stock exchange, this transparency is the central fraud prevention measure. Similarly, the European Investment Fund (EIF) is in charge of the implementation of the Cultural and Creative Sectors Guarantee Facility in compliance with the Financial Regulation, the Financial and Administrative Framework Agreement and specific conditions laid down in the Delegation Agreement signed by the Commission and the EIF, which contains provisions on fraud prevention and detection and reporting on control results.

Overall, given the anti-fraud measures put in place by the entrusted entities and the fact that the information available did not provide any unfavourable observations concerning fraud prevention, detection and correction, it is considered that the entities have put in place an effective and adequate fraud prevention and detection system.

c) Other control objectives: safeguarding of assets and information, reliability of reporting

The assets reported by CONNECT in the balance sheet 2021 mainly concern short term and long term pre-financing related to Horizon 2020 and financial instruments CCS GF and CEBF and the control system is covered in the section of the management of those programmes. A separate control strategy for safeguarding the assets is not deemed necessary for 2021.

Other control objectives: Off-balance sheet items

The contingent liabilities reported by CONNECT in 2021 (EUR 146.9 million) represent the amount available for the CCS GF guarantee and the open balance of the guarantee paid to the EIB for the project PBI, later merged and currently called CEF DI financial instrument. The 'other significant disclosures' (EUR 3 297.4 million) reported in 2021 are related to the open 'RAL' for research grants in Horizon 2020, Digital Europe programme as well as other non-research grants and procurement files for Horizon 2020, Emergency support within the Union, Preparatory actions, Pilot projects, CEF and Creative Europe programmes. A separate control strategy is not deemed necessary for 2021.

2. Efficiency of controls

The **control system for grant management under direct management of CONNECT** is divided into four distinct stages: programming, evaluation and selection of proposals (stage 1), contracting (stage 2), monitoring the execution of the projects (stage 3) and ex-post controls and recoveries (stage 4). Key indicators were defined for each stage. The efficiency indicators of each stage were analysed. A summary of the main indicators is presented below.

Efficiency Indicators for the grant management control system			
Stage	Indicator	2021	2020
1	Average time-to-inform	101 days	108 days
2	Time-to-grant	304 days	187 days
3	Timely payments	100%	100%
	Time-to-pay monitors /experts	8 calendar days	8.9 calendar days
4	See previous section on Legality and Regularity.		

As from 2020, the ‘timely payments’ indicator is used to report on the ‘time-to-pay’. For more information refer to Annex 4, the Financial Scorecard.

The time-to-inform and time-to-grant indicators are statistically less significant than in previous years because only 8 *Horizon 2020* grants remained to be signed in 2021. For some of them, the target time-to-grant was exceeded due to particular complexities in the action, changes in the consortium or non-respect of the deadlines by the consortium.

As in the previous years, CONNECT made all its payments on time, the result for the efficiency indicator ‘timely payments’ during 2021 reaching 100%, higher than the average EC score.

Timely Payments	CONNECT Score	EC Score
	100%	98%

This result was achieved because of increased attention to payment monitoring (be it in a local system such as Compass or of the invoices in ABAC). For invoices submitted in local systems such as Compass, it has become also easier to monitor the legal deadlines.

An example of an initiative to increase the economy and efficiency of controls in the context of the set-up of the structure and the implementation of *Digital Europe* are included in Annex 10.d.

Based on an assessment of the most relevant key indicators above and control results, it is considered that an efficient control system has been put in place.

The same conclusion can be reached for the cases under **indirect management**. Based on the reports and other available information related to the efficiency of the entities entrusted with budget implementation tasks, having no reason to believe that their reports would be incomplete or unreliable and not having received any unfavourable observations with regard to the efficiency of their operations, **CONNECT concludes from the information available that resources assigned have been used efficiently.**

More detailed information about the efficiency of controls is presented in Annex 7, section 1, point D and Annex 4 (new Financial Scorecard).

