

2020

Annual report on EU Joint Undertakings for the financial year 2020



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OF AUDITORS

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Acronyms

The list of acronyms includes the EU Joint Undertakings and other Union bodies covered by this report.

Acronym	Full name
ABAC	The Commission's central financial information system on Accrual Based Accounting
ARES	The Commission's central document management system
ARTEMIS	The ARTEMIS Joint Undertaking to implement the Joint Technology Initiative in Embedded Computing Systems
BBI	The Bio-based Industries Joint Undertaking
BCP	Business Continuity Plan
CAS	Common Audit Service of the Commission's DG RTD
CEF	Connecting Europe Facility
CFS	Certificate on Financial Statement
COMPASS	The Commission's central eGrants solution for grant management
COSO	The Committee of Sponsoring Organizations of the Treadway Commission
CS	The Clean Sky Joint Undertaking
GB	Governing Board
DG RTD	Directorate General for Research and Innovation
DRP	Disaster Recovery Plan
EA	Executive Agency
EASA	The European Union Aviation Safety Agency
ECSEL	The Electronic Components and Systems Joint Undertaking
ENIAC	The European Nano-electronic Initiative Advisory Council

Acronym	Full name
EIT	The European Institute of Innovation and Technology
EU	European Union
EUAN	European Union Agencies' Network
EURATOM	European Atomic Energy Community
EuroHPC	The European High-Performance Computing Joint Undertaking
EVM	Earned value management
FP7	Seventh Framework Programme for Research and Technological Development (2007-2013)
F4E	The Fusion for Energy Joint Undertaking
FCH	The Fuel Cells and Hydrogen Joint Undertaking
H2020	Horizon 2020 Framework Programme for Research and Innovation (2014-2020)
ICF	Commission's Internal Control Framework 2017
ICT	Information and Communication Technology
IFAC	International Federation of Accountants
IKAA	In-kind contributions to Additional Activities
IKOP	In-kind contributions to Operational Activities
IMI	The Innovative Medicines Initiative Joint Undertaking
INTOSAI	International Organization of Supreme Audit Institutions
ISAs	The International Standards on Auditing of IFAC
ISSAIs	The International Standards of Supreme Audit Institutions of INTOSAI
ITER	International Thermonuclear Experimental Reactor
ITER-IO	ITER International Fusion Energy Organisation

Acronym	Full name
JU	Joint Undertaking
MFF	Multiannual financial framework
MUS	Monetary Unit Sampling
NFA	National funding authority
OLAF	European Anti-Fraud Office
PMO	Office for Administration and Payment of individual entitlements
RAO	Responsible Authorising Officer
S2R	The Shift2Rail (European Rail Initiative) Joint Undertaking
SBA	Single Basic Act establishing Joint Undertakings under the Horizon Europe programme
SESAR	The Single European Sky Air Traffic Management Research Joint Undertaking
SNE	Seconded National Expert
TEN-T	Trans European Transport Network programme
TFEU	Treaty on the Functioning of the European Union
TRL	Technology Readiness Level



Chapter 1

The EU Joint Undertakings and the ECA's audit

Introduction

1.1. The European Court of Auditors (ECA) is the external auditor of the European Union's (EU) finances¹. In this capacity, we act as the independent guardian of the financial interests of the citizens of the Union, by helping to improve the EU's financial management. More information on our work can be found in our activity reports, our annual reports on the implementation of the EU budget, our special reports, our reviews and our opinions on new or updated EU laws or other decisions with financial management implications.

1.2. Within this mandate, we carry out an examination of the annual accounts and the underlying transactions, for EU Joint Undertakings (collectively referred to as 'Joint Undertakings' or 'JUs'), which are public-private partnership bodies set up in accordance with Article 187 of the Treaty on the Functioning of the European Union (TFEU) and, in the case of the Fusion for Energy JU (F4E), Articles 45 to 51 of the Treaty establishing the European Atomic Energy Community (Euratom Treaty).

1.3. This report presents the results of our audit of the JUs for the financial year 2020. The report is structured as follows:

- Chapter 1 describes the JUs and the nature of our audit,
- Chapter 2 presents the overall results of the audit,
- Chapter 3 contains the statement of assurance for each of the nine JUs, together with our opinions and observations on, firstly, the reliability of their annual accounts and, secondly, the legality and regularity of the underlying transactions, together with all matters and observations not calling into question these opinions.

1.4. Overall, our audit of the JUs for the financial year ended 31 December 2020 confirmed the positive results reported in previous years. Through the statements of assurance issued for each JU, we provided:

- Unqualified (clean) audit opinions on the reliability of accounts for all nine JUs; and

¹ Articles 285 to 287 of the Treaty on the Functioning of the European Union (TFEU), OJ C 326, 26.10.2012, pp. 169-171.

- Unqualified (clean) audit opinions on the legality and regularity of the transactions underlying the accounts for all nine JUs.

1.5. Nevertheless, we addressed areas for improvement through other matter paragraphs and through the observations not calling the audit opinions into question.

The EU Joint Undertakings

Public-private partnerships as a powerful tool to boost research and innovation in Europe

1.6. JUs are partnerships between the Commission and industry, and in some cases also research or intergovernmental organisations, established under Article 187 of the TFEU or, in the case of the F4E JU, Articles 45 to 51 of the Euratom Treaty, for the purpose of supporting market-driven projects in strategic areas of research and innovation. *Figure 1.1* illustrates the nine JUs with the specific research and innovation area in which each of the nine JUs operates.

Figure 1.1 – The EU Joint Undertakings



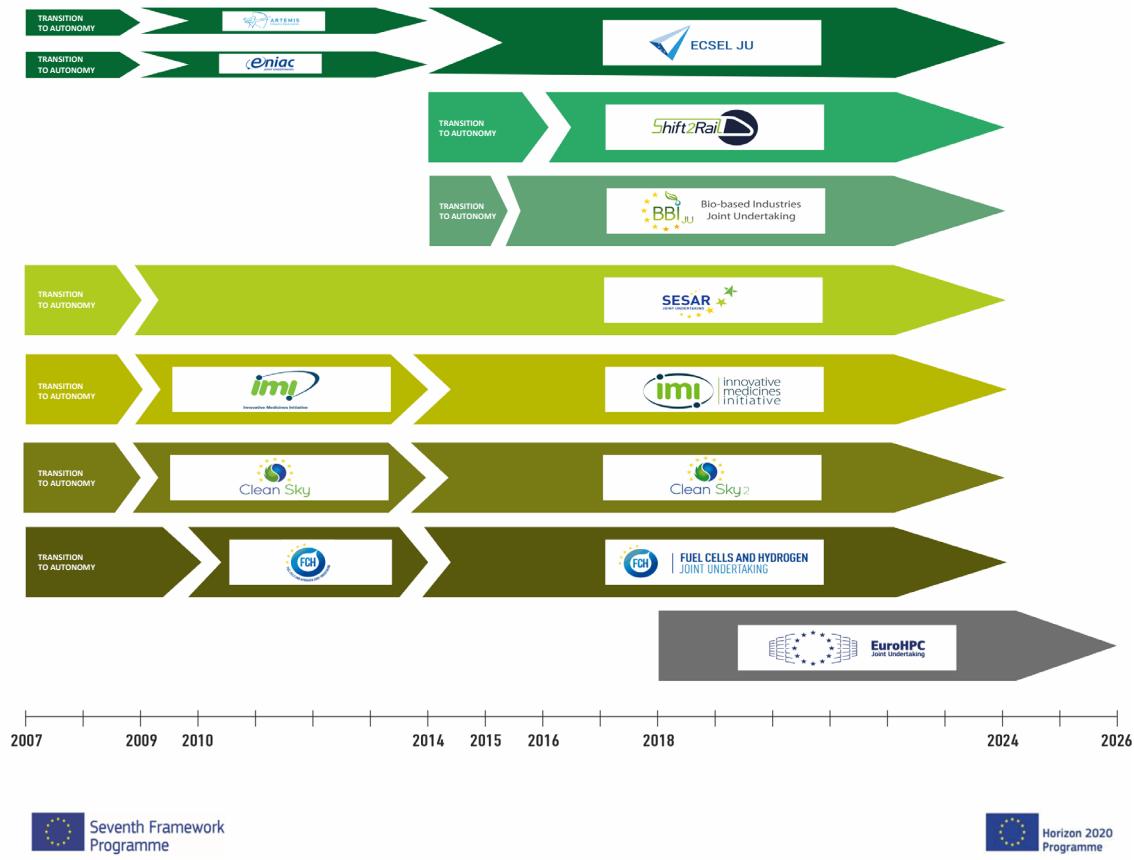
Source: ECA.

1.7. Having distinct legal personalities, JUs adopt their own research agenda and award funding, mainly through calls for proposals. An exception to this is F4E, the JU responsible for providing the EU's contribution to the International Thermonuclear Experimental Reactor (ITER) project, and the European High-Performance Computing JU (EuroHPC) that mainly launches procurements for the acquisition and maintenance of European supercomputers.

1.8. Under the Seventh Framework Programme for Research and Technological Development (FP7), based on a proposal of the Commission, the Council adopted regulations setting up the first six JUs: Single European Sky Air Traffic Management Research (SESAR), Clean Sky (CS), Innovative Medicines Initiative (IMI), Fuel Cells and Hydrogen (FCH), Nanoelectronics (ENIAC) and Embedded Systems (ARTEMIS).

1.9. All JUs set up under FP7 were extended in 2014 under the Horizon 2020 programme (H2020) for an additional period of 10 years (i.e. until 2024 and the EU's overall financial contribution to the JUs doubled. In addition, two new JUs were created — Bio-based Industries (BBI) and Shift2Rail (S2R) — while ARTEMIS and ENIAC were merged into one JU, the Electronic Components and Systems for European Leadership (ECSEL) (see *Figure 1.2*).

Figure 1.2 – Evolution of European Joint Undertakings



Source: EC based on the Council regulations establishing the JUs, modified by ECA.

1.10. The individual JUs differ in terms of their research and innovation areas, objectives, and funding. *Table 1.1* provides an overview of the nine existing JUs.

Table 1.1 – Overview of the EU Joint Undertakings

Joint Undertaking		Research area	Year of autonomy	Final Budget 2020 (in million EUR)	Total staff end 2020 (TA, CA, SNE)	Reserach framework programme with payments in 2020	Partner DG
SESAR	Single European Sky Air Traffic Management Research JU	Air traffic managment	2007	119.5	42	H2020, CEF	DG MOVE
Clean Sky	Clean Sky JU	Green aircraft	2006	356.6	44	H2020	DG RTD
IMI	Innovative Medicines Initiative	Innovative medicines	2009	241.6	56	FP7, H2020	DG RTD
FCH	Fuel Cells and Hydrogen JU	Fuel cells and hydrogen	2010	103.8	29	FP7, H2020	DG RTD
ECSEL	Electronic Components and Systems for European Leadership JU	Electronic components and systems	2014	215.8	31	FP7, H2020	DG CONNECT
BBI	Bio-Based Industries JU	Bio-based Industries	2015	196.6	23	H2020	DG RTD
S2R	Shift2Rail Innovative Rail Product Solutions JU	European railway traffic	2016	75.8	24	H2020	DG MOVE
EuroHPC	European High-Performance Computing JU	Development of supercomputers and big data processing	2020	181.5	15	H2020, CEF	DG CONNECT
F4E	Fusion for Energy (ITER)	Development and demonstration of fusion energy	2008	816.4	453	Euratom	DG ENER

Source: ECA based on JU data.

JUs operating under H2020

1.11. These JUs implement specific parts of the H2020 research and innovation strategy in the areas of transport, energy, health, bio-based industries and electronic components and systems.

1.12. The Clean Sky JU (CS) develops new generations of greener aircraft. Its main achievements so far include the Open Rotor demonstrator, laminar wings, innovative rotor blades and a high compression engine for light helicopters, innovative ice detector sensors and advanced avionics systems.

1.13. The Innovative Medicines Initiative JU (IMI) is speeding up the development of innovative medicines, particularly in areas where there is an unmet medical or social need. Its main achievements so far include a pan-European network of hundreds of hospitals and laboratories to advance antibiotic development, tests to improve medicines safety, a new approach to clinical trials for dementia treatments, and a greater understanding of the underlying causes of diseases such as diabetes, rheumatoid arthritis, severe asthma, and the development of therapeutics and diagnostics combatting coronavirus infections.

1.14. The Shift2Rail JU (S2R) pursues innovation on railways in support of the achievement of the Single European Railway Area. Its main objectives include cutting the life-cycle cost of railway transport by half, doubling railway capacity and increasing reliability and punctuality by up to 50 %.

1.15. The Single European Sky Air Traffic Management Research JU (SESAR) is developing the next generation of air traffic management in accordance with the vision described in the European Air Traffic Management (ATM)Master Plan and is providing the European coordination for global interoperability by the International Civil Aviation Organisation. Its main achievements so far include the world's first flight in four dimensions (3D + time), remote tower services, free routing to reduce flight and fuel emissions, and seamless information interchange between all providers and users of ATM information.

1.16. The Fuel Cells and Hydrogen JU (FCH) develops clean solutions for transport, energy and storage. Its main achievements so far, include the deployment of fuel cell powered buses for clean public transport; the establishment of a EU value chain for fuel cell stack with improved performance and reduced costs; the development of the electrolysis technology for green hydrogen production; the development and commercialisation of micro combined heat and power (mCHP) units for the supply of residential heat and electricity; as well as improved performance and durability of materials and reduced costs for components and systems. Since 2016, FCH also promotes a “Regions initiative” with over 90 regions and cities and 55 industry partners that fosters synergies and smart specialisation efforts in Europe.

1.17. The Bio-based Industries JU (BBI) is implementing a programme of research and innovation activities in Europe that assesses the availability of renewable biological resources that can be used for the production of bio-based materials, and on that basis, BBI supports the establishment of sustainable bio-based value chains. Its main achievements so far include producing a range of innovative bio-based products.

1.18. The Electronic Components and Systems for European Leadership JU (ECSEL) is a tripartite - EU/Industry Associations/Participating States - funding programme supporting world-class electronic components and systems. ECSEL substantially contributes to shaping digital innovation by enabling smart and sustainable solutions in key sectors such as mobility, health, environment, energy and digital society. Thereby, it represents a strategic programme matching the ‘European Green Deal’ and the ‘Europe fit for the digital age’ targets while boosting the overall competitive manufacturing capability of the EU.

1.19. The European High-Performance Computing JU (EuroHPC) is a joint initiative between the EU and other European countries to develop a world-class supercomputing ecosystem in Europe. EuroHPC became autonomous on 23 September 2020 and was audited for the first time for the financial year 2020.

F4E operating under Euratom

1.20. The ITER project was officially initiated in 1988, although its conceptual and design activities had been running for several years. On 21 November 2006, the project participants formally agreed to build and operate an experimental facility to demonstrate the scientific viability of fusion as a future sustainable energy source. The ITER Agreement entered into force on 24 October 2007, at which date the ITER International Fusion Energy Organisation (ITER-IO) legally came into existence. It is hosted in Saint-Paul-lès-Durance (France), with the main fusion facilities being built at Cadarache (France).

1.21. The ITER project involves seven global partners: the EU represented by the European Atomic Energy Community (Euratom)², the United States, Russia, Japan, China, South Korea and India. The EU³ has taken the lead with a 45 % share of the construction costs. The other ITER members' share is around 9 % each (see *Figure 1.3*). This cost distribution will change in the operational phase, with the EU providing 34 % of the operating costs.

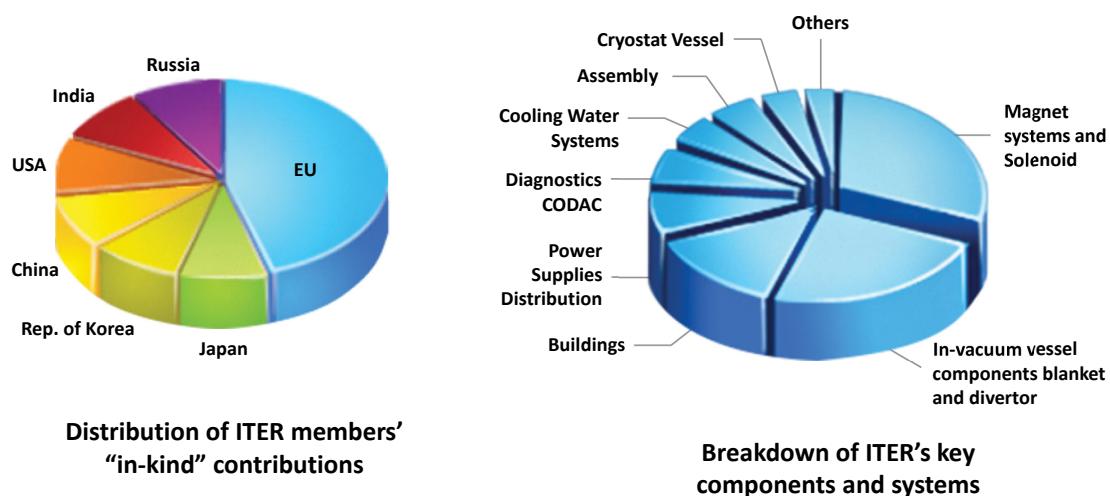
1.22. Around 90 % of members' contributions is delivered "in-kind". That means that instead of transferring money, the members deliver components, systems, and buildings directly to the ITER-IO. ITER's construction involves over 10 million components and systems. The distribution of in-kind fabrication tasks was based both on the interests and the technical and industrial capacities of each of the members. The fabrication of key components (see *Figure 1.3*) is shared broadly. For example, the fabrication of the vacuum vessel sectors is shared between the EU (five sectors) and Korea (four sectors); the central solenoid is a collaboration between the United States and Japan; divertor manufacturing and testing is divided between the EU, Russia and Japan; India and the United States share responsibility for the cryostat vessel and cooling water systems; the blanket system will be produced by China, the EU, Korea,

² The members of Euratom are the EU Member States and the associated states Switzerland and the United Kingdom (UK).

³ The EU Member States and its associated states Switzerland and UK.

Russia and the United States; and finally, all members except India are involved in the production of ITER magnets.

Figure 1.3 – ITER members' contributions



Source: ECA based on information from ITER-IO and F4E.

1.23. About 75 % of this investment is spent on the creation of new knowledge and cutting-edge materials and technology. This offers European high-tech industries and SMEs a valuable opportunity to innovate and to develop 'spin-off' products for exploitation outside fusion, such as the broader energy sector, aviation and hi-tech instruments like nuclear magnetic resonance (NMR) scanners.