3. Economy of controls

The table below provides an estimate of the total costs of control for the **direct management** of grants within CONNECT. The cost of controls is estimated for each of the four stages of grant direct management control system and calculated based on the corporate methodology for the estimation, assessment and reporting on the cost-effectiveness of controls.

The details of the calculation are available in annex 7, section 1, point E.

The total cost of control within CONNECT for direct grant management can be evaluated at approximately EUR 29.54 million, corresponding to 5.6% of the total operational grant payments made in 2021 (EUR 527.51 million).

The increase of the overall rate is mainly due to the very important decrease of total operational grant payments from EUR 1 438,99 million in 2020 to EUR 527.51 million in 2021. The reasons for the decrease in the payments made was explained in the beginning of section 2.1.1 Control Results. It is mainly due to three reasons: (1) phasing out of legacy programmes such as *H2020* (2) delegation to Executive Agencies of an important part of the portfolio of legacy programmes’ grants (*H2020*) and (3) delay of the launch of the call of proposals for the programmes of the new MFF 2021-2027 (*Horizon Europe, Digital Europe Programme, CEF II - Digital*) which was in its turn due to the late adoption of the new MFF 2021-2027, of the legal basis for the new programmes and of the related work programmes.

The increase of the overall rate is also linked to a lesser extent to the increase of overall staff costs from EUR 27.58 million in 2020 to EUR 29.54 million in 2021. While the total number of Full Time Equivalentents dedicated to controls for grant management was stable, the average salary costs increased for all categories of staff.

CONNECT costs of controls for direct grant management	Overall rate 2021	Overall rate 2020	Overall rate 2019
Stage 1 – programming and evaluation	0.75%	0.27%	0.38%
Stage 2 – contracting	0.58%	0.19%	0.25%
Stage 3 – monitoring the execution	4.12%	1,40%	1.87%
Stage 4 – ex-post controls and recoveries	0.15%	0.05%	0.06%

TOTAL	5.60%	1.92%	2.56%
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Details of the estimated cost related to shared/pooled control activities carried out by REA and hosted by DG RTD (Common Implementation Centre, including the Common Audit Service; Common Policy Centre) for the Research and Innovation family are reported in the annual activity reports of REA and DG RTD.

The **cost incurred by CONNECT for the monitoring and the supervision of the entities entrusted with budget implementation tasks** amounts, approximately, to EUR 5.06 million. This amount includes primarily personnel costs (in total 35 Full Time Equivalents). There was an increase of the cost of control compared to last year (EUR 3.99 million and 28 Full Time Equivalents) which can be explained by the additional cost of monitoring and supervision stemming from the establishment of two new entities (i.e. ECCC and SNS JU) and new tasks entrusted to ESA, EUMETSAT, ECMWF and UNDESA.

The cost of monitoring and supervision of the entrusted entities, presented in the table below, represents 0.48% of the operational payments made to these entities. The percentage remains stable as compared to last year. The transfer of the payments to the four executive agencies to which CONNECT is delegating budget implementation tasks is not directly effected by CONNECT, the funds are transferred by the Commission central service BUDG. The estimated cost of control has been calculated at entrusted entity level, as shown in the following table.

Entrusted Entity	Cost of control (%) 2021	Cost of control (%) 2020	Cost of control (%) 2019
Services through cross delegations ⁽³⁴⁾	10.83%	0.11%	1.86%
Executive agencies	0.26%	0.52%	0.39%
EuroHPC	0.64%	0.39%	n/a
KDT	0.40%	0.22%	0.24%
ECCC ⁽³⁵⁾	NA	NA	NA
SNS	NA	NA	NA
BEREC Office	4.76%	3.70%	8.46%
ENISA	0.53%	1.60%	3.02%
Active and Assisted Living Association	1.08%	1.22%	0.95%
CCS GF (Guarantee fund)	1.33%	0.81%	1.42%

⁽³⁴⁾ For 'Administrative expenditure cross delegated', the supervision arrangements are based on the principle of controlling 'with' the relevant entity. Being a Commission service itself, the Authorising Officer by delegation (AOD) of the cross delegated service is required to implement the expenditure/ appropriations subject to the same rules, responsibilities and accountability arrangements, notably on efficiency and cost effectiveness.