1.24. The European JU for ITER and the Development of Fusion Energy (F4E) was set up in April 2007 for a period of 35 years, as the Domestic Agency in charge of the European contribution to the ITER project. Its main tasks are to manage Euratom's contribution to the ITER-IO, which is in charge of implementing the ITER project, and to ensure the Broader Approach activities with Japan for the rapid realisation of fusion energy. It coordinates activities and performs the necessary procurements, in preparation for the construction of a demonstration fusion reactor and related facilities, including the International Fusion Materials Irradiation Facility.

1.25. F4E is mainly financed by Euratom (around 80 %) and by the ITER host Member State, France (around 20 %). The Commission's latest estimate (2018) regarding the total Euratom budget needed for F4E to finance the European part of the implementation of the ITER project, amounts to some €15 billion (in current values), including the cost of running the nuclear operation from 2028 to 2035⁴. The host

⁴ Estimates are based on the Council Decisions 2013/791/Euratom and (Euratom) 2021/281, amending the Council Decision 2007/198/Euratom establishing the European Joint

Member State (France) and the Euratom Member States (including the associated states Switzerland and UK), are to contribute an additional €3.3 billion (in current values).

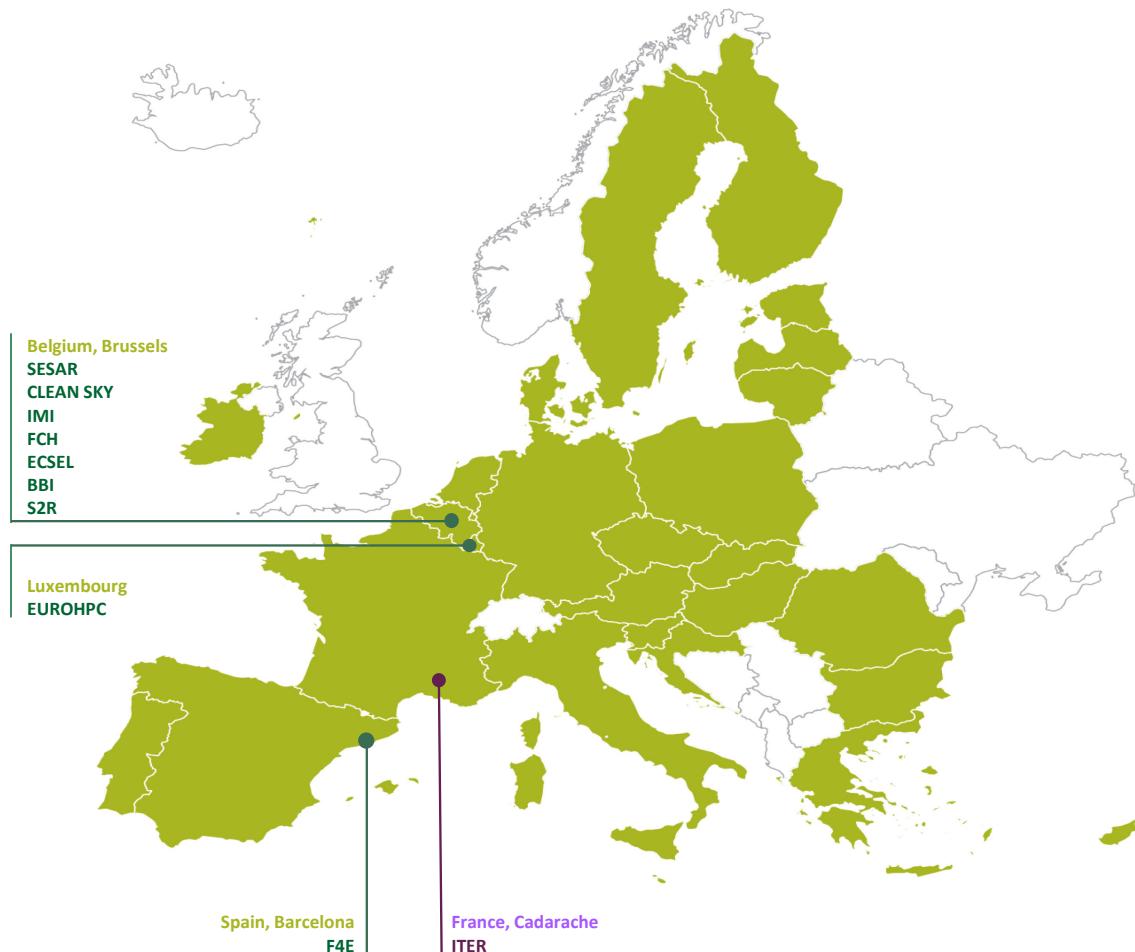
1.26. On 31 January 2020, the UK withdrew from the EU and Euratom. The transition period under the Brexit Withdrawal Agreement for negotiating a new partnership agreement with Euratom ended on 31 December 2020. The UK will become an associate member state of Euratom, under equivalent conditions as full member states, pending the ratification of the protocol on the UK's association to EU programmes attached to the UK-EU Trade and Cooperation Agreement. In February 2021, the EU Council approved about €5.6 billion (in current value) as Euratom's contribution to F4E for the MFF 2021 to 2027.

JUs are located in the European Union

1.27. Seven JUs are located in Brussels (SESAR, CS, IMI, FCH, ECSEL, BBI and S2R). EuroHPC is located in Luxembourg and F4E is located in Barcelona, Spain (see *Figure 1.4*).

Undertaking for ITER and the Development of Fusion Energy for the period 2007 to 2027; and on the Council conclusion 7881/2018 and related Commission staff working paper for the nuclear operation period running from 2028 to 2035.

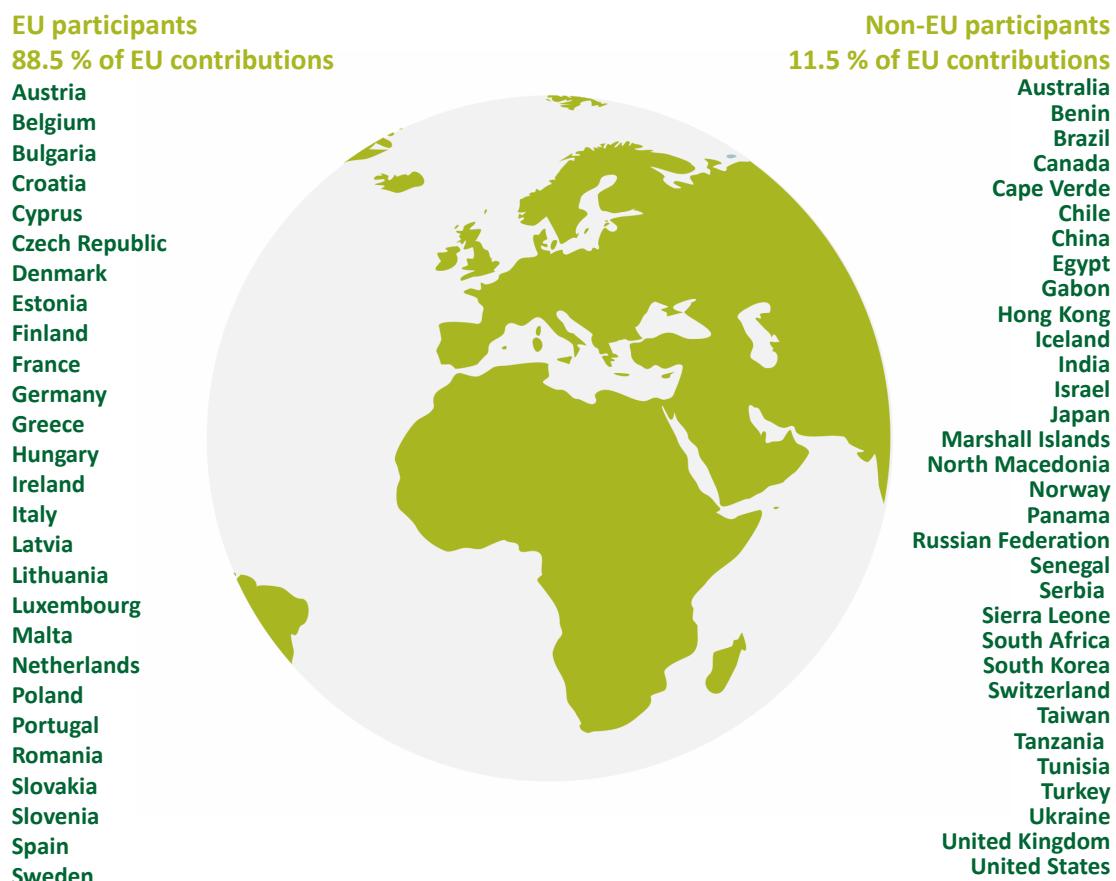
Figure 1.4 – Joint Undertakings in the European Union in 2020



Source: ECA.

1.28. For the implementation of its research and innovation activities, the JUs bring together industry and research participants across the world. Around 88.5 % of their funds is used for co-financing activities of participants from EU Member States and around 11.5 % for co-financing activities of participants from non-EU countries (see [Figure 1.5](#)).

Figure 1.5 – JUs' participants come from across the world



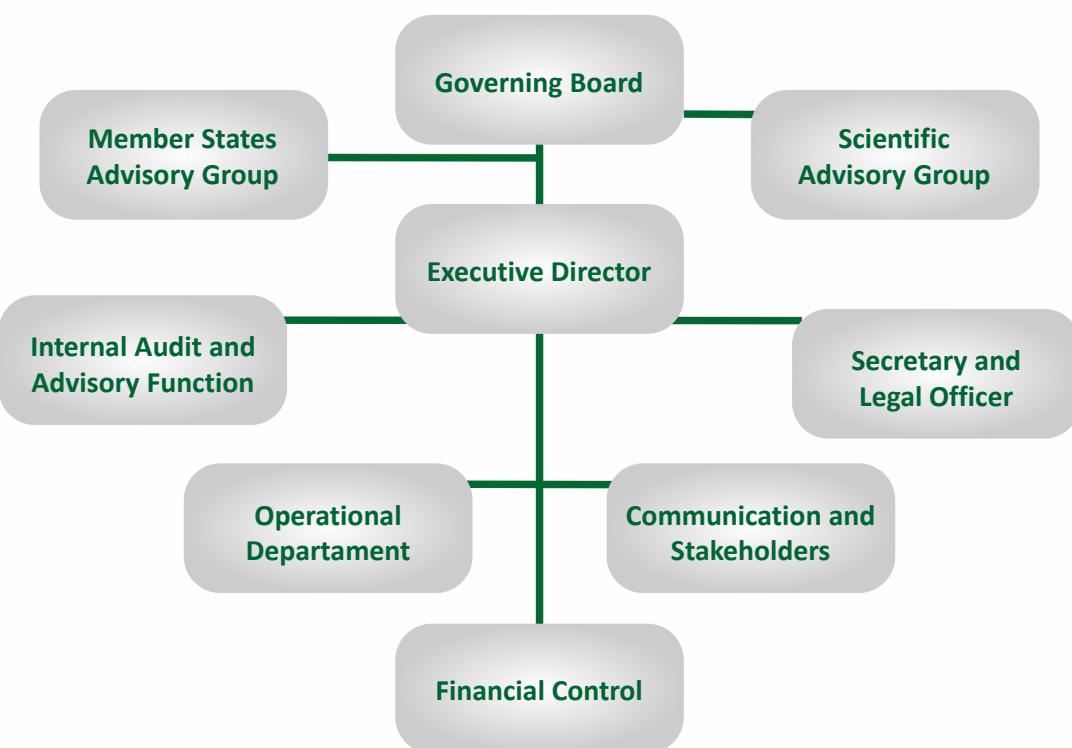
Source: ECA based on CORDA data.

JUs operating under FP7 and H2020 follow bipartite or tripartite governance models

1.29. Building upon the same legal structure, each JU has specific characteristics to deal with innovation and research in different sectors that are built around different markets. Most follow a bipartite model, with the Commission and the private partners from industry (in some cases also research) represented in the governing board and contributing to the JU's activities (CS, IMI, FCH, BBI and S2R). The remainder follows a tripartite model in which the Participating States or intergovernmental organisations, the Commission and in most cases private partners participate in the governing board and contribute to the JU's activities (ECSEL, SESAR, and EuroHPC).

1.30. *Figure 1.6* presents the general governance structure of the JUs.

Figure 1.6 – General governance structure of the JUs



Source: ECA.

JUs' FP7 and H2020 research and innovation activities are financed together by all members

1.31. All members contribute to the funding of the JUs' research and innovation activities. On the one hand, the Commission provides cash funds from FP7 and H2020 for the EU co-financing of the JUs' research and innovation projects. SESAR also received funding from the Trans-European Transport Network (TEN-T) programme⁵ under the previous Multiannual Financial Framework (MFF 2007-2013). SESAR and EuroHPC receive additional funding from the Connecting Europe Facility (CEF)⁶ under the current MFF 2014-2020. On the other hand, private partners from industry and research provide in-kind contributions by implementing the JU's research and innovation activities in which they invest their own financial resources, human

⁵ €350 million.

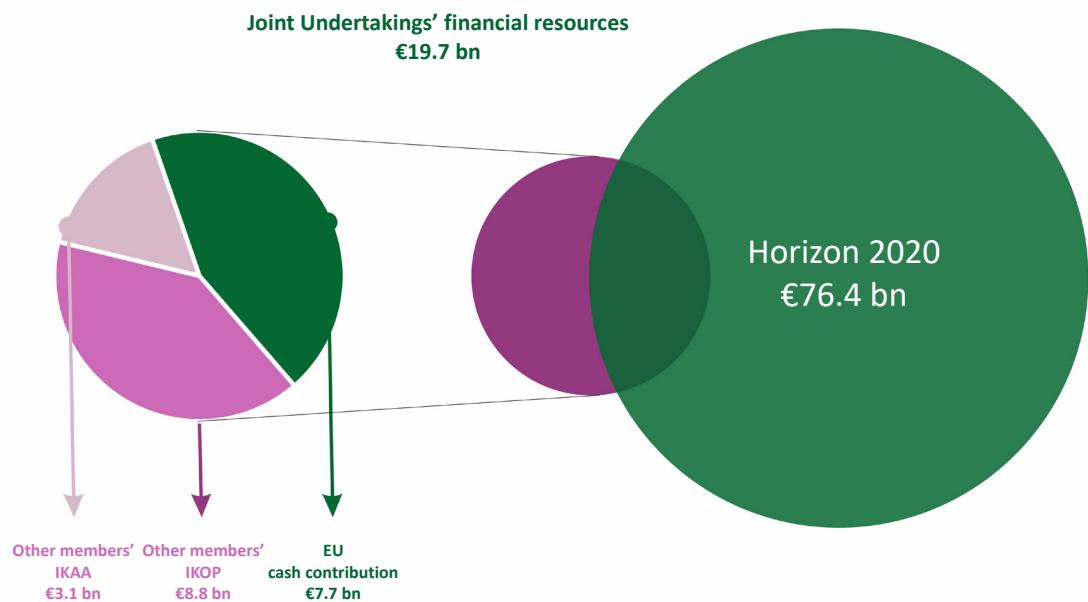
⁶ SESAR: €10 million; EuroHPC: €100 million.

resources, assets and technologies. In some cases, Participating States or intergovernmental organisations also contribute financially to the JU's activities. Both the EU and its partners provide cash contributions to finance the JUs' administrative costs.

1.32. Concerning MFF 2007-2013, JUs implement around €3.6 billion or about 7 % of the global FP7 budget. As the amount of private partners' in-kind contributions has to at least equal the amount of EU co-financing, the EU funding of €3.6 billion leverages about €8.7 billion of FP7 research and innovation projects.

1.33. For the current MFF 2014-2020, JUs manage around €7.7 billion or 10 % of the global H2020 budget. As illustrated in *Figure 1.7*, this EU funding, however, is expected to leverage about €19.7 billion of research and innovation projects in the H2020 areas assigned to JUs, including the direct Participating States' contributions to ECSEL and EuroHPC.

Figure 1.7 – EU cash contributions to JUs and leverage of other members' contributions under H2020



Source: ECA.

1.34. For H2020, the respective JU founding regulations define the maximum amount of the EU cash contribution and the minimum amount of private members' and other partners' in-kind and/or cash contributions⁷ for the H2020 research and innovation agenda of the JU (see *Figure 1.8*).

Figure 1.8 – Members' contributions over JU's lifetime (in million euros)



Source: ECA.

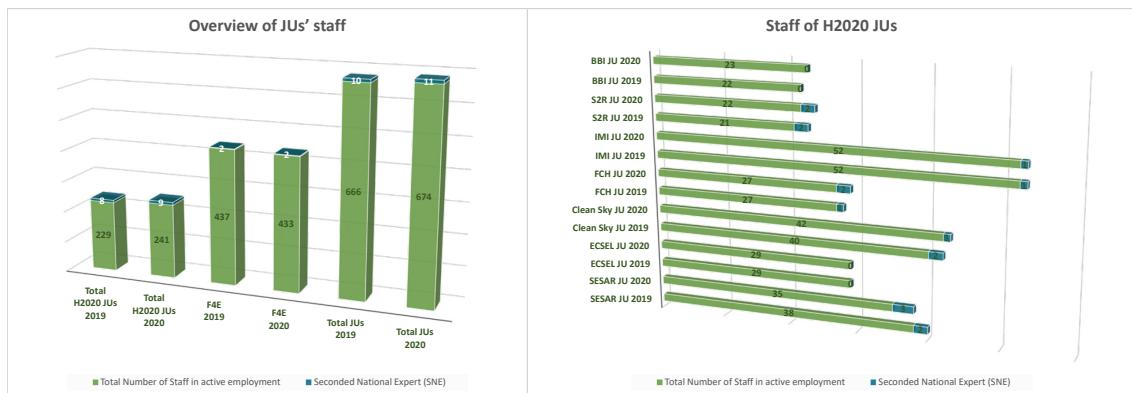
1.35. Under H2020, there are two types of private members' contributions: "in-kind contributions to operational activities" (IKOP) and "in-kind contributions to additional activities" (IKAA). For more detailed information see *Box 2.1*.

1.36. In 2020, the total payments budget for all JUs amounted to €2.3 billion (2019: €1.9 billion). The 2020 payments budget for the eight JUs implementing research and innovation activities was €1.5 billion (2019: €1.2 billion), and €0.8 billion for F4E (2019: €0.7 billion).

1.37. At the end of 2020, JUs operating under H2020 employed 241 staff (temporary and contract agents) and nine seconded national experts, SNEs (2019: 229 staff and eight SNEs). F4E employed 433 staff (officials, temporary and contract agents) and two SNEs (2019: 437 staff and two SNEs). The number of filled staff posts at the end of 2019 and 2020 is illustrated in *Figure 1.9*.

⁷ In the case of SESAR, the contributions of the private partners and of Eurocontrol are defined in separate agreements.

Figure 1.9 – Number of filled staff posts at the end of 2019 and 2020

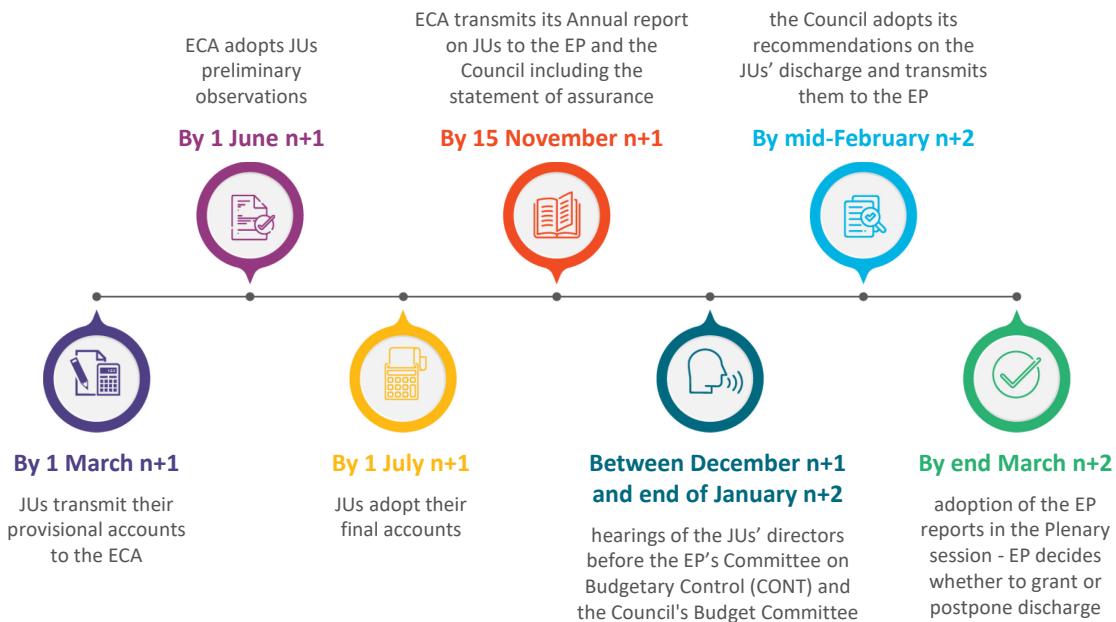


Source: ECA based on JUs' data.

Budgetary and discharge arrangements are harmonized for all JUs

1.38. The European Parliament and the Council are responsible for the annual budgetary and discharge procedures for the JUs. The timeline of the discharge procedure is shown in *Figure 1.10*.

Figure 1.10 – Annual discharge procedure



Source: ECA.

Our audit

Our mandate covers the audit of the JUs' annual accounts and underlying transactions

1.39. As required by Article 287 of the TFEU, we have audited:

- (a) the annual accounts of all nine JUs for the financial year ended 31 December 2020; and
- (b) the legality and regularity of the transactions underlying those accounts.

1.40. Based on the results of our audit, we provide the European Parliament and the Council with one statement of assurance per JU on the reliability of the JUs' accounts and the legality and regularity of the underlying transactions. Where appropriate, we supplement the statements of assurance with significant audit observations (see *Chapter 3*).

1.41. In line with Articles 70 (6) and 71 of the EU financial regulation, the audit of the reliability of the accounts for all JUs is outsourced to independent external audit firms. In accordance with the International Auditing Standards, we reviewed the quality of the work done by these external audit firms and obtained sufficient assurance that we could rely on their work in formulating our audit opinions on the reliability of the JUs' 2020 annual accounts.

Our audit identifies and addresses the key risks

1.42. Our audits are designed to address the key risks identified. The 2020 annual audit of the JUs' annual accounts and underlying transactions was carried out taking into account our risk assessment for 2020, which is briefly presented below.

Risk to the reliability of accounts is low to medium

1.43. Overall, we considered the risk to the reliability of the annual accounts to be low. The JUs' accounts are established by applying the accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted

accounting standards for the public sector. We noted delays (BBI) and weaknesses (ECSEL, EuroHPC) in the procedure for reporting in-kind contributions.

Risk to the legality and regularity of revenue is low overall

1.44. The JUs' revenue in 2019 mainly consisted of financial contributions from the Commission's H2020 and Euratom budgets. As laid down in the JU regulations, budgets and resulting revenues are agreed with the budgetary authorities during the annual budget process.

Risk to the legality and regularity of staff and administrative payments is low overall

1.45. The risk related to the legality and regularity of payments was considered as low for staff and administrative payments, as it mainly consists of routine payments. Moreover, salaries are administered by the Commission's Office for the Administration and Payment of Individual Entitlements (PMO), which we audit within the framework of specific assessments of administrative expenditure. We have found no material errors in relation to staff expenditure in recent years. The risk to the legality and regularity of recruitment procedures was low in general, but raised to medium for JUs recruiting a higher number of staff during their first years in operation (EuroHPC), and where weaknesses in recruiting procedures were found in the past (F4E).

Risk to the legality and regularity of operational payments is medium overall

1.46. For interim and final grant payments, the risk was assessed to be medium, as they are based on beneficiaries' cost declarations that are generally complex. Moreover, for H2020 grant payments, certificates on financial statements (CFS)⁸ are only required from the beneficiary for final payments (trust principle). As regards grant

⁸ The CFS is a factual report produced by an independent auditor or Public Officer. Its purpose is to enable the Commission or grant awarding EU body to check whether costs declared in the financial statements are eligible. Under Horizon 2020, a separate CFS must be submitted for each beneficiary (and linked third party) that requests total of €325 000 or more as reimbursement of direct actual costs and unit costs. Horizon 2020 foresees in principle, a single CFS per beneficiary for the whole project, to be submitted at the end of the project, with the final report.

award procedures, the risk is generally low. However, the risk was considered medium for EuroHPC, which only established its grant award process in 2019.

1.47. For contract payments and public procurement procedures, the risk was assessed as low for those JUs implementing FP7 and H2020 activities, given the limited number of such procedures run by them. The risk was raised to medium for F4E, due to complex procurement procedures for high value contracts, and for EuroHPC, which only established the procurement process in 2019.

Risk to budget management is low to medium

1.48. The risk was considered as low to medium because of weaknesses observed in the budget planning and monitoring linked either to the complexity and multiannual nature of contracts (F4E, EuroHPC) and H2020 grant actions, or to the fact that H2020 JUs are not fully considering the accumulated unused payment appropriations from previous years, when defining the budget need of the year (SESAR, ECSEL, and IMI).

Risk to sound financial management (SFM) is low to medium

1.49. Although the assessment of SFM is not an explicit audit objective, we observed SFM-related issues during previous audits in the areas of grant design and the F4E's human resources and project management.

Other risks

1.50. The travel restrictions arising from the COVID-19 pandemic prevented us from carrying out on-the-spot checks, interviewing auditees' staff in person, and considerably complicated obtaining original documents. These activities were replaced with desk reviews and remote interviews of auditees. Although the absence of physical checks may increase the detection risk, nevertheless, we obtained sufficient audit evidence from our auditees to complete our work and conclude on it.

Our audit approach for grant payments

1.51. In 2018 and 2019, the ECA reviewed on a sample basis the *ex post* audits carried out by the Common Audit Service of the Commission's DG RTD (CAS) and its contracted external auditors. As reported in the respective chapter of the ECA annual

report 2018, 2019, and 2020⁹, these reviews revealed persisting audit quality weaknesses and methodological differences, understating the error rate for H2020 payments. Moreover, the residual error rate reported by the H2020 JUs in their respective annual activity reports is not directly comparable with the error rate published in the 2020 ECA annual report on the Commission's research expenditure¹⁰.

1.52. Therefore, for the audit of grant payments by the JUs we supplemented the assurance sought from *ex post* audits with a detailed audit at the beneficiaries (direct substantive testing) for a sample of JU grant payment transactions. These transactions were randomly selected (MUS-based sample) from a population of all interim and final grant payments made in 2020 by the seven JUs implementing FP7 and H2020 projects¹¹.

1.53. For each JU, we based our opinion on the legality and regularity of the underlying payments on separate assessments of the following quantitative elements:

- (a) the JU's individual representative and residual error rate based on the Commission's *ex post* audit results for their grant payments. This included an assessment of the correctness and completeness of the representative and residual error rate calculations;
- (b) the error rate based on the results of our substantive testing; and
- (c) the error rate related to the transactions of a specific JU within our substantive testing.

⁹ See ECA annual report 2018, Chapter 5 (paragraphs 5.31 – 5.34), ECA annual report 2019, Chapter 4 (paragraphs 4.28 and 4.29) and ECA annual report 2020, Chapter 4 (paragraphs 4.23 – 4.30), which reported that in contrast to the ECA calculation method, the CAS representative error percentage for each audited H2020 transaction is calculated based on the total amount of the cost declaration, rather than on the amount of the cost items sampled for detailed audits and reperformances.

¹⁰ In contrast to the error rate calculated by the ECA, the residual error rate calculated by the JUs (based on the *ex post* audit results and in line with the CAS' H2020 *ex post* audit strategy formula), includes the correction of all errors detected in audited payments, as well as the correction of systemic errors in the non-audited payments of audited beneficiaries (so-called "extension").

¹¹ EuroHPC was excluded as in 2020 it has only made pre-financing payments for its grant agreements.



Chapter 2

Overview of audit results

Introduction

2.1. This chapter presents an overview of the results of our annual financial and compliance audit of the JUs for the financial year 2020, as well as observations related to horizontal management issues arising in the course of the audit.

Statements of assurance (audit opinions) on the reliability of the JUs' annual accounts and the legality and regularity of the transactions underlying these accounts, as well as all matters and observations not calling into question these opinions, are provided in Chapter 3 of this report.

The 2020 annual audit resulted in clean audit opinions for all Joint Undertakings

2.2. Overall, our audit of the annual accounts of the JUs for the financial year ended 31 December 2020 and the transactions underlying these accounts recorded positive results, in line with previous years.

“Clean” opinions on the reliability of the accounts for all JUs

2.3. We issued unqualified (“clean”) audit opinions on the annual accounts of all JUs. In our opinion, these accounts present fairly, in all material respects, the JUs’ financial positions as of 31 December 2020 and the results of their operations and their cash flows for the year then ended, in accordance with the provisions of the applicable financial regulations and the accounting rules adopted by the Commission’s Accounting Officer.

Emphasis of matter relating to the EU contribution to ITER

2.4. Compared to the 2019 annual accounts, which presented the costs to complete estimate in ITER credits only, F4E considerably improved the information quality in the 2020 annual accounts, in providing an estimate of the total costs of completing its delivery obligations for the ITER project which it assessed at €17,97 billion (in 2020 values). Our “emphasis of matter” paragraph draws attention to the fact that any changes in key assumptions concerning the estimate and the risk exposure¹² could lead to significant cost increases and/or further delays in the implementation of the ITER project¹³.

¹² The Risk Exposure is the estimated impact value of the risk(s), multiplied by the probability of the risk(s) associated to a given activity.

¹³ An emphasis of matter is used to draw attention to a matter, which is not materially misstated in the accounts, but is of such importance that it is fundamental to the users’ understanding of the accounts.

“Clean” opinions on the legality and regularity of the revenue underlying all JU accounts

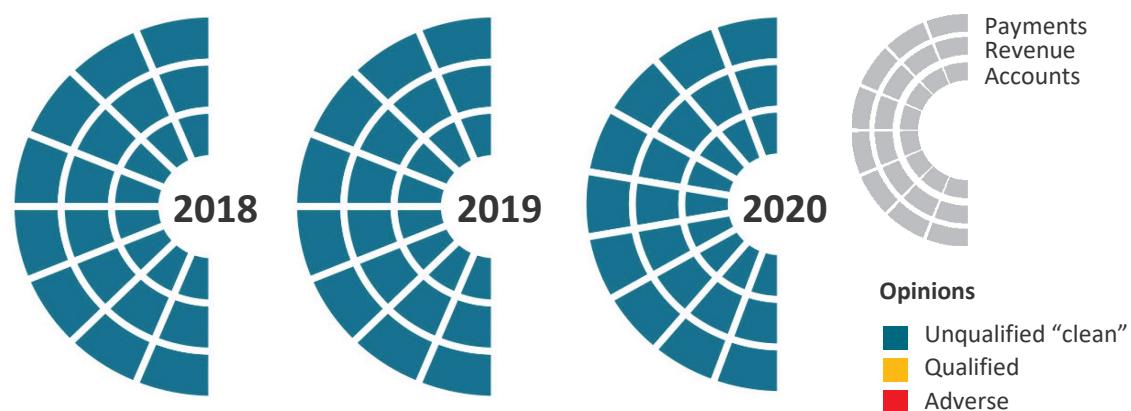
2.5. For all JUs, we issued *unqualified (“clean”) audit opinions* on the legality and regularity of the revenue underlying the annual accounts for the year ended 31 December 2020. In our opinion, transactions were legal and regular in all material respects.

“Clean” opinions on the legality and regularity of the payments underlying all JU accounts

2.6. For all JUs, we issued *unqualified (“clean”) audit opinions* on the legality and regularity of the payments underlying the annual accounts for the year ended 31 December 2020. In our opinion, transactions were legal and regular in all material respects.

2.7. *Figure 2.1* gives an overview of the evolution of our annual audit opinions on the JUs’ annual accounts, revenue and payments from 2018 to 2020.

Figure 2.1 – Evolution of ECA’s opinions on JUs from 2018 to 2020



Source: ECA.

Our observations address several areas for improvement

2.8. Without calling our opinions into question, we made various observations to highlight matters for improvement in the areas of budgetary and financial management, in-kind contributions, the internal control and monitoring framework for grant payments, human resources, public procurement procedures, and sound financial management. These observations, which are detailed in Chapter 3, and some horizontal management issues, are summarised below.

Recurrent weaknesses in the annual planning of payments

2.9. In the case of EuroHPC, significantly less pre-financing payments than planned were made for contracts related to the acquisition of supercomputers and grant agreements, which resulted in a low implementation rate of around 23 % for the operational payment budget.

2.10. In 2020, ECSEL reactivated €57.2 million of unused payment appropriations in the operational budget for H2020 activities. However, the JU could only use 70 % of it before using the appropriations of the year. Similarly, CS did not use the reactivated operational payment budget for H2020 projects of around €13 million before using the payment appropriations of the year.

Action 1

In accordance with financial rules, the JUs should use the reactivated payment appropriations of previous years before using the new payment appropriations of the year.

JUs' H2020 implementation rate and the level of private members' contributions could be improved

Although JUs almost fully implemented their FP7 and TEN-T activities...

2.11. The JUs implementing activities under the FP7 and TEN-T programmes (MFF 2007-2013) are SESAR, CS, IMI, FCH, and ECSEL. In 2020, three JUs (IMI, FCH and ECSEL)

had yet to close the implementation phase of their respective FP7 actions. In 2020, SESAR reimbursed to members, the excess cash contributions received for the FP7 and TEN-T projects.

2.12. *Table 2.1* presents an overview of the members' contributions to the FP7 activities of these JUs at the end of 2020. On average, these contributions achieved 91 % of the targets set by the JUs' founding regulations for the total FP7 programme period.

Table 2.1 – FP7 and TEN-T Members' contributions (in million euros)

Members' contributions (as per Founding Regulation)			JUs under FP7	Members' contributions (as at 31.12.2020)				Implementation rate
EU	Other members	Total		EU	Other members	Total		
700.0	1 284.3	1 984.3	SESAR 1	610.2	1 092.2	1 702.4	86 %	
800.0	600.0	1 400.0	CS 1	800.0	607.9	1 407.9	101 %	
1 000.0	1 000.0	2 000.0	IMI 1	931.1	801.7	1 732.8	87 %	
470.0	470.0	940.0	FCH 1	426.1	458.3	884.4	94 %	
2 970.0	3 354.3	6 324.3	Total	2 767.4	2 960.1	5 727.5	91 %	

Source: ECA based on JUs' data.

2.13. Contrary to the provisions of the founding regulations of ARTEMIS and ENIAC, the ECSEL JU's 2020 reports and annual account did not disclose the estimates of

- o the financial contributions of Participating States to the FP7 projects of ARTEMIS and ENIAC (of at least 1.8 times the EU's operational financial contribution), and
- o the in-kind contributions made by research and development organisations participating in FP7 projects of ARTEMIS and ENIAC (of at least the contribution amount of public members).

...some JUs face challenges in implementing H2020 activities

2.14. At the end of 2020, being year seven of their ten-year life span, JUs display varying degrees of achievement, in relation to the contribution targets set by their respective founding regulations for H2020 activities (MFF 2014-2020). These variances can be partly accounted for by the different areas of research in which the JUs

operate. For example, the IMI experiences a long project duration due to the nature of its research, and the large scale of global consortia implementing them. This situation presents the risk that the level of administrative resources needed to manage these funds in a timely manner, may not be sufficient, due to an increasing number of projects from multiple MFF programmes being implemented simultaneously. EuroHPC, for which 2020 was the second year of operation, still lacked reliable procedures for validating and certifying in-kind contributions, declared by its private members and Participating States.

2.15. *Table 2.2* presents an overview of the members' contributions to the H2020 activities of these JUs at the end of 2020. By the end of 2020, these JUs had implemented on average, 62 % of their members' contribution targets (including IKAA), and only 54 % excluding IKAA.

Table 2.2 – Horizon 2020 – Members' contributions (in million euros)

Members' contributions (as per Founding Regulation and legal decisions)				JUs under Horizon 2020	Members' contributions (as at 31.12.2020)						
EU	Other members' IKOP and cash (1)	Other members' IKAA (2)	Total		EU	IKOP validated	IKOP reported not validated	IKAA	Total	Implementation rate with IKAA	Implementation rate without IKAA
585.0	1 000.0	N/A	1 585.0	SESTAR 2020	441.6	358.3	93.2	N/A	893.1	56 %	56 %
1 755.0	1 228.5	965.3	3 948.8	CS2	1 451.0	604.4	136.3	1 144.2	3 335.9	84 %	73 %
1 638.0	1 638.0	N/A	3 276.0	IMI2	643.2	380.0	263.0	N/A	1 286.2	39 %	39 %
665.0	95.0	285.0	1 045.0	FCH2	498.6	20.6	35.0	1 095.0	1 649.2	158 %	73 %
1 185.0	2 827.5	N/A	4 012.5	ECSEL	944.9	574.6	896.5	N/A	2 416.0	60 %	60 %
835.0	504.6	2 234.7	3 574.3	BBI	603.2	57.8	53.7	929.2	1 643.9	46 %	53 %
398.0	350.0	120.0	868.0	S2R	297.7	131.1	93.1	204.8	726.7	84 %	70 %
536.0	908.0	N/A	1 444.0	EuroHPC	190.9	28.9	0.0	N/A	219.8	15 %	15 %
7 597.0	8 551.6	3 605.0	19 753.5	Total	5 071.1	2 155.7	1 570.8	3 373.2	12 170.8	62 %	54 %

(1) In-kind contributions to the JU's operational activities

(2) In-kind contributions to additional activities outside of the JU's work plan

Source: ECA based on JUs' data.