⁽³⁵⁾ As previously mentioned in section 2.1.1. all activities of ECCC are carried out by CONNECT until the ECCC reaches its autonomy. The related payments made are included in the CONNECT total payments made. ECCC is included here in the table in respect of all activities needed to set up the ECCC (building, recruitment, organisation, governance arrangements, etc.).

CEBF (Equity instrument)			
CEF Broadband Fund (Debt instrument)			
ESA, EUMETSAT, ECMWF, UNDESA ⁽³⁶⁾	0.15%	NA	NA
TOTAL	0.48%	0.49%	0.52%

The BEREC Office and ENISA have relatively small annual budgets. They do not manage calls for proposals, they sometimes process calls for tenders for studies and the EU funds serve mainly for staff remuneration and administration purposes. They nevertheless have to fulfil a number of administrative requirements similar to all EU agencies but weigh more heavily on smaller agencies due to significant fixed costs and inability to take advantage of economies of scale. This explains the relatively high cost of control ratio.

CONNECT has increased its level of budget managed through cross-subdelegations under the MFF 2021-2027. However, the increase of the overall rate is mainly due to the very low level of payments during 2021 which is mainly due to the late adoption of the new MFF 2021-2027, of the legal basis for the new programmes and of the related work programmes and of the memoranda of understanding.

More details related to the cost of controls are provided in annex 7, section 1, point E.

4. Conclusion on the cost-effectiveness of controls

Based on the most relevant key indicators and control results, CONNECT has assessed the effectiveness, efficiency and economy of its control system and reached a positive conclusion on the cost-effectiveness of the controls for which it is responsible.

A first objective of the control systems is to achieve the related policy/programme objective. In this sense, the controls aim to ensure good work programmes, select the best proposals to be funded and verify the scientific deliverables. Thus, the benefits of controls are much wider than the budget implemented in the given year.

A second objective of the control system is to ensure the achievement of internal control objectives for the budget implementation tasks of CONNECT. In other words, to ensure that legal and regular transactions are performed efficiently and in an economic manner. Some benefits of the controls are quantifiable as presented above. Other benefits are qualitative, cannot be quantified however they are significant and relate to all stages of the programme management cycle.

This report develops at several points how the balance between these two requirements (policy objectives and internal control objectives) is assessed and ensured.

Overall, it is considered that a cost-effective control system is in place given:

⁽³⁶⁾ Contribution agreements have been signed with ESA, EUMETSAT, ECMWF, UNDESA on 15/12/2021.

- the successful policy achievements as set out in Part 1;
- the benefits arising from the control systems adopted;
- the risk at closure set out above, which is at a level considered as being an appropriate balance between different policy objectives and between trust and control;
- declaration of assurance without qualification/reserve;
- the good results as regards efficiency of controls: the time-to-pay, time-to-inform and time-to-grant indicators;
- the costs of the control system compared to the level of expenditure;
- adapted control strategy in line with the new portfolio of budget implementation tasks and adapted supervision role as regards the new entrusted entities to which CONNECT delegates budget implementation tasks.

The DG's involvement in the governance of the entrusted entities did not show any significant events, issues or problems that could have a material impact on assurance as regards effectiveness of controls. Also, in absence of contradictory information in the reports received from the entrusted entities and in view of the cost of the control system compared to the level of expenditure, the cost-effectiveness of controls is considered adequate.

2.1.2. Audit observations and recommendations

This section sets out the observations, opinions and conclusions reported by auditors – including the limited conclusion of the Internal Auditor on the state of internal control. Summaries of the management measures taken in response to the audit recommendations are also included, together with an assessment of the likely material impact of the findings on the achievement of the internal control objectives, and therefore on management's assurance.

Internal Audit Service (IAS)

In 2021, CONNECT was subject to one **IAS audit**, namely the multi-DG audit on the implementation of audit results in Horizon 2020. CONNECT did not receive any specific recommendation from this audit.

At the end of 2021, CONNECT has no open 'critical' or 'very important' recommendation. CONNECT has one 'important' recommendation open from the audit on anti-fraud in the research area, which is due for the first quarter of 2022. At the end of 2021, the IAS launched two new multi-DG audits on the preparedness of the European Innovation Council and on the performance framework for research. More details on the audits and recommendations from the IAS are provided in Annex 7.

Since the beginning of the pandemic, CONNECT has been closely monitoring and assessing new or emerging COVID-19 related risks impacting budget and compliance aspects. This is demonstrated by the continuous reviews of the risk register during 2021 and by the participation in the relevant interservice group meetings concerning audits, fraud and irregularities. In addition, in the context of an increased EU budget and greater flexibility on

the usage of EU money to deal with the health crisis, the Director-General of CONNECT made a written communication to all staff stressing the importance to remain vigilant as regards potential fraud, as fraudsters are fast in adapting their operations to new situations.

In its contribution to the 2021 AAR process, the IAS provided **a limited conclusion on the state of internal control** in CONNECT, concluding that the internal control system in place for the processes audited by the IAS is effective.

Conclusion

As a result of the assessment of the risks underlying the auditors' observations together with the management measures taken or planned in response, CONNECT believes that the recommendations do not have an impact on the declaration of assurance. All recommendations issued by the IAS are subject to a systematic follow-up and their status of implementation is closely monitored.

European Court of Auditors (ECA)

CONNECT is mostly concerned by Chapter 4 of the annual report of the ECA for the financial year 2020, namely 'Competitiveness for growth and jobs'. The estimated error rate for this Chapter is of 3.9%. The results indicates that the level of error remains high for research and innovation expenditure, which was the main source of error, especially personnel costs.

In 2021, the ECA closed the performance audit on security of 5G networks ⁽³⁷⁾ and started a new audit on eGovernment with CONNECT as the main audited service. Furthermore, CONNECT was also associated to the audit on disinformation which was closed in 2021 and to the on-going multi-DG audits on SME internationalisation, on free movement during the COVID-19 crisis and on digitalisation of schools.

At the end of the year, the following ECA recommendations were open and are being implemented:

Digitalising European Industry	Disinformation
<ul style="list-style-type: none"> ● Offer support to Member States in indentifying funding gaps – in relation to industry digitalisation ● Support to Member States in identifying funding gaps – better communication key EU funds available for implementing the DEI initiative 	<ul style="list-style-type: none"> ● Adopt a media literacy strategy and, in collaboration with MLEG, share and update knowledge on the best media literacy practices and actions withing EU ● Adopt a media literacy strategy with clear indicators to systematically measure the impact of literacy actions, against set objectives built on regular research into media literacy ● Adopt a EU media literacy strategy with coordination mechanisms to ensure

⁽³⁷⁾ The final report of this audit was published at the end of January 2022.

CONNECT closed in 2021 the last remaining recommendations from the 2018 audit on broadband.

Further details on the ongoing audits are provided in Annex 7.

Conclusion

As a result of the assessment of the risks underlying the auditor's observations, together with the management measures taken or planned in response, the management of CONNECT believes that the recommendations issued by the ECA do not raise any critical assurance implications and are being implemented.

2.1.3. Assessment of the effectiveness of internal control systems

The Commission has adopted an Internal Control Framework based on international good practice, to ensure the achievement of its policy and management objectives. Compliance with the internal control framework is a compulsory requirement.