Private members contribute significantly more to additional activities outside of the JUs' work plans

2.16. Private members have to provide different types of in-kind contributions to the JUs implementing H2020 activities. In the case of four JUs (CS, FCH, BBI, and S2R), private members must also provide during their life span, a minimum in-kind contributions in the form of additional activities performed outside the JUs' work plans, but which contribute to the JU's general objectives (see *Box 2.1*).

Box 2.1

Private members' in-kind contributions to the JUs' operational H2020 activities (for all JUs)

As provided for in all JUs' funding regulations, private members of all JUs must contribute a minimum amount to the total costs of the JUs' H2020 research and innovation projects (IKOP). IKOP is the total costs incurred by private members in implementing the JU's research and innovation actions, less the contribution of the other members of the JU (EU co-financing, contribution of participating states or intergovernmental organisations), as well as any other EU contribution to those costs. In line with Article 4(3) of the founding regulations, IKOP must be reported annually to the JU and the related cost be certified by an independent external auditor. The certified and validated IKOP are recognised in the JU's annual accounts.

Private members' in-kind contributions to additional H2020 activities (only for CS, FCH, BBI, S2R)

As provided for in Article 4(2)(b) of the respective founding regulation of these four JUs, private members must also provide a minimum amount of in-kind contributions in respect of "additional activities" outside the JUs' work plan and budget, but falling within the scope of the JUs' general objectives (IKAA). The corresponding activities should be set out in an annual additional activities plan indicating the estimated value of contributions. In line with Article 4(4) of the founding regulations, the costs of additional activities must be certified by an independent external auditor and are not subject to audit by the ECA or by any other EU body. The total amount of certified and validated IKAA is disclosed in the notes to the JU's annual accounts.

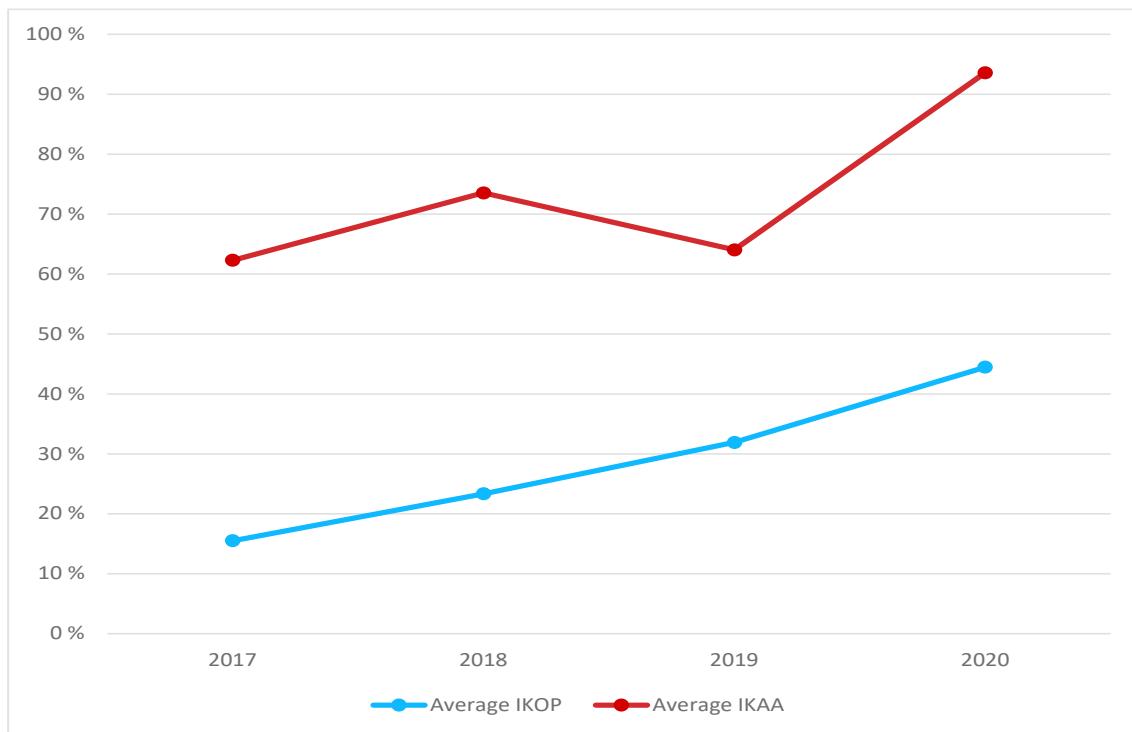
2.17. As shown in *Table 2.2*, by the end of 2020, the JUs' private members, Participating States or intergovernmental organisations had contributed €7.1 billion, or 58 %, of the agreed total contributions of around €12.2 billion. This amount comprises €3.7 billion¹⁴ of in-kind contributions to the JUs' own H2020 activities (IKOP) and €3.4 billion of the in-kind contributions to additional activities outside the JUs' work plans but within the JU's general objectives (IKAA).

2.18. *Figure 2.2* shows the development of the private members' average in-kind contributions for the period 2017 to 2020. Despite the significant increase and importance of IKAA, there is no obligation to disclose the corresponding contributions in the annual accounts, and they are therefore outside our audit scope¹⁵. Consequently, there is a risk that IKAA might not be fully aligned with the JU's objectives. Where the founding regulation does not define a minimum level for IKOP but only for IKAA (CS, FCH, and BBI), the JUs take the view that private members can fulfil their obligation for in-kind contributions with IKAA.

¹⁴ Of this amount €2.1 billion (57 %) approximately was certified at the end of 2020.

¹⁵ Article 4(4) of the respective JU founding regulations.

Figure 2.2 – Development of private members' in-kind contributions



Source: ECA based on JUs' data.

JUs encounter serious obstacles in obtaining private members' cash contributions to their operational costs

2.19. As regards BBI, however, the industry members' total IKAA, as estimated at the end of 2020, only achieved around half of the minimum target amount established in the JU's founding regulation. Furthermore, although its founding regulation was expressly amended in 2018 to enable industry members to account for their cash contributions at project level for at least €182.5 million, the industry members did not make any additional cash contributions to the JU's operational costs in 2020. This indicates that the JU encounters significant obstacles in obtaining such contributions from the private members and that the minimum target will not be achieved by the end of the Horizon 2020 programme. For this reason, the Commission (DG RTD) reduced its cash contributions to the JU by €140 million. This significant reduction in members' contributions presented a risk to the achievement of the JU's research and innovation agenda for the H2020 programme.

Approximately 77 % of the JUs' H2020 research and innovation agenda is already committed for implementation

2.20. At the end of 2020, the JUs had completed all call procedures for their respective H2020 research and innovation agenda. In respect of these calls, the other members of the JUs (private members, Participating States and other international organisations) committed to provide in-kind contributions by investing their own financial resources, human resources, assets and technologies (IKOP).

2.21. As shown in *Table 2.3*, at the end of 2020, the JUs had already awarded and/or signed grant projects achieving (on average) 88 % of the maximum cash contribution available for the co-financing of their H2020 activities. In parallel, other members committed to provide in-kind contributions to these projects for (on average) 68 % of their IKOP and operational cash contribution targets fixed in the respective JU founding regulations. This resulted in an estimated average implementation rate of 77 % of the JUs' H2020 research and innovation agenda at the end of 2020.

Table 2.3 – Horizon 2020 – Committed members' contributions at the end of 2020 (in million euros)

Members' contributions to operational costs (as per Founding Regulation and legal decisions)			JUs under Horizon 2020	Grant agreements and contracts awarded and/or signed (as at 31.12.2020)						
EU	Other members' IKOP and cash	Total		EU co-financing committed	%	Other members' IKOP and cash (estimate)	%	Total	Programme implementation rate	
555.8	950.0	1 505.8	SESAR 2020	548.2	99 %	573.7	60 %	1 121.9	75 %	
1 716.0	1 189.6	2 905.6	CS2	1 554.9	91 %	717.6	60 %	2 272.5	78 %	
1 595.4	1 595.4	3 190.8	IMI2	1 273.7	80 %	1 276.5	80 %	2 550.2	80 %	
646.0	76.0	722.0	FCH2	617.2	96 %	158.6	209 %	775.8	107 %	
1 169.7	2 787.5	3 957.2	ECSEL (1)	1 000.3	86 %	1 943.2	70 %	2 943.5	74 %	
815.8	475.3	1 291.1	BBI (2)	717.6	88 %	251.2	53 %	968.8	75 %	
384.5	336.5	721.0	S2R	379.6	99 %	354.0	105 %	733.6	102 %	
426.0	796.0	1 222.0	EuroHPC (1)	331.4	78 %	272.9	34 %	604.3	49 %	
7 309.2	8 206.3	15 515.5	Total	6 422.9	88 %	5 547.7	68 %	11 970.6	77 %	

(1) Other members' contributions include the contributions of the participating states

(2) IKOP contribution targets as agreed in the JU's annual work plans and reduced operational cash contributions.

Source: ECA based on JUs' data.

Internal controls in respect of grant payments were generally effective

Most JUs implemented the Commission's new internal control framework

2.22. The JUs have set up reliable *ex ante* control procedures based on financial and operational desk reviews. With the exception of EuroHPC, in 2020, the JUs fully implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles. These JUs developed relevant indicators for all internal control principles, performed annual self-assessments and improved the effectiveness monitoring of their control activities. The established ICF, however, is an ongoing process, whose quality depends on the continuous improvement of the JUs' key control indicators and the quality of the annual self-assessment.

Ex post audit results indicate that for most JUs the error level for grant payments is below materiality

2.23. Regarding the legality and regularity controls of JU grant payments under the FP7 programme, independent external audit firms contracted by the JUs perform *ex post* audits at beneficiaries. For JU grant payments under the H2020 programme, the Commission's Common Audit Service (CAS) is responsible for the *ex post* audits, around three quarters of which are contracted out to external audit firms. All JUs used these *ex post* audits to assess the legality and regularity of their grant payments.

2.24. In 2020, only three JUs (IMI, FCH and ECSEL) still made final FP7 grant payments. The IMI and the FCH reported residual error rates below the materiality threshold of 2 %, based on the *ex post* audit results at the end of 2020. Where ECSEL is concerned, the significant variation in the methodologies and procedures used by the Participating States' National Funding Authorities does not allow the calculation of a single residual error rate for FP7 payments. Consequently, for those payments we applied the residual error rate established by DG RTD for the whole FP7 programme, which was 3.51 % at the end of 2020. Given the low percentage of FP7 payments in 2020 (around 8.6 %), the residual error rate for ECSEL's total operational payments made in 2020, is therefore considered to be below the materiality threshold.

2.25. For H2020 grant payments, all JUs implementing H2020 projects reported a residual error rate below the materiality threshold of 2 %, based on the CAS *ex post* audit results at the end of 2020.

Our audit of 2020 grant payments at the beneficiaries revealed persistent systemic errors for declared personnel costs

2.26. Our audits at the beneficiaries confirmed systemic errors, mainly relating to the declared personnel costs, which were also regularly reported by the *ex post* audits of the CAS and its contracted auditors. For the 2020 grant payments, the main sources of errors found were:

- use of a wrong method for the calculation of declared personnel cost;
- use of hourly rates that were not based on a completed financial year;
- non respect of ceilings for hours worked on the project;
- unjustified correction of already declared and accepted personnel costs in the subsequent reporting period;
- costs not directly attributable to the project declared as other direct costs;
- purchases from another consortium beneficiary declared as other direct costs; and
- the application of the wrong exchange rate for the conversion of the declared costs into euros.

2.27. Regarding the legality and regularity of the JUs' underlying grant payment transactions, our audit results indicate that the main source of error is personnel costs, and that in particular, SMEs are more error-prone than other beneficiaries. Further streamlining of the H2020 rules for the declaration of personnel costs and reducing legal uncertainty by the further use of simplified cost options, is a precondition for future research framework programmes, to stabilise error rates to below materiality level.

Action 2

JUs should strengthen their internal control systems to address the increased risk regarding SMEs and new beneficiaries, and are also encouraged to extend the use of simplified cost options.

Weaknesses in the F4E's local IT application for contract management

2.28. In March 2020, in response to the COVID-19 pandemic, the use of the F4E's local IT application for contract management (DACC), previously limited to the management of contract amendments, was extended to manage new contracts. Although this measure enabled F4E to maintain business continuity, F4E did not fully align its local IT applications with the internal processes for delegations. While F4E has taken mitigating actions to address the situation, significant weaknesses remain to be resolved, such as the proper use of accounts with virtual identity and the proper use of rights and delegations to authorise legal commitments. Finally, no validation of the F4E's accounting system has been performed since the implementation of the DACC system.

Action 3

F4E needs to implement the necessary actions concerning its local IT system for contract management (DACC), to ensure its alignment with internal processes for delegation, as well as the proper use of accounts with virtual identities. In addition, the JU should validate the accounting system.

Shortcomings in the management of interim staff and procurement processes

Lack of sufficient statutory staff leads to increased use of interim staff

2.29. Insufficient statutory staff at JUs leads to an increased use of interim staff or the contractual insourcing of workers. This presents particular risks that could negatively affect the JU's overall performance, such as the retention of key competences, unclear accountability channels, and lower staff efficiency.

2.30. For example, CS significantly increased its ratio of interim to statutory staff from 8 % in 2017 to 24 % in 2020 for tasks that are permanent in nature (e.g. legal service assistant, secretarial support, communication assistant, and project officer assistant). A high level of contractual staff tends to increase significantly the JU's staff turnover rate and further destabilises the staffing situation.

2.31. In its first year of operation, the EuroHPC mainly concentrated on the operational processes and tasks. As the need for key administrative staff has yet to be addressed, this presents risks in terms of weaknesses in financial, budgetary and staff

management, and in internal control processes for operational payments and in-kind contributions. Furthermore, the high proportion of contractual staff (74 %) may result in a significant level of staff turnover in the near future, further increasing the risks to its management systems.

Action 4

EuroHPC needs to fill the key administrative posts required to ensure its financial, budget, and staff management, as well as its internal control processes.

Use of open procurement procedure under a situation of knowledge advantage

2.32. In 2020, FCH launched an open procurement procedure for a framework contract to implement the third phase of the project to establish a H2 certification scheme. The consortium that had already implemented the first two phases of the project and therefore was in a situation of knowledge advantage, was the only candidate that submitted a tender. This tender's financial offer was close to the maximum estimated contract value fixed in the tender specifications.

Action 5

In a situation of knowledge advantage, JUs are encouraged to carry out preliminary market research on price and prior consultation with other companies acting in the market, to allow a better estimation of price and the best price-quality ratio.

JUs are not fully using the Commission's eProcurement solution and F4E developed its own portal

2.33. The EU financial regulation requires that all EU institutions and bodies, including JUs, design and implement solutions for the submission, storage and processing of data submitted in award procedures, and to that end, put in place a single 'electronic data interchange area' for participants. For this reason, the Commission is in the process of developing the eProcurement solution with the integrated *Funding and Tenders* portal and the *TED eTendering*, where all published tenders are publicly accessible. The eProcurement solution offers a harmonised approach and established corporate practices for procurement processes, supporting them through a fully integrated electronic solution. For example, it allows potential

contractors free electronic access to all call for tender documents, related technical specifications, annexes, questions and answers, electronic submission of tenders, tenders evaluation and final award of contract(s). The eProcurement solution already supports open and restricted (including accelerated) procedures, middle and low value procedures, and exceptional negotiated procedures for EU institutions and bodies, including JUs.

2.34. CS, FCH and S2R used the eProcurement solution for their open procurement procedures in 2020; IMI and SESAR started using it at the beginning of 2021. BBI and ECSEL, however, have not planned to use all the modules of the platform due to their low number of high value procurement procedures.

2.35. F4E uses its own eProcurement tool, which is not fully synchronized with the Commission's eProcurement solution. Future enhancements of the F4E's eProcurement tool could lead to unnecessary duplication with the Commission's development efforts and investment. This would not support the principle of a single 'electronic data interchange area' for participants, as foreseen by the EU financial regulation.

Action 6

JUs are invited to join the Commission's eProcurement solution in line with the principle of a single electronic data exchange, foreseen by the EU financial regulation, thus ensuring that their procurements are subject to competition on the broadest possible basis.

F4E should coordinate future enhancements of its eProcurement tool with the Commission's development efforts and investment.

JUs exploited synergies to overcome the COVID-19 crisis in 2020

Methodology of our review

2.36. In 2020, we analysed measures taken by the JUs to maintain business continuity during the COVID-19 pandemic and its possible impact on their service delivery. *Figure 2.3* indicates the areas on which we focused our review. The analysis was based on financial data available in the Commission's central financial information system on Accrual Based Accounting (ABAC) and the eGrant platform (COMPASS). The data was complemented by interviews with JUs' staff and analysis of JUs' documents. The findings are analytical and descriptive rather than evaluative. Therefore, we do not

make recommendations but rather emphasise good practices. EuroHPC was excluded from this analysis because it only started working autonomously in September 2020.

Figure 2.3 – Areas we focused on



Source: ECA.

JUs cooperated closely to ensure business continuity under the COVID-19 pandemic situation

2.37. The JUs located in Brussels (SESAR, CS, IMI, FCH, ECSEL, BBI, and S2R) largely overcame the impact of the COVID-19 pandemic, despite their small size and limited resources, due to their close cooperation for common preparedness at the start of the pandemic in March 2020.

2.38. As CS, IMI, FCH, ECSEL, BBI and S2R are headquartered in the same building, they adopted a common business continuity plan (BCP) in January 2019, including a common IT Disaster Recovery Plan (DRP), which was up-dated in February 2020. SESAR and F4E adopted their own Business Continuity Management documents in 2016 and 2017 respectively, and up-dated them in 2019. The plans are based on risk assessments and scenario planning, and form a critical part of the JUs' internal control framework (see *Box 2.2*).

Box 2.2

Common business continuity plan for the JUs CS, IMI, FCH, ECSEL, BBI and S2R

- | | |
|---|---|
| 1
Basic key business continuity information: <ul style="list-style-type: none"> ○ emergency contacts, ○ listing of critical staff, ○ communication (depending on the scenario). | 2
Business continuity principles: <ul style="list-style-type: none"> ○ definitions and scope, ○ summary of critical and essential functions and procedures, ○ scope and scenarios, ○ training and awareness-raising, ○ testing. |
| 3
Reaction and response: <ul style="list-style-type: none"> ○ business continuity desk officers, ○ list of dependencies pertaining to the common infrastructures. | 4
IT disaster recovery plan: <ul style="list-style-type: none"> ○ full operations at a contingency site, ○ restoring original operations, ○ DG RTD Backup site. |

Source: Common business continuity plan for JUs.