CONNECT uses the organisational structure and the internal control systems suited to achieving its policy and internal control objectives in accordance with the internal control principles and has due regard to the risks associated with the environment in which it operates.

CONNECT assesses on a continuous basis the effectiveness of its internal control systems, in order to determine whether they work as intended and to ensure that any control weakness in the control system is detected, analysed and considered for improvement.

The annual assessment of the effectiveness of the internal control systems is based on the assessment of the internal control monitoring criteria (ICMC) and the analysis of various sources of information such as the register of deviations, the IAS and ECA recommendations, the risk register and of the main internal control issues mentioned in the 2021 Directorates' Management Reports. For a summary of the end-of-the-year assessment, please refer to annex 8.

CONNECT has assessed its internal control system during the reporting year and has concluded that it is effective and the components and principles are present and functioning well overall, but some improvements are needed as minor deficiencies were identified related to the internal control principles 8 and 13.

As regards principle 8, the participation of newcomers (i.e. staff involved in procurement and grant management for less than 2 years) in anti-fraud trainings in 2021 was lower than expected (31% compared to the target of 90%). The low participation may lead to a lower awareness of fraud prevention and detection among newcomers. To address this, special attention will be given in 2022 to increase the attendance of newcomers in anti-

fraud trainings (i.e. organisation of new training sessions on anti-fraud addressed to newcomers).

Concerning principle 13, the level of attendance of data protection training sessions in 2021 continued to be relatively low (29% compared to the target of 44.3%). Despite actions taken in 2021 to increase the level of awareness in data protection, continuous effort is needed to improve and ensure the awareness of data protection rules among staff. Concrete actions in the form of dedicated mandatory training sessions per Directorate are planned for 2022. For both areas, given the actions envisaged and other risk mitigating measures such as the availability of detailed guidance in both areas, the residual risk is assessed to be low (see sections 2.2.2 and Annex 8 for details).

2.1.4. Conclusions on the assurance

This section reviews the assessment of the elements reported above (in Sections 2.1.1, 2.1.2 and 2.1.3), and the sub-conclusions already reached. It draws an overall conclusion to support the declaration of assurance and whether it should be qualified with reservations.

The information reported in section 2.1 results from the results of management and auditor monitoring contained in the listed reports. These reports result from a systematic analysis of the evidence available. This approach provides sufficient guarantees as to the completeness and reliability of the information reported and results in a comprehensive coverage of the budget delegated to the Director-General of CONNECT. It also supports the Declaration of Assurance with respect to the use of resources for the intended purpose and in line with the principles of sound financial management and legality and regularity.

The declaration of assurance is based on the analysis of the cost-effectiveness of CONNECT's internal control systems, supported by the conclusions of the audit reports of the Internal Audit Service and the European Court of Auditors which did not highlight any critical recommendation, the Internal Audit Service positive limited conclusion on the state of internal control, the conclusions of the annual assessment of the effectiveness of the internal control systems, the reports received from the Commission services to which CONNECT has cross-delegated, the reports from the Executive Agencies (i.e. HADEA, REA, EACEA and EISMEA, the EIB/EIF, the KDT and EuroHPC Joint Undertakings, the Active and Assisted Living Joint Programme and the BEREC Office and ENISA Decentralised Agencies).

CONNECT's assessment on legality and regularity ⁽³⁸⁾ concluded on the following .:

- For H2020, the audit results show a residual error rate of 1.62% which is below the Commission materiality threshold.
- The audit work for *FP7* is complete. The Common Representative Error Rate is 5.44%. The residual error rate for CONNECT amounts to 3.22% with a corresponding amount at risk of EUR 0.17 million. Given the limited payments of

⁽³⁸⁾ Based on the audits carried out by the Common Audit Center hosted by DG RTD.

the year (EUR 0.03 million) and the limited financial impact (EUR 0.17 million) and in accordance with the 'de minimis' rule⁽³⁹⁾, no reservation is issued. The possibilities to simplify FP7 rules have been exhausted. The last projects are now in the final stage of implementation: the total amounts paid are very low and will further decrease, also reducing the financial impact.