2.39. CS, IMI, FCH, ECSEL, BBI and S2R had already tested their common IT DRP in January 2019, focussing on:

- the location availability and access to a back-up office;
- the IT infrastructure (hardware and software) availability; and
- the functionality of the EU login accounts and remote access to applications.

The test results were analysed and solutions were drawn up for detected malfunctions.

2.40. Consequently, before the outbreak of the COVID-19 pandemic, all JUs had an up-dated and formally approved BCP (see *Figure 2.4*).

Figure 2.4 – All JUs had approved the BCP



Source: ECA based on JUs' data.

2.41. In March 2020, under the coordination actions of ECSEL, all Brussels-based JUs performed a stress test to assess their teleworking IT capacities, on the assumption that all staff would telework for a period of time. This allowed a swift change-over of all JU staff to teleworking on 18 March 2020, when the Belgian government introduced work restrictions. F4E performed similar tests in March 2020, and telework has been the general rule in all F4E sites (Barcelona, Cadarache and Garching) since the beginning of the pandemic.

JUs coordinated their mitigating actions and ensured governance

2.42. Another success factor of the Brussels-based JUs was the coordination of their actions to overcome their natural constraints, in particular, their small size and limited resources.

2.43. The directors of the Brussels-based JUs held weekly meetings to discuss the pandemic's implications, risks to operations and a common approach to their mitigation. Similar meetings were held by heads of administration and internal audit capabilities. In May 2020, to ensure the safety of their staff when required to work at the office, the JUs launched a joint procurement led by IMI, for protective materials.

2.44. Finally, the JUs' governing boards adapted quickly to the COVID-19 pandemic, by holding remote meetings and maintaining a similar pace in adopting decisions in 2020, compared with 2019. The number of governing board meetings remained stable with 27 in 2020 (2019: 25) and 110 governing board decisions were taken in 2020 (2019: 108).

JUs fulfilled their duty of care towards staff...

2.45. In order to provide staff with adequate support on how to best address the new challenges caused by the COVID-19 pandemic, the Brussels-based JUs put in place a wellbeing and resilience training programme. In October 2020, staff of all Brussels-based JUs participated in the training entitled “Coping in a time of COVID”, initiated by SESAR and facilitated by a certified professional coach. The training included breakout sessions to allow the participants to exchange views on their working conditions.

2.46. To support and brief their staff during the COVID-19 pandemic, the JUs’ directors organised regular online meetings, including time for staff questions. The regularity of online meetings varied per JU and according to the intensity of the pandemic, and ranged from once a week to once a month. Below in *Box 2.3* we present some examples of common measures observed in JUs with respect to supporting staff during this period.

Box 2.3

JU support measures for staff well-being and resilience

1 Regular communication and messages including regular online meeting with all staff

2 Resilience training entitled "Coping in a time of COVID" for all JU staff to exchange views on working conditions

3 IT environment was swiftly adapted to ensure optimal use of the virtual technology and ensure teleworking

4 Social online gatherings e.g. 'chat roulettes'

5 Several surveys of staff to provide feedback to the management on the work during the COVID-19 pandemic

6 Financial contributions for office equipment to help set up a proper home office

7 Ensuring a save workplace if needed by providing protective equipment (face masks, gel dispensers), cleaning of the office space, information on social distancing and other protection measures

8 Wellbeing programme offers webinars on psychological and physical wellbeing, meditation exercises, mindfulness, individual coaching sessions etc.

9 Special brainstorming session to identify any new emerging COVID-19 risks with the attendance and participation of all members of staff

Source: ECA based on JUs' data.

2.47. To get feedback from staff on the working conditions during the COVID-19 pandemic, five JUs (SESAR, CS, IMI, ECSEL and BBI) carried out staff surveys between April and November 2020. The surveys mostly focused on two aspects: work-related conditions, such as the availability and functioning of IT equipment and support provided by the management, and personal experiences due to confinement (e.g. level of interaction with colleagues, and stress levels due to a change in workload, etc.). The survey results indicated that most JU staff was satisfied with the leadership and support provided by management and did not face considerable IT issues, while rating the effectiveness of business continuity as high.

2.48. Although most considered that they were coping well with the situation, some negative experiences with teleworking were reported, in particular, the feeling of obligation to be continuously available, difficulties in maintaining the correct work-life balance, and childcare and home-schooling issues.

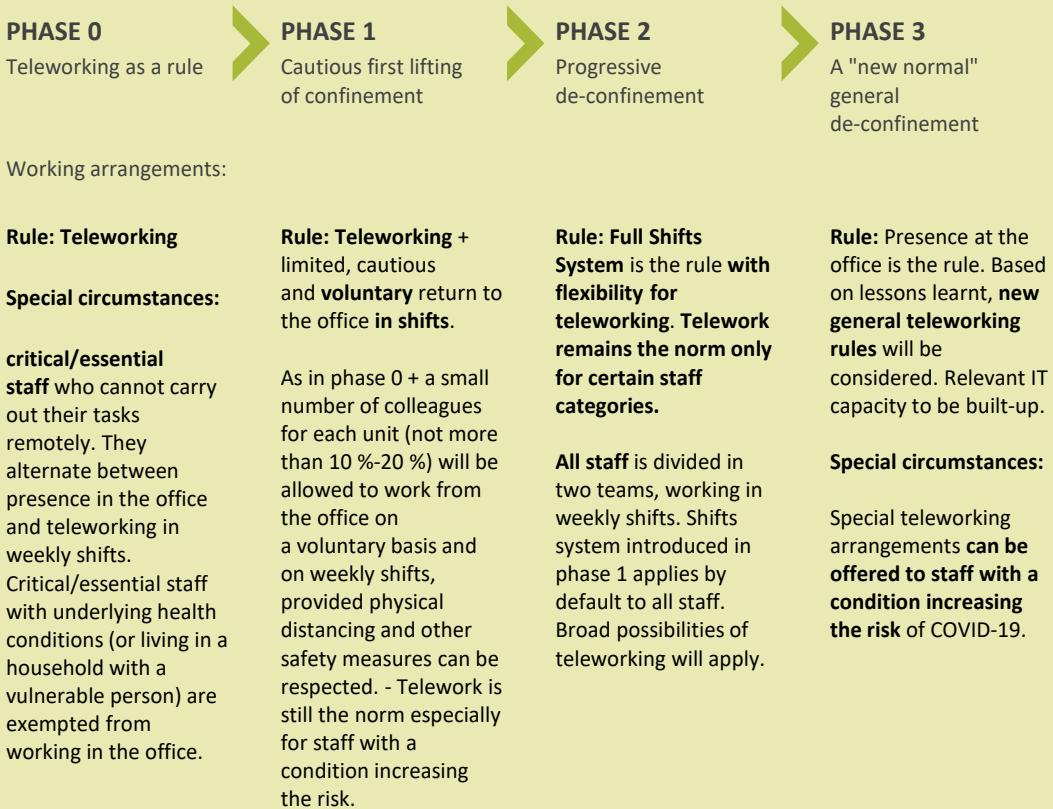
...which contributed to a stable staffing situation during the crisis

2.49. The COVID-19 pandemic did not have a measurable impact on staff numbers or on JUs' vacancy rates. For the Brussels-based JUs, staff numbers continued to increase slightly by 1.3 % in 2020, which is comparable to previous years (2019: + 2.2 %; 2018: + 2.2 %). F4E staff continued to decrease slightly by 0.9 % in 2020, which is also comparable to previous years (2019: - 0.7 %; 2018: - 1.6 %). The JUs' vacancy rates followed the same tendency and slightly increased for the Brussels-based JUs and decreased for F4E.

2.50. Brussels-based JUs are currently following the Commission's Action Plan for a Gradual Return to the Office. The plan (see *Box 2.4*) includes de-escalation measures: for example, the gradual return of staff to the office. The gradual approach allows the controlled escalation or de-escalation depending on the development of the pandemic. The implementation of the escalation/de-escalation measures aim to follow recommendations and instructions from national and regional health authorities, and risk assessments and guidance from the European Commission.

Box 2.4

Stages of a return to office



Source: Commission's Action Plan for a Gradual Return to the Office.

Despite the COVID-19 pandemic, the JUs ensured the award of grants...

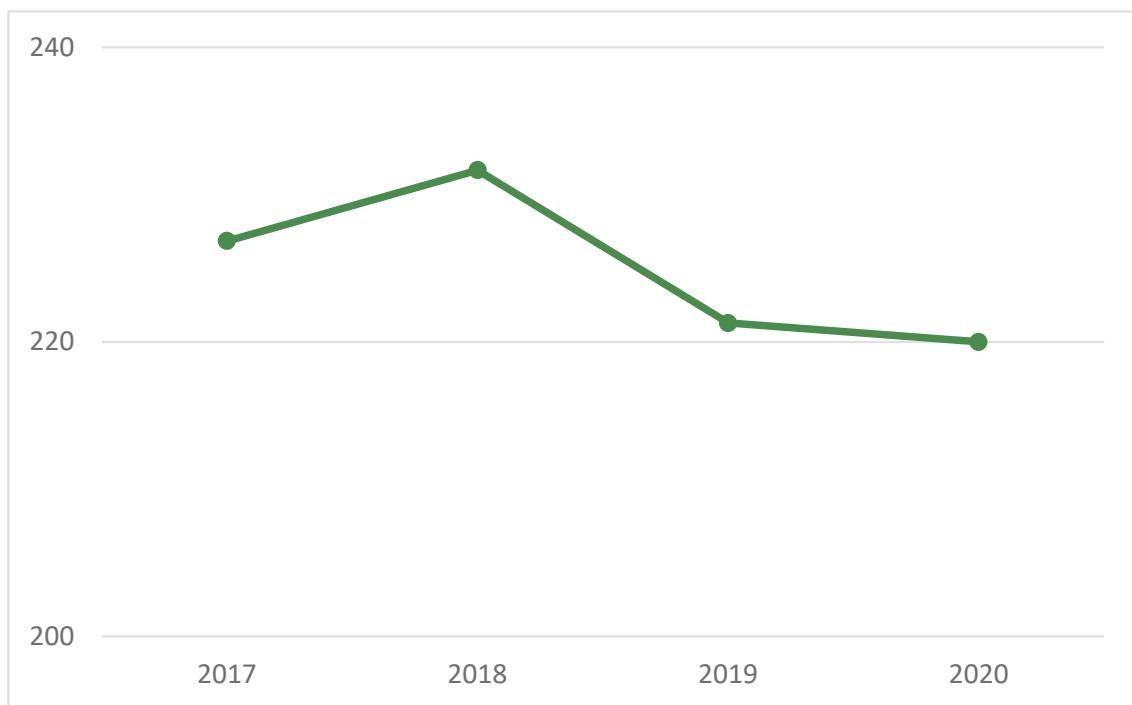
2.51. Despite the challenging situation, the H2020 JUs' budget commitments for grant agreements remained stable at €889.2 million in 2020 (2019: €855.6 million). As regards F4E, the operational procurement activities were maintained at a similar pace, and its budget commitments for operational contracts increased from €670.5 million in 2019 to €826.1 million in 2020.

2.52. IMI made an important contribution to the common European response to the COVID-19 pandemic, as coordinated by the Commission. The JU reallocated €45 million of its 2020 budget to a fast-track call for proposals launched in March 2020, focusing on the development of therapeutics and diagnostics combatting coronavirus infections. Additional H2020 funds from the Commission increased the call amount to €72 million. Over 140 proposals received were evaluated remotely and in record time, following significant modifications to the JU's usual call evaluation

process. Eight projects (three on treatments and five on diagnostics) mobilising over €115 million were selected for grant agreements and their implementation started before summer in 2020.

2.53. Moreover, for the JUs implementing H2020 actions, the average time to grant (TTG), which is the period from the deadline for the submission of proposals to the signature of the grant agreements, remained stable with 220 days on average in 2020 (2019: 221 days)¹⁶. This was well below the maximum allowable period of eight months or around 240 days specified in the rules for participation in the H2020 programme¹⁷ (see *Figure 2.5*). This performance is mainly explained by the JUs' considerable efforts to implement on time the appropriate procedures for the remote evaluation of proposals by external experts.

Figure 2.5 – Time to grant in average days



Source: ECA based on JUs' data.

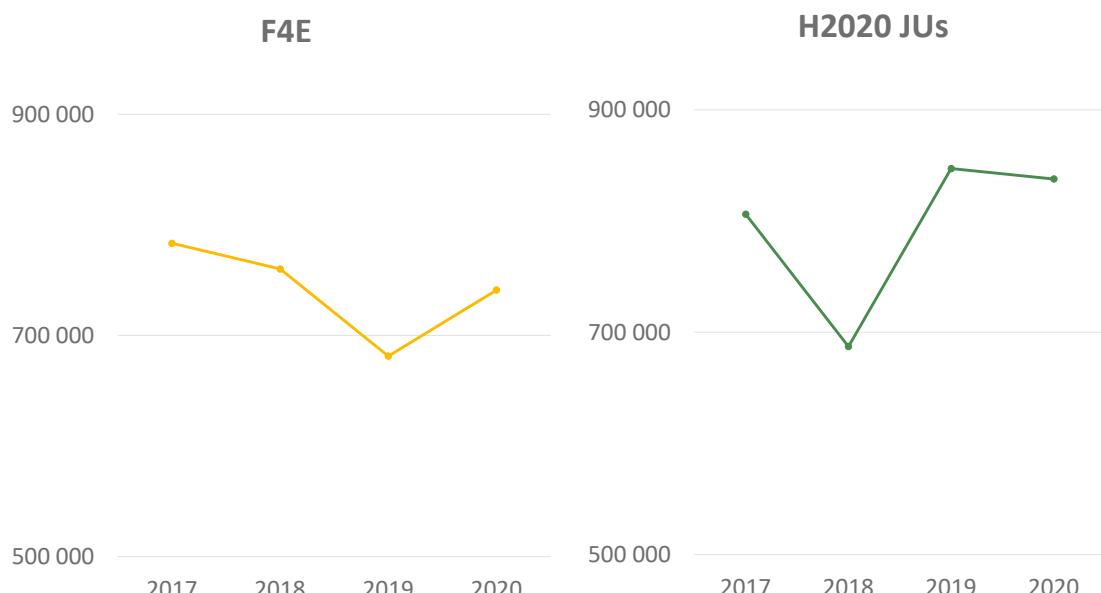
¹⁶ The data considers all the H2020 JU calls for proposals published in the year N-1 with their respective grant agreements signed in the year N.

¹⁷ Article 20 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)" (OJ L 347, 20.12.2013, p. 81).

...and the payments to their beneficiaries

2.54. In 2020, H2020 JUs and F4E maintained the level of the payments for their operational activities within the dynamic of the last four years (see [Figure 2.6](#)). For the H2020 JUs, the total payments for operational activities only slightly decreased from €847.1 million in 2019 to €827.8 million in 2020. For F4E, operational payments for contracts increased from €681.3 million in 2019 to €741.1 million in 2020.

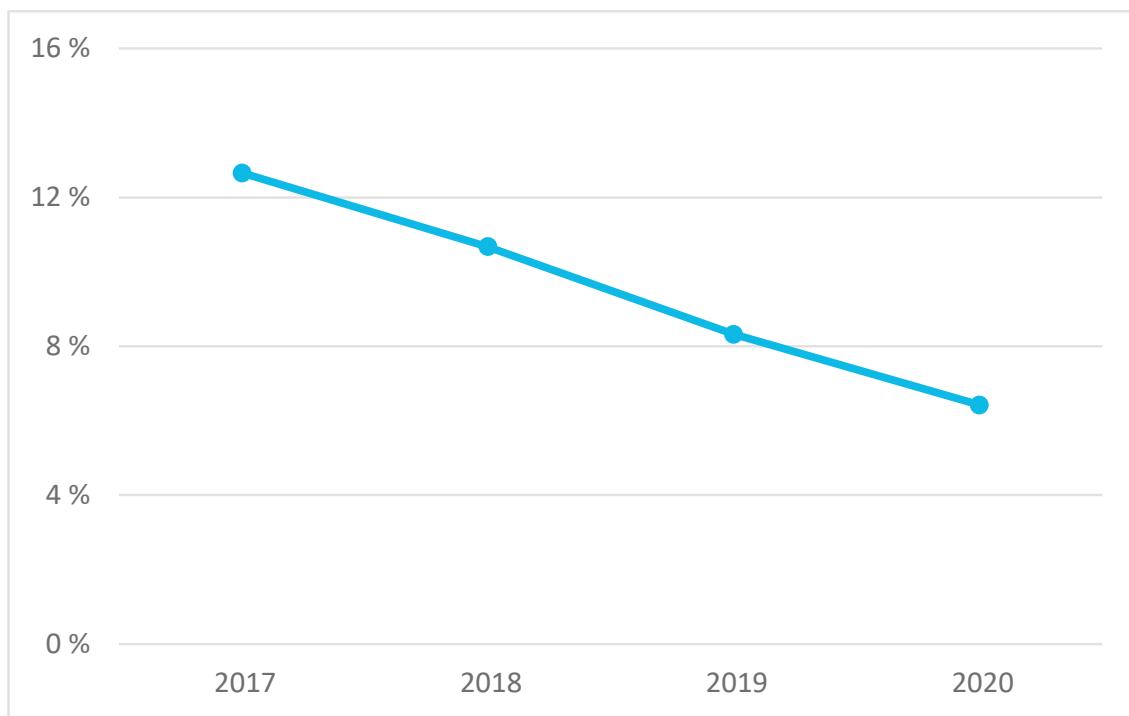
Figure 2.6 – JUs' operational payments (in thousand euros)



Source: ECA based on JU data.

2.55. Despite the challenges in maintaining internal control processes under teleworking conditions, in particular, for operational interim and final grant payments and complex contract payments, the number of late payments was reduced from 8 % on average in 2019 to 6 % on average in 2020 (see [Figure 2.7](#)).

Figure 2.7 – Decrease in late payments (average over all JUs) as % of total annual number of approved payment transactions



Source: ECA based on JUs' data.

Some JUs reported general delays for their H2020 activities due to the COVID-19 pandemic

2.56. ECSEL reported that some beneficiaries had difficulties in finalising their project demonstrations and requested an extension to the implementation period. The project controls and reviews suffered from the same constraints imposed by COVID-19 pandemic restrictions.

2.57. S2R estimated a general delay of around two to six months for projects requiring collaborative activities in different sites in Europe. These projects suffered from delays due to travel restrictions or other limitations caused by the pandemic. Additionally, on-field validation did not occur in 2020, as initially planned, due to restrictions resulting from the COVID-19 pandemic.

2.58. CS predicted a general delay of approximately four to six months in implementing their H2020 programme. Arising from the COVID-19 pandemic, a slowdown of the grant agreements for partners (GAPs) and an under-execution of the 2018-2019 grant agreements occurred. The latter resulted in significant recoveries of overpaid pre-financing in 2020. This increased the available operational payment

budget (assigned revenues) for 2020, which adversely affected the implementation rate of the JU's operational payment budget.

2.59. SESAR responded to the serious impact of the COVID-19 pandemic on its members from the aviation industry with a series of budgetary measures (e.g. increase of pre-financing rates for grant agreements and a postponement of cash contributions to the JU's administrative cost), with the aim of providing them with an immediate improvement in cash-flow.

2.60. For some JUs (CS, IMI, FCH, and EuroHPC), the impact of the COVID-19 pandemic on planned costs for IT, communication, missions, meetings, events and other services significantly reduced the implementation rates for the 2020 administrative payment budget, representing around 2 % to 3 % of the total available payment budgets for 2020.

F4E's activities for the ITER project were delayed

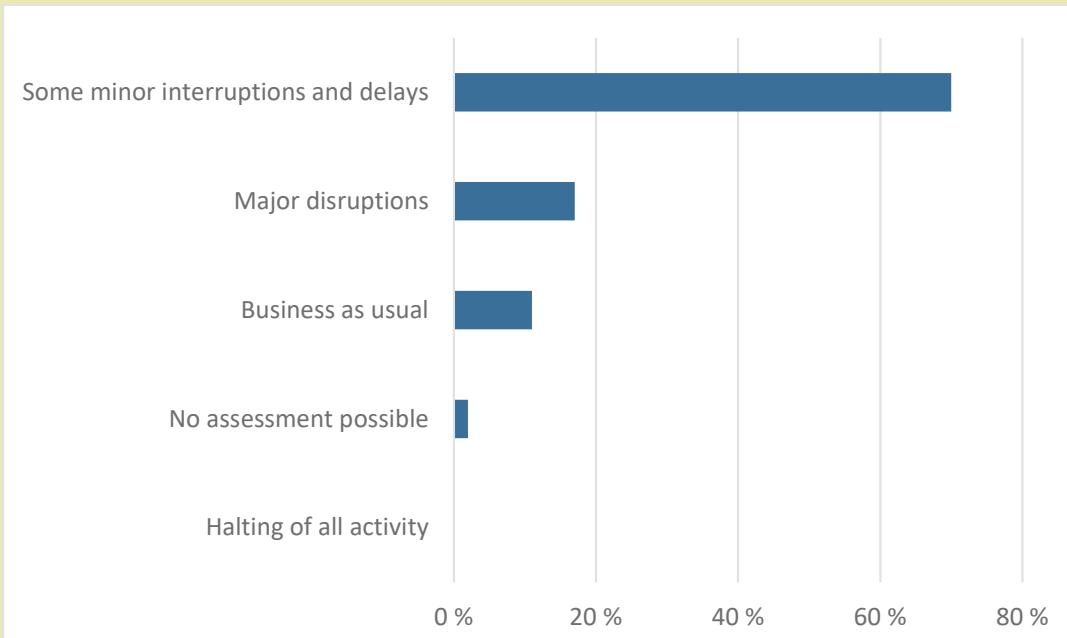
2.61. F4E reported that many of its suppliers were affected by the COVID-19 pandemic and related restrictions. The JU estimated that at the end of 2020, the pandemic had caused delays of up to four months for some deliveries, with a resulting increase in costs of around €47 million (in 2008 values) for the F4E's deliverables to the ITER project.

2.62. The Commission carried out an online survey in October 2020, in order to understand the repercussions of the COVID-19 pandemic on the companies involved in the ITER project and to what extent their participation in ITER helped them on the road to recovery.

2.63. As shown in *Box 2.5*, participating in the ITER project had a measurable impact (in terms of staff and turnover) on the responding companies. For two-thirds of respondents, the pandemic had a negative impact, such as delays (70 %), and decreased demand with negative financial consequences (50 %). On the other hand, 31 % of the respondents agreed that their involvement in the ITER project made their company more resilient to the consequences of the crisis.

Box 2.5

Impact of Covid-19 on current activities on the companies involved in the ITER project



Source: Report of an EU survey ITER and COVID-19: Understanding the situation of companies involved in the project, December 2020.

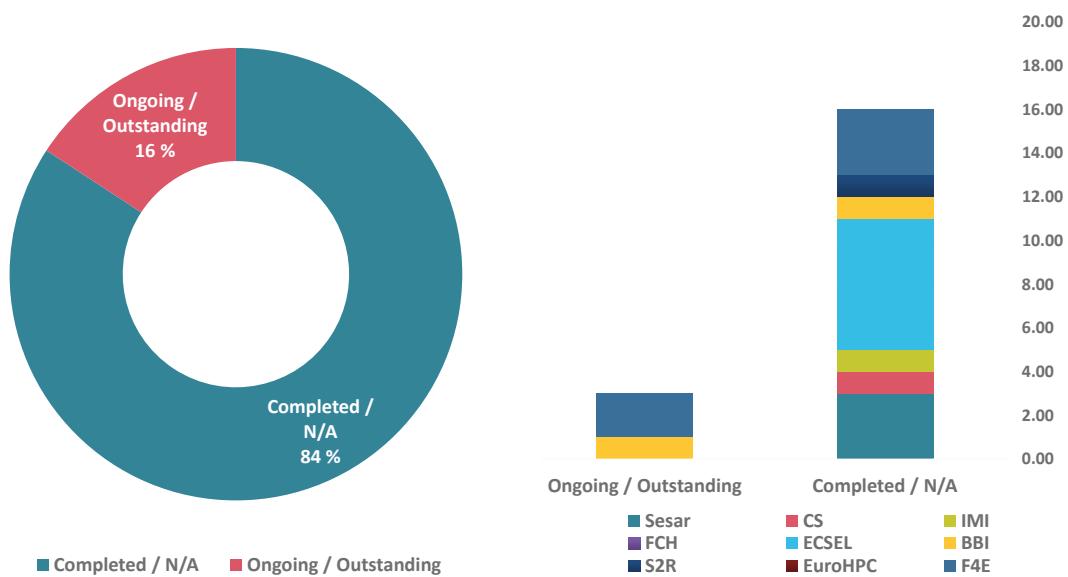
JUs are following up on previous years' audit findings

2.64. In most cases, the JUs have taken corrective action to follow up the observations in our specific annual reports from previous years, details of which can be found in the annexes to our opinions in Chapter 3.

2.65. *Figure 2.8* shows that for the 19 observations not addressed at the end of 2019, corrective action was taken in 2020, so that 16 observations (84 %) were completed, while three observations (16 %) remained ongoing or not yet addressed at the end of 2020¹⁸.

¹⁸ Note: For SESAR, CS, IMI, FCH, ECSEL and S2R all previous years' observations were completed because of the JUs' corrective actions taken during the 2020 audit. For EuroHPC, 2020 was the first year of audit.

Figure 2.8 – JUs' efforts to follow up previous years' observations



Source: ECA.

Audit results from other recent ECA products related to Joint Undertakings

2.66. Apart from the annual audit report related to the JUs' annual accounts, in the course of 2020 we also issued special audit reports and reviews, which referred to JUs (see *Figure 2.9*).

Figure 2.9 – Audit results from other JU and/or research related products recently issued by ECA

ECA review 1/2021:

The EU's initial contribution to the public health response to COVID-19

The World Health Organisation classified COVID-19 as a pandemic on 11 March 2020. The Treaty on the Functioning of the European Union only assigns a supporting and coordinating role to the EU for public health, which remains primarily a Member States' (MS) competence.

We reviewed the EU's initial response to the pandemic actions taken from 3 January to 30 June 2020, focusing on the use of the EU framework for dealing with cross-border threats to health, the additional EU actions taken to support the provision of supplies of medical protective equipment, and the EU support for the development of COVID-19 tests and vaccines.

The Commission fostered information exchange between MSs, and supported actions as COVID-19 research and vaccine advanced purchase agreements. The Innovative Medicines Initiative (IMI) Joint Undertaking also launched a call related to corona treatment and testing.

We highlighted some challenges faced by the EU in its support to MS response to COVID-19, such as setting up an appropriate framework for cross-border health threats, facilitating provision of appropriate supplies, and supporting the development of vaccines.

The details on the audit conclusions, related recommendations and the auditee's reply can be consulted on the ECA website eca.europa.eu.

Source: ECA.

ECA special report 19/2020:

Digitising European Industry: ambitious initiative whose success depends on the continued commitment of the EU, governments and businesses

While digital transformation is essential for many EU businesses to remain competitive, they are not taking full advantage of advanced technologies to innovate.

In this context, in 2016, the Commission launched the Digitising European Industry (DEI) initiative aiming to reinforce the EU's competitiveness in digital technologies.

We examined the extent to which the EU was effective in supporting national strategies on digitalising industry and the Digital Innovation Hubs, and if the Commission and Member States (MS) were effectively implementing the DEI strategy.

We found that the Commission DEI strategy was soundly based and supported by MSs, but lacked information on intended outcomes, result indicators and targets. This makes it more difficult for Commission and MSs to better direct their activities and maximise the influence, and MSs were not encouraged to allocate ESI funding into the initiative.

We recommend that the Commission, together with MSs offer support to MSs in identifying their funding gaps, improving monitoring, and take further action for achieving the appropriate levels of broadband connectivity.

The details on the audit conclusions, related recommendations and the auditee's reply can be consulted on the ECA website eca.europa.eu.

ECA special report 2/2020:

The SME Instrument in action: an effective and innovative programme facing challenges

The SME Instrument was set up under the Horizon 2020 research framework programme to support innovation in small and medium-sized enterprises (SMEs). Its objective is to develop and capitalise on the potential of SMEs by filling the gap in funding for early stage high-risk projects and increasing private-sector commercialisation of research results. It is targeted towards innovative SMEs in the EU and 16 associated countries. With an overall budget of €3 billion for the period 2014-2020, the Instrument provides grants to high-potential companies.

We examined if it has targeted the right type of SMEs, achieved wide geographic coverage, the selection process was effective, and if the Commission adequately monitored the Instrument.

We found that it provides effective support to SMEs in developing their innovation projects but we identified a risk that the Instrument funds some SMEs that could have been financed by the market, that participation in the Instrument varies markedly between participating countries, and resubmission of unsuccessful proposals is an increasing drain on management and evaluation resources without providing added value.

The details on the audit conclusions, related recommendations and the auditee's reply can be consulted on the ECA website eca.europa.eu.

Joint Undertakings' reply to chapter 2

2.9, 2.19, 2.30, 2.31, 2.32, and 2.58

JUs take common note of these observations. We understand that those observations are pertinent to individual JUs and are not raising cross cutting issues. We remain prudent and take note of those lessons learned.

2.18

In the opinion of the JUs, there is no such risk, since the JUs have implemented a validation process specifically for the IKAA, which comprises of ensuring the contribution of the Additional Activities to the objectives of the individual JUs as well as the certification of the reported values by independent auditors in line with the JUs' Regulations.

2.34

The BBI JU and ECSEL JU consider that the full implementation of the eProcurement solution is not justifiable due their extremely low number of high value procurement procedures and specific legal requirements. Both JUs envisage reconsidering the use if future conditions so justify.



EUROPEAN
COURT
OF AUDITORS

Chapter 3

Statements of Assurance

of the EU Joint Undertakings

3.1. Information in support of the statements of assurance

Basis for opinions

3.1.1. We conducted our audit in accordance with the IFAC International Standards on Auditing (ISAs) and Codes of Ethics and the INTOSAI International Standards of Supreme Audit Institutions (ISSAIs). Our responsibilities under those standards are further described in the auditor's responsibilities section of our report. We are independent in accordance with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA Code) and the ethical requirements that are relevant to our audit, and we have fulfilled our other ethical responsibilities, in accordance with these requirements and the IESBA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of management and those charged with governance

3.1.2. In accordance with Articles 310 to 325 of the TFEU and the JUs' Financial Regulations, the JUs' managements are responsible for the preparation and presentation of their accounts based on internationally accepted accounting standards for the public sector and for the legality and regularity of the transactions underlying them. This responsibility includes the design, implementation and maintenance of internal controls relevant to the preparation and presentation of financial statements that are free from material misstatement, whether due to fraud or error. Management is also responsible for ensuring that the activities, financial transactions and information reflected in the financial statements comply with the regulatory framework of the authorities governing them.

3.1.3. In preparing the accounts, management is responsible for assessing the JU's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting, unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

3.1.4. Those charged with governance are responsible for overseeing the JUs' financial reporting process.

The auditor's responsibilities for the audit of the accounts and underlying transactions

3.1.5. Our objectives are to obtain reasonable assurance that the accounts of the JUs are free from material misstatement and that the transactions underlying them are legal and regular, and to provide, on the basis of our audit, the European Parliament and the Council with statements of assurance on the reliability of the accounts and the legality and regularity of the transactions underlying them. Reasonable assurance is a high level of assurance, but it does not guarantee that an audit will always detect a material misstatement or non-compliance. These can arise from fraud or error and are considered material if, individually or when aggregated, they could reasonably be expected to influence the economic decisions of users based on these accounts.

3.1.6. For revenue, we verify the contributions received from the Commission, other partners or participating countries and assess the JUs' procedures for collecting other income, if any.

3.1.7. For expenditure, we examine payment transactions when expenditure has been incurred, recorded and accepted. This examination covers all categories of payments (including those made for the purchase of assets) other than advances at the point they are made. Advance payments are examined when the recipient of funds provides justification for their proper use and a JU accepts the justification by clearing the advance payment, whether in the same year or later.

3.1.8. In accordance with ISAs and ISSAIs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the accounts and of material non-compliance of the underlying transactions with the requirements of the legal framework of the European Union, whether due to fraud or error; design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement or non-compliance resulting from fraud is higher than for error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the overriding of internal controls.

- Obtain an understanding of internal controls relevant to the audit, in order to design audit procedures that are appropriate in the circumstances, but not for expressing an opinion on the effectiveness of the internal control.
- Evaluate the appropriateness of the accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on a JU's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the accounts or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause an entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the accounts, including the disclosures, and whether the accounts fairly represent the underlying transactions and events.
- Obtain sufficient appropriate audit evidence regarding the financial information of the JUs to express an opinion on the accounts and transactions underlying them. We are responsible for the direction, supervision and performance of the audit. We remain solely responsible for our audit opinions.
- Consider the audit work of the independent external auditor performed on the JUs' accounts as stipulated in Article 70(6) of the EU Financial Regulation¹⁹.

3.1.9. We communicate with the management regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal controls that we identify during our audit.

¹⁹ Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council (OJ L 193, 30.7.2018, p. 1).

3.1.10. From the matters on which we communicated with the JUs, we determine those matters that were of most significance in the audit of the accounts of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.



Joint Undertakings implementing EU Framework Programmes

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

3.2. The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

Introduction

3.2.1. The Single European Sky Air Traffic Management Research (SESAR) JU, located in Brussels, was set up in February 2007 for a period of eight years²⁰ (SESAR 1). In June 2014, the Council amended the founding regulation and extended the lifetime of the JU up to 31 December 2024²¹ (SESAR 2020).

3.2.2. The JU is a public-private partnership for the development of modernised air traffic management (ATM) in Europe. The founding members are the European Union (EU), represented by the Commission (DG MOVE), and the European Organisation for the Safety of Air Navigation (Eurocontrol)²². Following a call for expressions of interest in 2015, 19 public and private entities from the aviation sector became members of the JU. They comprise aircraft manufacturers, ground and airborne equipment manufacturers, air navigation service providers, and airport services providers.

²⁰ Council Regulation (EC) No 219/2007 of 27 February 2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR) (OJ L 64, 2.3.2007, p. 1), amended by Regulation (EC) No 1361/2008 (OJ L 352, 31.12.2008, p. 12).

²¹ Council Regulation (EU) No 721/2014 of 16 June 2014 amending Regulation (EC) No 219/2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR) as regards the extension of the Joint Undertaking until 2024 (OJ L 192, 1.7.2014, p. 1).

²² Eurocontrol is an international organisation owned by 41 Member States. The EU has delegated parts of its Single European Sky regulations to Eurocontrol, making it the central organisation for coordination and planning of air traffic control for all of Europe. The EU itself is a signatory of Eurocontrol and all EU Member States are members of Eurocontrol.

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

3.2.3. *Table 3.2.1* presents key figures for the JU²³.

Table 3.2.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	119.5	125.7
Budget in new commitment appropriations (million euros)	151.3	119.6
Available payment budget (million euros) ⁽¹⁾	179.2	183.3
Available commitment budget (million euros) ⁽¹⁾	163.2	161.0
Total staff as at 31 December ⁽²⁾	38	40

⁽¹⁾ Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

⁽²⁾ Staff includes officials, temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

Information in support of the statement of assurance

3.2.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.2.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

²³ More information on the JU's competences and activities is available on its website: www.sesarju.eu.

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.2.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements²⁴ and the reports on the implementation of the budget²⁵ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.2.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

²⁴ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

²⁵ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.2.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.2.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.2.10. The observations that follow do not call the ECA's opinion into question.

Observations on the implementation of the FP7 budget

3.2.11. The SESAR 1 programme was formally closed in 2016 and the last corrective reimbursements to beneficiaries for the excess in cash contributions received for the FP7 projects were completed in 2020.

3.2.12. *Table 3.2.2* presents an overview of members' contributions to SESAR 1 at the end of 2020.

Table 3.2.2 – Members' contributions to SESAR 1 (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG Move)	700.0	N/A	700.0	610.2	0.0	0.0	N/A	610.2
Eurocontrol	700.0	N/A	700.0	133.0	422.9	0.0	N/A	555.9
Private members	584.3	N/A	584.3	23.7	512.6	0.0	N/A	536.3
Total	1 984.3	N/A	1 984.3	766.9	935.5	0.0	N/A	1 702.4

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

Observation on the implementation of the Horizon 2020 budget

3.2.13. *Table 3.2.3* presents an overview of members' contributions to SESAR 2020 at the end of 2020.

Table 3.2.3 – Members' contributions to SESAR 2020 (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG Move)	585.0	N/A	585.0	441.6	0.0	0.0	N/A	441.6
Eurocontrol	500.0	N/A	500.0	14.9	186.3	51.4	N/A	252.6
Private members	500.0	N/A	500.0	6.6	150.5	41.8	N/A	198.9
Total	1 585.0	N/A	1 585.0	463.1	336.8	93.2	N/A	893.1

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.2.14. Regarding the JU's 2020 budget available for Horizon 2020 projects, the implementation rates for commitment and payment appropriations were 87.1 % and 81.9 % respectively.