- For some segments under the Emergency Support Instrument and CEF legacy, CONNECT estimated a detected error rate within the range of [2%-3%]. For these, considering the historical average recoveries and corrections of 1.09%⁽⁴⁰⁾, the estimated residual errors would be below the materiality threshold of 2%.
- For the Pilot Project and the Preparatory Actions, CONNECT estimated a detected error rate of 3%. Given the limited payments, EUR 18.72 million, the de-minimis rule applies.

HaDEA reported in its Annual Activity Report a higher error rate for CEF Telecom, programme delegated by CONNECT (for which HaDEA issued a financial reservation). We have provided more details in section 2.1.1a) Budget entrusted to other entities. CONNECT noted the information provided by HaDEA and considers that it does not represent a weakness in CONNECT's supervision and does not have an impact on the DG's declaration of assurance.

In its 2020 annual report, the European Court of Auditors concludes on an estimated level of error of 3.9% for the entire 2020 spending in the chapter 4 'Competitiveness for growth and jobs'. The Court points out that research spending remains a higher-risk area and the main source of error under this chapter.

In the annual limited conclusion of the IAS on the state of Internal Control in CONNECT, the IAS concludes that the internal control system in place for the audited processes is effective.

Overall amount at risk at closure

For CONNECT, the estimated overall amount at risk at payment for the 2021 expenditure is between EUR 25.13 and 25.57 million. This is the Authorising Officer by Delegation's best, conservative estimation of the amount of relevant expenditure during the year not in conformity with the applicable contractual and regulatory provisions at the time the payment is made.

The conservatively estimated future corrections for the 2021 expenditure amount to EUR 7.32 million. This is the amount of errors that the DG conservatively estimates to identify and correct from controls that it will implement in successive years. The difference

⁽³⁹⁾ As from 2019, a 'de minimis' threshold for financial reservations is introduced. Quantified AAR reservations related to residual error rates above the 2% materiality threshold, are deemed not substantial for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million. In such cases, quantified reservations are no longer needed.

⁽⁴⁰⁾ Estimation based on the historical seven year average recoveries and correction for our DG (i.e. 1.093%).

between those two amounts leads to the estimated overall amount at risk at closure between EUR 17.81 and 18.26 million.

In conclusion, based on the elements reported above, management has reasonable assurance that, overall, suitable controls are in place and working as intended; risks are being appropriately monitored and mitigated; and necessary improvements and reinforcements are being implemented. The Director General, in his capacity as Authorising Officer by Delegation has signed the Declaration of Assurance.

2.1.5. Declaration of Assurance

Declaration of Assurance

I, the undersigned,

Director-General of the Directorate-General for Communications Networks, Content and Technology

In my capacity as authorising officer by delegation

Declare that the information contained in this report gives a true and fair view ⁽⁴¹⁾.

State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees concerning the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment, ex-post controls, the work of the Internal Audit Service and the lessons learnt from the reports of the Court of Auditors for years prior to the year of this declaration.

Confirm that I am not aware of anything not reported here which could harm the interests of the institution.

Brussels, 31 March 2022.

(e-signed)

Roberto VIOLA

⁽⁴¹⁾ True and fair in this context means a reliable, complete and correct view on the state of affairs in the DG/Executive Agency.

2.2. Modern and efficient administration – other aspects

2.2.1. Human resource management

In order to ensure the effective management of human resources and to optimise the capacity to deliver on priorities set out in its strategic plan, CONNECT adopted a local human resources (HR) strategy with a medium to long-term perspective (3–5 years).

While promoting diversity and inclusion principles among others via its diversity & inclusion network, CONNECT focused efforts on supporting AD women for potential managerial careers. To this end, the DG complemented the corporate management development offer with targeted initiatives to build up a managerial pipeline of women. These targeted initiatives entailed in particular a career development programme with a 360° development component as well as a pilot for a local female talent development programme.

CONNECT exceeded its target of three additional first female appointments at middle management level due by the end of 2022 (with two first female appointments to middle management posts already made in 2020 and a further three first female appointments to middle management posts in 2021). In addition, CONNECT focused on implementing the measures decided by the Commission to reinforce gender policy at all management levels (e.g. further focus on appointments of women to pre-management posts and designation of 55% female Heads of Unit to deputise for Directors). As a result, by end of 2021, CONNECT had 45% of its middle management positions occupied by women.

The results of the staff engagement index show that despite the challenges, the CONNECT employee engagement increased to 75%, higher than the Commission average (72%) and +7% compared to the 2018 Staff Survey.

CONNECT also pursued the ‘We are CONNECT’ staff engagement campaign to increase the sense of belonging to CONNECT and to ensure that colleagues are better aware of the DG activities and achievements. Particular attention was given to maintain high levels of staff engagement despite the length of the confinement measures and the need to adapt to new working arrangements as a result of the COVID-19 crisis. To this end, additional internal communication offer was produced with a particular focus on the COVID-19 crisis and the upcoming move of CONNECT’s Brussels-based staff to the L-51 building.

In accordance with the Commission’s corporate policies, CONNECT adopted learning & development priorities with emphasis on the most relevant skills required by the new legislative and policy-making activities resulting from new political priorities to make *Europe fit for the Digital Age*. The annual learning and development needs analysis also integrated the new set of skills required to adapt to the new working arrangements as a result of the COVID-19 crisis, to ensure that people are properly equipped to deliver on political and operational priorities and for career development.

As regards well-being, the outcome of the 2021 staff survey reflected an overall improvement of CONNECT’s score and a recognition of efforts made in this area, within the

context of the corporate Fit@work programme. Additionally, the active diversity and inclusion network, chaired by a Director, regularly discussed topics of concern to staff and takes actions for improvement (e.g. annual diversity and inclusion days, working methods).

CONNECT carefully monitored the allocation of human resources in light of political and operational priorities, while meeting its yearly obligations in terms of resources reduction as laid down by the budgetary authority. In this important transition period to the next multiannual financial framework 2021-2027, CONNECT also closely monitored and followed-up on the resources implications stemming from the envisaged budget implementation modes as a result of the cost-benefit analysis. A staffing reinforcement request were introduced and acknowledged by the Corporate Management Board to compensate the decrease of resources on CONNECT's research budget by an equivalent increase of staffing on CONNECT's operating budget to cope with increasing workload on the policy front and on the in-house implementation activities in areas where budget increased, whilst exhausting all internal redeployment possibilities and exploring all possible internal efficiency gains.

Finally, organisation chart changes entered into effect on 1 January 2021 to better align CONNECT's organisational structure with the political priorities, taking into account the agreement on the MFF 2021-2027, including the new recovery instrument, while achieving further efficiency gains and improving the ways of working together internally. Expertise on important thematic digital topics were pooled and made available, as well as country desks who follow up on the necessary investments at national level to ensure the digital transformation and monitor the execution of the national recovery and resilience plans. In parallel, the activities and staff of the two administration and finance units in Brussels were merged.

2.2.2. Digital transformation and information management

The prolongation of the COVID-19 crisis continued to catalyse development of new teleworking practices, collaborative tools and paperless working across the world. Within CONNECT, COVID-19 also showed how important it is to ensure high quality connectivity, high-performing portable IT equipment and, last but not least, easy access to secure collaboration tools and video/web-conference systems.

Additionally, during the year, new political priorities have triggered important and unplanned digital projects:

First, and foremost, to deliver key parts of a critical policy request in a short time: the EU digital COVID certificate, which became an internationally applauded achievement.