3.2.15. In January 2020, the JU received from DG MOVE, additional Connecting Europe Facility (CEF) funds of six million euro under the U-Space Delegation Agreement (second and final instalment). However, the JU has neither entered the received CEF funds into the 2020 budget by means of an amending budget, nor considered them when planning actual needs for the budget line 3700. Consequently, of the final total available payment budget for the budget line 3700 amounting to €36.8 million, the JU had only implemented €21.2 million (or 58 %) at the end of 2020.

Observations on internal controls

3.2.16. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. The JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, in 2020. For the annual self-assessment and monitoring of the effectiveness of the control activities required by the ICF, the JU developed relevant indicators for all internal control principles and related characteristics.

3.2.17. For Horizon 2020 payments, the Commission's Common Audit Service (CAS) is responsible for the ex-post audits. Based on the ex-post audit results available at the end of 2020, the JU reported a representative error rate of 3.46 % and a residual

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

error rate of 1.00 % for Horizon 2020 projects (clearings and final payments)²⁶. The Commission considered in its proposal for a Horizon 2020 regulation²⁷ that “for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %.”

3.2.18. As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries to corroborate the ex-post audit error rates²⁸. These detailed audits showed no reportable errors or control weaknesses at the sampled JU beneficiaries.

Follow-up of previous years' observations

3.2.19. An overview of the corrective action taken in response to the ECA's observations from previous years is provided in the [Annex](#).

²⁶ SESAR JU 2020 Consolidated Annual Activity Report, point 2.7.4.

²⁷ COM(2011) 809 final.

²⁸ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2018	At the end of 2018 in the closing phase of the SESAR 1 programme, the JU still showed open commitments of €61.4 million. As the programme was closed at the end of 2016 and the last grant payment was made at the end of 2017, these resources allocated to the JU will not be fully used.	N/A
2019	At the end of 2019, excess in cash contributions for the SESAR 1 programme amounted to €30.7 million. Based on the JU's accounting information, this amount needs to be reimbursed to the respective JU members as follows: €23.8 million to the Commission, €4.8 million to Eurocontrol, and €2.1 million to the industry members. In the absence of a pragmatic solution for an early reimbursement, these funds remain with the JU without being used for research projects, which is contrary to the principle of sound financial management.	Completed
2019	The JU is obliged to implement the Commission's new internal control framework (ICF), which is based on 17 internal control principles. At the end of 2019, the JU had already completed a gap analysis based on the existing internal control system and defined indicators (so-called "means") for the majority of the new internal control principles and related characteristics. Most of these indicators, however, related to the existence of a control activity rather than to its effectiveness. The JU still needs to develop further relevant key control indicators to assess the effectiveness of its control activities and detect control weaknesses.	Completed

The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

Reply of the Joint Undertaking

3.2.15

The SESAR JU agrees with the observation but would like to stress that the assigned revenues mentioned by the ECA have exclusively been used to finance the related entrusted tasks from the European Commission as formalised in the U-Space Delegation Agreement with reference MOVE/E3/DA/2017-564/SI2.771010 (signed on 13/12/2017).

The SESAR JU reports on the activities which have been conducted to implement the U-Space Delegation Agreement on a yearly basis as defined in Article 21.1 of the above referenced Delegation Agreement. A yearly Implementation Report is shared with the European Commission and the European Parliament and is accurately monitored with separate and specific cash-flow tables. Additionally, the Consolidated Annual Activity Report (CAAR) of the SESAR JU includes a specific chapter dedicated to the implementation of the U-Space activities.

The Clean Sky Joint Undertaking (Clean Sky)

3.3. The Clean Sky Joint Undertaking (Clean Sky)

Introduction

3.3.1. The JU for the implementation of the Joint Technology Initiative in Aeronautics (Clean Sky), located in Brussels, was set up in December 2007 under the Seventh Research Framework Programme (FP7) for a period of ten years²⁹ (Clean Sky 1). On 6 May 2014, the Council extended the lifetime of the JU for the period up to 31 December 2024³⁰ (Clean Sky 2).

3.3.2. The JU is a public-private partnership for aeronautic research and innovation. The founding members of the JU under the new regulation are the European Union (EU), represented by the Commission (DG RTD), and private members consisting of the industrial Leaders and Associates of the Integrated Technology Demonstrators (ITDs), Innovative Aircraft Demonstrator Platforms (IADPs) and Transverse Areas (TAs). In addition, the JU cooperates with industrial ‘core partners’ selected via open and competitive calls³¹. These partners were given private member status under the Clean Sky 2 founding regulation.

²⁹ Council Regulation (EC) No 71/2008 of 20 December 2007 setting up the Clean Sky JU (OJ L 30, 4.2.2008, p. 1).

³⁰ Council Regulation (EU) No 558/2014 of 6 May 2014 establishing the Clean Sky 2 JU (OJ L 169, 7.6.2014, p. 77).

³¹ In 2008, 16 Leaders and 66 Associates joined the first phase of the Clean Sky JU (Clean Sky 1 programme). In line with Article 4(6) of the Statutes annexed to Council Regulation (EU) No 558/2014, Associates under the Clean Sky 1 programme retain their status until completion of their research activities and until 31 December 2017 at the latest. In 2017, after completion of the fourth Call for Core Partners launched in 2016, the JU closed the membership selection and accession procedure with in total over 230 legal entities involved in the Clean Sky 2 programme. It includes the 16 Leaders with their affiliated entities and linked third parties, and the selected Core Partners with their affiliated entities and linked third parties.

The Clean Sky Joint Undertaking (Clean Sky)

3.3.3. *Table 3.3.1* presents key figures for the JU³².

Table 3.3.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	315.6	327.8
Budget in new commitment appropriations (million euros)	315.7	294.9
Available payment budget (million euros) ⁽¹⁾	356.6	341.4
Available commitment budget (million euros) ⁽¹⁾	346.7	305.8
Total staff as at 31 December ⁽²⁾	43	42

⁽¹⁾ Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

⁽²⁾ Staff includes officials, temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

Information in support of the statement of assurance

3.3.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.3.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

³² More information on the JU's competences and activities is available on its website: www.cleansky.eu.

The Clean Sky Joint Undertaking (Clean Sky)

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.3.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements³³ and the reports on the implementation of the budget³⁴ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.3.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

³³ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

³⁴ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

The Clean Sky Joint Undertaking (Clean Sky)

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.3.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.3.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.3.10. The observations that follow do not call the ECA's opinion into question.

Observation on the implementation of the FP7 budget

3.3.11. *Table 3.3.2* presents an overview of members' contributions to Clean Sky 1 at the end of 2020. In 2020, there was no change in members' contributions to the FP7 programme.

Table 3.3.2 – Members' contributions to Clean Sky 1 (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	800.0	N/A	800.0	800.0	0.0	0.0	N/A	800.0
Private members	600.0	N/A	600.0	14.9	593.0	0.0	N/A	607.9
Total	1 400.0	N/A	1 400.0	814.9	593.0	0.0	N/A	1 407.9

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

The Clean Sky Joint Undertaking (Clean Sky)

Observation on the implementation of the Horizon 2020 budget

3.3.12. *Table 3.3.3* presents an overview of members' contributions to Clean Sky 2 at the end of 2020.

Table 3.3.3 – Members' contributions to Clean Sky 2 (in million euros)

Members	Members' contributions (as per Founding Regulation and legal decisions)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	1 755.0	0.0	1 755.0	1 451.0	N/A	N/A	N/A	1 451.0
Private members	1 228.5	965.3	2 193.8	23.1	581.3	136.3	1 144.2	1 884.9
Total	2 983.5	965.3	3 948.8	1 474.1	581.3	136.3	1 144.2	3 335.9

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.3.13. Regarding the JU's 2020 payment budget available for Horizon 2020 projects, the COVID-19 pandemic resulted in a slowdown of the grant agreements for partners (GAPs), and in addition, an under-execution of the 2018-2019 grant agreements for members (GAMs). The latter led to significant recoveries of overpaid pre-financing that increased the operational payment appropriations (internal assigned revenue funds) to €22.6 million in 2020. This situation adversely affected the implementation rate of the operational payment budget, which was 82.6 % at the end of 2020 (2019: 97.2 %). Finally, contrary to the JU's financial rules, it did not fully use the previous years' appropriation of €13.3 million, which was re-entered into the operational budget 2020, before using the payment appropriations of the year.

3.3.14. The JU more than doubled the payment budget of its infrastructure and communication expenditure (representing around 1.5 % of the JU's total available payment budget) for the financial year 2020. This doubling of the payment budget, together with the impact of the COVID-19 pandemic on planned costs for IT, communication, event and other external services, resulted in the low implementation rate of 42.7 % at the end of 2020 (2019: 98.7 %).

Observations on the internal controls

3.3.15. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. The JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, in 2020. For the annual self-assessment and monitoring of the effectiveness of the control activities

The Clean Sky Joint Undertaking (Clean Sky)

required by the ICF, the JU developed relevant indicators for all internal control principles and related characteristics.

3.3.16. For Horizon 2020 payments, the Commission's Common Audit Service (CAS) is responsible for the ex-post audits. Based on the ex-post audit results available at the end of 2020, the JU reported a representative error rate of 1.60 % and a residual error rate of 0.91 % for Horizon 2020 projects (clearings and final payments)³⁵. The Commission considered in its proposal for a Horizon 2020 regulation³⁶ that "for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %."

3.3.17. As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries to corroborate the ex-post audit error rates³⁷. These detailed audits revealed in one case, an error above 1 % of audited costs, related to declared personnel costs, where the beneficiary did not fully respect the ceiling for hours worked on the project, in respect of staff exclusively working on the project without time recording.

Other issues

3.3.18. Although the JU's statutory staff remained static at 42 from 2017 to 2020, during the same period, the JU significantly increased its use of interim staff from three to ten full-time equivalents (FTE), that is, from 8 % to 24 % of the JU's statutory staff. The tasks performed by the interim staff are however, not of a one-off or temporary nature, arising from an exceptional increase in workload or the performance of a one-off activity, but rather are permanent in nature (e.g. legal service assistant, secretarial support, communication assistant, and project officer assistant). The JU's practice creates de-facto permanent posts, in excess of those

³⁵ Clean Sky JU draft 2020 Annual Activity Report, p. 97.

³⁶ COM(2011) 809 final.

³⁷ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

The Clean Sky Joint Undertaking (Clean Sky)

foreseen in the staff establishment plans. This indicates that the JU's level of statutory staffing is not sufficient to implement the JU's research and innovation agenda and related work plans. This situation also presents significant risks for the JU, concerning the retention of key competences, unclear accountability channels, and lower staff efficiency that could negatively affect the JU's overall performance.

Follow-up of previous years' observations

3.3.19. An overview of the corrective action taken in response to the ECA's observations from previous years is provided in the [Annex](#).

The Clean Sky Joint Undertaking (Clean Sky)

Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2019	<p>As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2019, at the level of the final beneficiaries to corroborate the ex-post audit error rates. These detailed audits revealed systemic errors related to the declared personnel costs. The main sources of errors were the use of individual productive hours, which is prohibited where cost declarations are based on monthly hourly rates; and the use of unit rates, including estimated elements that deviated significantly from the actual unit rates. The results indicate an increased risk of error for the JU, due to the large number of private members and participating affiliates implementing the JU's Horizon 2020 projects.</p>	Completed

The Clean Sky Joint Undertaking (Clean Sky)

Reply of the Joint Undertaking

3.3.13

At the beginning of the year 2020, the Clean Sky 2 JU had only payment credits with C1 fund sources. With the first budget amendment of the year, unused appropriations had been reactivated as C2 funds in May 2020. However, the EC grant management tool did not prioritise the use of C2 funds without manual intervention for each payment. Therefore, the C1 appropriations were consumed first.

Finally, the Clean Sky 2 JU had planned to use the C2 funds for the payments of additional pre-financings to GAMs 2020-2021 in the last months of 2020. However, some of these payments had to be postponed to the beginning of 2021. The JU will put in place additional monitoring measures to ensure that the reactivated funds are consumed first.

3.3.18

The Clean Sky 2 JU has been obliged to constantly enlarge the use of interim staff during the past years due to the limitations of the rigid staff establishment plan under the condition of increasing tasks and workload. This upward trend is expected to continue, as the JU is currently entering into a phase, during which two programmes – the Clean Sky 2 and the new Clean Aviation programme – will run in parallel, resulting in an even higher volume of work. Besides efforts made to enhance staff efficiency, the only alternative to cope with the increasing workload is the use of interim staff.

The Clean Sky 2 JU has put in place mitigation measures (such as appropriate supervision mechanisms, limiting tasks for interims to non-core tasks and ensuring appropriate training and mentoring support); however, this situation is not optimal on a medium and long-term perspective. The solution would be to provide more flexibility to the JU with regard to number of contract agents posts in the staff establishment plan.

The Innovative Medicines Initiative Joint Undertaking (IMI)

3.4. The Innovative Medicines Initiative Joint Undertaking (IMI)

Introduction

3.4.1. The Innovative Medicines Initiative (IMI) JU, located in Brussels, was set up in December 2007³⁸ for a period of ten years (IMI 1). In May 2014, the Council adopted a new founding regulation extending the lifetime of the JU to 31 December 2024³⁹ (IMI 2).

3.4.2. The JU is a public-private partnership for health research and innovation. The founding members of the JU are the European Union (EU), represented by the Commission (DG RTD), and the pharmaceutical sector, represented by the European Federation of Pharmaceutical Industries and Associations (EFPIA).

³⁸ Council Regulation (EC) No 73/2008 of 20 December 2007 setting up the JU for the implementation of the Joint Technology Initiative on Innovative Medicines (OJ L 30, 4.2.2008, p. 38).

³⁹ Council Regulation (EU) No 557/2014 of 6 May 2014 establishing the Innovative Medicines Initiative 2 JU (OJ L 169, 7.6.2014, p. 54).

The Innovative Medicines Initiative Joint Undertaking (IMI)

3.4.3. *Table 3.4.1* presents key figures for the JU⁴⁰.

Table 3.4.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	233.8	200.1
Budget in new commitment appropriations (million euros)	260.5	134.1
Available payment budget (million euros) (1)	241.6	231.3
Available commitment budget (million euros) (1)	276.5	261.4
Total staff as at 31 December (2)	53	53

(1) Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

(2) Staff includes officials, temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

Information in support of the statement of assurance

3.4.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.4.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

⁴⁰ More information on the JU's competences and activities is available on its website: www.imi.europa.eu.

The Innovative Medicines Initiative Joint Undertaking (IMI)

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.4.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁴¹ and the reports on the implementation of the budget⁴² for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.4.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

⁴¹ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁴² The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

The Innovative Medicines Initiative Joint Undertaking (IMI)

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.4.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.4.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.4.10. The observations that follow do not call the ECA's opinion into question.

Observation on the implementation of the FP7 budget

3.4.11. *Table 3.4.2* presents an overview of members' contributions to IMI 1 at the end of 2020.

Table 3.4.2 – Members' contributions to IMI 1 (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	1 000.0	N/A	1 000.0	931.1	0.0	0.0	N/A	931.1
Private members	1 000.0	N/A	1 000.0	21.9	737.6	42.2	N/A	801.7
Total	2 000.0	N/A	2 000.0	953.0	737.6	42.2	N/A	1 732.8

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.4.12. For the whole FP7 programme, at the end of 2020, the JU had committed €965.7 million for signed FP7 grant agreements, of which €94.5 million (or 10 %) still remain to be paid in the coming years. Regarding the JU's 2020 payment budget

The Innovative Medicines Initiative Joint Undertaking (IMI)

available for FP7 projects, the implementation rate for payment appropriations was 96 %.

Observations on the implementation of the Horizon 2020 budget

3.4.13. *Table 3.4.3* presents an overview of members' contributions to IMI 2 at end of 2020.

Table 3.4.3 – Members' contributions to IMI 2 (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	1 638.0	N/A	1 638.0	643.2	0.0	0.0	N/A	643.2
EFPIA	1 425.0	N/A	1 425.0	20.7	317.2	207.7	N/A	545.6
Associated Partners	213.0	N/A	213.0	7.1	35.0	55.3	N/A	97.4
Total	3 276.0	N/A	3 276.0	671.0	352.2	263.0	N/A	1 286.2

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.4.14. Regarding the JU's 2020 budget available for Horizon 2020 projects, the implementation rates for commitment and payment appropriations were 100 % and 99.7 % respectively.

3.4.15. The JU's administrative budget is managed as a dissociated budget and the reactivation of previous years' unused payment appropriations should be limited to the extent where the payment appropriations of the year are insufficient to cover the contractual obligations of the year. The JU's practice of reactivating unused payment appropriations from previous years to the extent of open administrative commitments, results in an accumulation of unused payment appropriations.

Aggravated by the impact of the COVID-19 pandemic on planned costs for IT, communication, meetings, events and other services, this practice resulted in a low budget implementation rate for the JU's administrative budget (Title 2 infrastructure expenditure representing around 3 % of the JU's total available payment budget), which was 51 % at the end of 2020.

Observations on internal controls

3.4.16. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. The JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, in 2018. For the annual self-assessment and monitoring of the effectiveness of the control activities required by the ICF, the JU developed relevant indicators for all internal control principles and related characteristics.

3.4.17. For FP7 interim and final payments, the JU performs ex-post audits at the beneficiaries' premises, whilst for Horizon 2020 project cost claims, the Commission's Common Audit Service (CAS) is responsible for the ex-post audits. Based on the ex-post audit results available at the end of 2020, the JU reported a representative error rate of 2.16 % and a residual error rate of 1.14 % for its FP7 projects⁴³, and a representative error rate of 1.13 % and a residual error rate of 0.74 % for Horizon 2020 projects (clearings and final payments)⁴⁴. The Commission considered in its proposal for a Horizon 2020 regulation⁴⁵ that "for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %."

3.4.18. As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries, to corroborate the ex-post audit error rates⁴⁶. These detailed audits revealed in one case, a systemic error above 1 % of the audited costs related to the declared direct costs. The beneficiary wrongly declared as other direct costs, several indirect cost items not directly attributable to the project. Such indirect costs are, however, covered by a flat rate of 25 % of the direct cost amount.

⁴³ IMI2 JU 2020 Annual Activity Report, point 2.5.2.

⁴⁴ IMI2 JU 2019 Annual Activity Report, point 2.5.2.

⁴⁵ COM(2011) 809 final.

⁴⁶ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

The Innovative Medicines Initiative Joint Undertaking (IMI)

Follow-up of previous years' observations

3.4.19. An overview of the corrective action taken in response to the ECA's observations from previous years is provided in the *Annex*.