Second, the Commission's decision to close the Beaulieu site by end-2021, as part of its new corporate building strategy required an action plan to move to the new building L-51 and to coordinate the necessary reorganisation of the records, archives and information management, notably of the physical archives and their accelerated digitalisation. In line with the principles of the Decision on Records and Archives Management and the Digital Preservation Strategy, when legally possible, CONNECT aimed at keeping records electronic

only. Further, careful attention is given to the preservation of files/records that should not be extended longer than necessary, in accordance with data protection and records management rules.

In 2021, CONNECT continued the revision of the filing plan, virtual entities and lists in ARES.

CONNECT is contributing to the implementation of the Commission's digital strategy through the delivery of a new digital solution modernisation plan and its Implementation.

During 2021, CONNECT co-chaired a working group to determine a corporate business case for stakeholder management which will deliver its conclusion in 2022. CONNECT reviewed and updated the data inventory, registering an increase of 150% in identified datasets, as this exercise now covers the entire DG. Initial steps have also been taken with central services to develop a specific training track for policy officers on how to better use data in policy making.

CONNECT has improved its capacity to serve internal data analytics needs, for example delivering a pilot for the digital compass dashboard supporting policy work in determining trajectories and its way of calculating it.

The DG contributed to corporate innovation initiatives in collaboration with the Secretary General and the DGs for Informatics, Communications, Human Resources and Security, and Interpretation in areas such as artificial intelligence, e-Participation, skills, and data for policy.

Paperless@DG_CONNECT expanded its scope to embrace collaboration with a revised blueprint to help colleagues on daily collaborative tasks. It also accompanied the M365 roll out, being part of the corporate core team. The team's work with the corporate one stop shop for collaboration ensures that CONNECT is at the forefront of expertise and corporate plans.

CONNECT is very attentive to security and especially cybersecurity for our digital information. It launched the update of its own security plan and cooperated with other services to enhance the security culture among staff with training and appropriate communication and tools.

Data Protection

The Data Protection Coordinator (DPC) Team has been working on the adoption of data protection records to cover in particular new processing activities, such as the EU Digital Covid Certificate revocation lists. The DPC Team also worked on reviewing existing records, as part of an annual exercise launched by the Data Protection Officer (DPO). Work is still on-going in this respect. Privacy statements have been improved where needed.

Focusing on awareness-raising activities, the DPC Team:

- gave several trainings, including a specific training on data protection in the field of management of experts, and additional general trainings on data protection.

- launched a new data protection corner on the DG's intranet, which is regularly updated and contains basic information on data protection and all the documents prepared by the DPC.
- prepared documentation for use by all CONNECT staff, including guidance on external websites and communities and guidance on the organisation of meetings, events, expert group meetings and comitology meetings.

The DPC Team also handled all kinds of consultations and is monitoring specific files.

The DPC Team has also taken part in various working-groups at the DPC network level, such as the working group on data subject rights.

2.2.3. Sound environmental management

CONNECT implemented several initiatives contributing to the Commission objective of reducing the environmental footprint and to become climate neutral by 2030, namely in the fields of energy, water, paper consumption, waste management and reduction of CO₂ emissions:

- Participation in the end of the year energy saving campaign;
- Promotion of staff awareness about DG and EMAS green activities: knowledge sharing session with speakers from CONNECT/HR/OIL/OIB, dedicated to the latest green activities of the Commission and CONNECT, changes in mobility, etc.;
- CONNECT University Summer School dedicated to *Digital for our planet*;
- Organisation of three thematic discussions with the DG group of volunteers;
- Communication of environmental content via the Green@CONNECT intranet space (12 blogposts with environmental content; information on important events and links to documents related to the Green Deal and corporate EMAS activities) and through the CONNECT Newsletter and the Diversity & Inclusion network;
- Consultation and dissemination of the draft 'Greening the Commission communication'.