The Innovative Medicines Initiative Joint Undertaking (IMI)

Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2019	<p>Following the IMI's implementation of several corrective measures, the JU significantly improved in 2019, the planning and monitoring of its need for new payment appropriations. However, the JU needed to return €139.1 million of 2019 commitment appropriations to the EU budget, due to the fewer topics for calls for proposals in the 2019 annual work plan. Due to the resulting decreased need for evaluation experts, the JU only used €2.8 million (or 49 %) of the €5.8 million of 2019 budget available for infrastructure expenditure (budget title 2).</p>	N/A

The Innovative Medicines Initiative Joint Undertaking (IMI)

Reply of the Joint Undertaking

3.4.15

Under the standard European Commission's annual budgeting procedure that IMI2 JU follows the 2020 budget planning was already done in 2018. A rigid budget planning and amendment mechanism did not allow appropriate adjustments to the fast changing and uncertain global pandemic driven crisis situation. The effects of pandemic and remote ways of working are manifest on the IMI2 JU administrative budget execution at the end of 2020, however, the uncertainties could not be controlled by simply reducing the budget in the middle of the year.

At the end of 2019, the unused administrative payment appropriations were EUR 4 million while the administrative payment appropriations reactivated on C2 in 2020 were reduced to EUR 2,1 million and strictly necessary to cover the extent of commitments carried forward with the Final Implementation Date end of 2020.

The low budget implementation rate for budget Title 2 (Infrastructure expenditure) C1 was mainly caused by the impact of the COVID 19 pandemic on the planned governance and project meetings, external events and communications as well as lower costs for evaluation experts due to their remote work. Another example where pandemic had a major impact on the administrative budget execution is IMI Stakeholder Forum, an event that used to attract around 400 participants to a physical venue, in 2020 had to be organised online and even though 954 participants registered the originally planned budget was hardly used.

For 2021, IMI2 JU is planning to carry over a lower amount of administrative payment appropriations than the amount of commitments carried forward to 2021 under Title 2. The difference is planned to be paid out of the current year budget (C1 credits).

The Fuel Cells and Hydrogen Joint Undertaking (FCH)

3.5. The Fuel Cells and Hydrogen Joint Undertaking (FCH)

Introduction

3.5.1. The JU for the implementation of the Joint Technology Initiative on Fuel Cells and Hydrogen (FCH), located in Brussels, was set up in May 2008 for the period up to 31 December 2017⁴⁷ (FCH 1). In May 2014, the Council extended the lifetime of the JU for the period up to 31 December 2024⁴⁸ (FCH 2).

3.5.2. The JU is a public-private partnership in the field of hydrogen and fuel cells technology research and innovation. The founding members of the JU are the European Union (EU), represented by the Commission, the Industry Grouping (Hydrogen Europe) and the Research Grouping (Hydrogen Europe Research).

⁴⁷ Council Regulation (EC) No 521/2008 of 30 May 2008 setting up the Fuel Cells and Hydrogen JU (OJ L 153, 12.6.2008, p. 1) amended by Council Regulation (EU) No 1183/2011 (OJ L 302, 19.11.2011, p. 3).

⁴⁸ Council Regulation (EU) No 559/2014 of 6 May 2014 establishing the Fuel Cells and Hydrogen 2 JU (OJ L 169, 7.6.2014, p. 108).

The Fuel Cells and Hydrogen Joint Undertaking (FCH)

3.5.3. *Table 3.5.1* presents key figures for the JU⁴⁹.

Table 3.5.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	85.4	104.2
Budget in new commitment appropriations (million euros)	86.3	87.1
Available payment budget (million euros) (1)	103.8	113.9
Available commitment budget (million euros) (1)	104.2	91.7
Total staff as at 31 December (2)	29	28

- (1) Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.
- (2) Staff includes officials, temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

Information in support of the statement of assurance

3.5.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.5.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

⁴⁹ More information on the JU's competences and activities is available on its website: www.fch.europa.eu.

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The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.5.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁵⁰ and the reports on the implementation of the budget⁵¹ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.5.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

⁵⁰ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁵¹ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

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Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.5.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.5.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.5.10. The observations that follow do not call the ECA's opinion into question.

Observation on the implementation of the FP7 budget

3.5.11. *Table 3.5.2* presents an overview of members' contributions to FCH 1 at the end of 2020.

Table 3.5.2 – Members' contributions to FCH 1 (in million euros)

Members	Members' contributions (as per Founding Regulation and legal decisions)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	470.0	N/A	470.0	407.0	19.1	0.0	N/A	426.1
Private members	470.0	N/A	470.0	17.9	440.4	0.0	N/A	458.3
Total	940.0	N/A	940.0	424.9	459.5	0.0	N/A	884.4

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.5.12. For the whole FP7 programme, at the end of 2020, the JU had committed €428.5 million for signed FP7 grant agreements, of which around €7.1 million (or 2 %) still remain to be paid in the coming years. Regarding the JU's 2020 payment budget

The Fuel Cells and Hydrogen Joint Undertaking (FCH)

available for FP7 projects, the implementation rate for payment appropriations was 89 %.

Observations on the implementation of the Horizon 2020 budget

3.5.13. *Table 3.5.3* presents an overview of members' contributions to FCH 2 at the end of 2020.

Table 3.5.3 – Members' contributions to FCH 2 (in million euros)

Members	Members' contributions (as per Founding Regulation and legal decisions)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	665.0	0.0	665.0	498.6	0.0	0.0	0.0	498.6
Private members	95.0	285.0	380.0	8.7	11.9	35.0	1 095.0	1 150.6
Total	760.0	285.0	1 045.0	507.3	11.9	35.0	1 095.0	1 649.2

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.5.14. The low level of validated industry members' in-kind contributions for operational activities of €11.9 million, is due to the fact that the JU certifies them later in the Horizon 2020 programme, when the final payment for the projects is made and the certificates of financial statement (CFS) are due.

3.5.15. Regarding the JU's 2020 budget available for Horizon 2020 projects, the respective implementation rates for commitment and payment appropriations was 97 %.

3.5.16. The JU's administrative budget is managed as a dissociated budget and the reactivation of previous years' unused payment appropriations should be limited to the extent where the payment appropriations of the year are insufficient to cover the contractual obligations of the year. The JU's practice of reactivating unused payment appropriations from previous years to the extent of open administrative commitments, results in an accumulation of unused payment appropriations. Aggravated by the impact of the COVID-19 pandemic on planned costs for IT, communication, missions, meetings, events and other services, this practice resulted in a low budget implementation rate for the JU's administrative budget (Title 2

The Fuel Cells and Hydrogen Joint Undertaking (FCH)

infrastructure and communication expenditure representing around 3 % of the JU's total available payment budget), which was 56 % at the end of 2020.

Observations on internal controls

3.5.17. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. The JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, in 2019. For the annual self-assessment and monitoring of the effectiveness of the control activities required by the ICF, the JU developed relevant indicators for all internal control principles and related characteristics.

3.5.18. For FP7 interim and final payments, the JU performs ex-post audits at the beneficiaries, whilst for Horizon 2020 project cost claims, the Commission's Common Audit Service (CAS) is responsible for the ex-post audits. Based on the ex-post audit results available at the end of 2020, the JU reported a representative error rate of 1.97 % and a residual error rate of 1.01 % for its FP7 projects⁵², and a representative error rate of 2.16 % and a residual error rate of 1.34 % for Horizon 2020 projects (clearings and final payments)⁵³. The Commission considered in its proposal for a Horizon 2020 regulation⁵⁴ that "for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %."

3.5.19. As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries to corroborate the ex-post audit error rates⁵⁵. The audit revealed in one case, an error

⁵² FCH2 JU 2020 Annual Activity Report, point 4.3.

⁵³ FCH2 JU 2020 Annual Activity Report, point 4.3.

⁵⁴ COM(2011) 809 final.

⁵⁵ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

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above 1 % of the audited costs, caused by the application of a wrong exchange rate for the conversion of the declared costs into euro.

Observations on procurement procedures

3.5.20. In April 2020, the JU launched an open procurement procedure for a framework contract related to the implementation of the third phase of the project to develop a H2 certification scheme for compliance with the revised renewable energy directive (REDII)⁵⁶. Although the consortium that had already implemented the first two phases of the project was in a situation of a knowledge advantage, the JU used the open procurement procedure for implementing the third phase of the project. As a result, a consortium with the same coordinator who already had implemented the previous two phases was the only candidate that submitted a tender, and made a financial offer close to the maximum estimated contract value fixed in the tender specifications.

3.5.21. Due to the use of an open procurement procedure in a situation of knowledge advantage, the best price-quality ratio objective could not be fully demonstrated. To increase competition and to allow a better estimation of price from the market, the JU is encouraged to carry out preliminary market research on price and consultation with other companies acting in the hydrogen market.

Observations on interim staff

3.5.22. The JU maintained the position of “Service knowledge management” with constant assignments to interim staff for a period of around 2.5 years due to the request of the FCH Governing Board to enhance the role of knowledge management. According to the Commission’s framework contract for interim services the use of interim staff, however, is limited to office work of a one-off or temporary nature, arising from an exceptional increase in workload and/or the performance of a one-off activity, or to fill a vacant post pending the recruitment of a permanent staff member. The JU’s practice is against this principle and in fact creates a permanent post, in addition to those foreseen in the staff establishment plans.

⁵⁶ Directive (EU) 2018/2001 (recast) on the promotion of the use of energy from renewable sources.

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3.5.16

The administrative budget showed a consistent high implementation rate (between 75% and 80%) for the previous four years. In 2020, however, the situation was different due to the significant impact of the COVID-19 pandemic on administrative activities. Cancellation of planned activities of up to 13 % of Title 2 payment appropriations could not be known to their full extent before the end of the year.

3.5.21

To achieve the best price-quality ratio, the FCH JU exercised an internal market research combined with the use of historical financial data (stemming from previous grant and contracts) in order to establish an appropriate contract value. In future, the FCH JU will complement the internal research with a more detailed external market research to find the most accurate market price for the contract.

3.5.22

The FCH JU would like to stress that the interim staff was needed to face the turnover for the post of Knowledge Management Officer (KMO) between the years 2015 to 2020. This explains partly the need for interim staff to ensure continuity of the service during the periods the post was vacant, namely in 2018 and in 2020.

Furthermore, due to the special request from the FCH Governing Board (GB) in 2017, underlining the critical role of knowledge management and the need for more developed analyses, the FCH JU could only ensure the consequent increased workload with interim staff.

The Electronic Components and Systems for European Leadership Joint Undertaking
(ECSEL)

3.6. The Electronic Components and Systems for European Leadership Joint Undertaking (ECSEL)

Introduction

3.6.1. The Electronic Components and Systems for European Leadership (ECSEL) JU, located in Brussels, was set up in May 2014⁵⁷ for the period up to 31 December 2024. The JU replaced and succeeded the ENIAC and ARTEMIS JUs, which closed on 26 June 2014. The JU started working autonomously on 27 June 2014.

3.6.2. The JU is a public-private partnership in nano-electronics and embedded computing systems research. The members of the JU are the European Union (EU), represented by the Commission (DG CONNECT), the ECSEL Participating States⁵⁸, and three private members that are industry associations (AENEAS, ARTEMISIA and EPoSS) representing companies and research organisations active in the fields of embedded and cyber-physical systems, smart system integration and micro- and nano-electronics.

⁵⁷ Council Regulation (EU) No 561/2014 of 6 May 2014 establishing the ECSEL JU (OJ L 169, 7.6.2014, p. 152).

⁵⁸ Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and Turkey. As of 1 February 2020, the UK left the European Union and is consequently no longer a member of the JU (Source: JU's Website).

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3.6.3. *Table 3.6.1* presents key figures for the JU⁵⁹.

Table 3.6.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	137.4	172.6
Budget in new commitment appropriations (million euros)	209.0	197.7
Available payment budget (million euros) ⁽¹⁾	215.8	232.5
Available commitment budget (million euros) ⁽¹⁾	218.3	204.0
Total staff as at 31 December ⁽²⁾	29	29

⁽¹⁾ Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

⁽²⁾ Staff includes temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

Information in support of the statement of assurance

3.6.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.6.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page **146** forms an integral part of the opinion.

⁵⁹ More information on the JU's competences and activities is available on its website: www.ecsel.eu.

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Opinion

3.6.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁶⁰ and the reports on the implementation of the budget⁶¹ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.6.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

⁶⁰ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁶¹ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

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Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.6.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.6.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.6.10. The observations that follow do not call the ECA's opinion into question.

Observations on the implementation of the FP7 budget

3.6.11. The JU succeeded the ENIAC and ARTEMIS JUs, which were closed on 26 June 2014, and took over the implementation of the FP7 activities launched by them.

3.6.12. At the end of 2020, the EU contributed €573.2 million for the co-financing of the JU's FP7 activities (as transferred from the ARTEMIS and ENIAC JUs in June 2014), and a further €10.4 million for the co-financing of the related administrative costs.

3.6.13. The accumulated commitment for FP7 activities taken over by ECSEL in June 2014, amounted to €447.3 million (ARTEMIS €101.4 million and ENIAC €345.9 million), of which the JU had decommitted €58 million (ARTEMIS €16.8 million and ENIAC €41.2 million) and paid €386.7 million (ARTEMIS €83.8 million and ENIAC €302.9 million) at the end of 2020. Consequently, around €2.6 million (ARTEMIS €0.8 million and ENIAC €1.8 million) remains to be paid in the coming years. Regarding

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the JU's 2020 payment budget available for FP7 projects, the implementation rate for payment appropriations was 70 %.

3.6.14. Without calling into question the opinion expressed in paragraphs [3.6.7](#) and [3.6.9](#) we draw attention to the fact that the founding regulations of the predecessor JUs, ARTEMIS and ENIAC⁶², provided that their operational research and innovation activities under the FP7 programme should be supported through financial contributions from Participating States, of at least 1.8 times the EU's operational financial contribution, to be paid to project participants, and through in-kind contributions from private members, of at least the contribution amount of public members. Neither the JU's 2020 provisional annual accounts nor its 2020 budgetary and financial management report disclose the following estimates of:

- the financial contributions of Participating States to the FP7 projects of ARTEMIS and ENIAC, and
- the in-kind contributions made by research and development organisations participating in FP7 projects of ARTEMIS and ENIAC.

Observations on the implementation of the Horizon 2020 budget

3.6.15. *Table 3.6.2* presents an overview of members' contributions to the JU's H2020 activities at the end of 2020.

Table 3.6.2 – Members' contributions to ECSEL's Horizon 2020 activities (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG CONNECT)	1 185.0	N/A	1 185.0	944.9	N/A	N/A	N/A	944.9
Private members	1 657.5	N/A	1 657.5	19.6	180.3	896.5	N/A	1 096.4
Participating States (2)	1 170.0	N/A	1 170.0	374.7	N/A	N/A	N/A	374.7
Total	4 012.5	N/A	4 012.5	1 339.2	180.3	896.5	N/A	2 416.0

(1) Additional activities are outside ECA's audit scope.

(2) Participating States pay their contributions directly to the beneficiaries.

Source: Data provided by the JU.

⁶² Council Regulations (EC) No 74/2008 and (EC) No 72/2008 (Articles 11(6) of the annex on the Statutes of the ARTEMIS JU and ENIAC JU).

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3.6.16. The ECSEL Participating States are required to make financial contributions of at least €1 170 million to the operational activities of the JU⁶³. At the end of 2020, the Participating States taking part in the 2014 to 2019 calls for proposals, signed contractual commitments amounting to €936.6 million⁶⁴ and declared in total, financial contributions of €374.7 million (or 40 % of the total committed contributions), which they paid directly to the beneficiaries of the H2020 projects they supported. The difference between the amount of Participating States' financial contribution and the EU's financial contribution at the end of 2020, is due to the fact that most Participating States only recognise and report their costs to the JU on the completion of the Horizon 2020 projects they support.

3.6.17. The JU can only calculate the actual amount of the industry members' in-kind contributions after it has validated the contributions of the Participating States at the end of the programme. It therefore estimates the industry members' in-kind contributions based on a "pro-rata temporis" methodology adopted by the JU's Governing Board. This explains why at the end of 2020, the estimated and not yet validated amount of industry in-kind contributions is €896.5 million, in comparison with the amount of validated industry in-kind contributions of €180.3 million. Based on project data for the JU's Horizon 2020 calls 2014 to 2019, as at 31 December 2020, the related industry members' obligations for in-kind contributions amount to €1 384.2 million.

3.6.18. Regarding the JU's 2020 budget available for Horizon 2020 projects, the implementation rates for commitment and payment appropriations were 100 % and 91 % respectively.

3.6.19. Unused payment appropriations of previous years may be included in the budget of JUs in the subsequent three financial years, on the basis that these appropriations are subsequently used first. In 2020, the JU reactivated €57.2 million of unused payment appropriations in the operational budget for H2020 activities. However, the JU could only use €40 million (or 70 %) of the reactivated appropriations before using the appropriations of the year.

⁶³ Article 4(1) of Regulation (EU) No 561/2014.

⁶⁴ This amount is estimated on the basis of the JU's Public Authorities Board decisions on the calls 2014 to 2019.

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Observations on internal controls

3.6.20. Administrative agreements concluded by the ARTEMIS and ENIAC JUs with the National Funding Authorities (NFAs) have continued to apply since those JUs merged to form the ECSEL JU. Under these agreements, the ARTEMIS and ENIAC JUs' ex-post audit strategies relied heavily on the NFAs to audit project cost claims⁶⁵. The ECSEL JU has taken steps to assess the implementation of ex-post audits by the NFAs and has obtained written statements from the NFAs declaring that the implementation of their national procedures provides reasonable assurance as to the legality and regularity of transactions. The significant variation in the methodologies and procedures used by the NFAs does not allow the ECSEL JU to calculate a single reliable weighted error rate or a residual error rate for FP7 payments. For FP7 projects, the payments made by the JU in 2020 amounted to €14.3 million (2019: €20.3 million), which represented 7.7 % (2019: 11.2 %) of the total operational payments made by the JU in 2020. For those payments, we applied the residual error rate established by the Directorate-General for Research and Innovation for the whole FP7 programme, which at the end of 2020 was 3.51 %⁶⁶.

3.6.21. The Commission's Common Audit Service (CAS) carries out the ex-post audits of expenditure. Based on the audit results at the end of 2020, the JU reported a representative error rate for Horizon 2020 of 2.68 % and a residual error rate of 1.25 %⁶⁷. The Commission considered in its proposal for a Horizon 2020 regulation⁶⁸ that "for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %."

⁶⁵ According to the ex-post audit strategies adopted by ARTEMIS and ENIAC, the JUs must assess at least once a year whether the information received from the Member States provides sufficient assurance as to the regularity and legality of the transactions carried out.

⁶⁶ DG RTD 2020 Annual Activity Report, p. 43.

⁶⁷ ECSEL JU 2020 Annual Activity Report (the draft), Part III Internal Control.

⁶⁸ COM(2011) 809 final.

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3.6.22. We audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries to corroborate the ex-post audit error rates⁶⁹. These detailed audits revealed the following:

- in one case systemic errors of above 1 % of audited costs related to the calculation of declared personnel costs; and
- in a second case, the beneficiary declared direct costs for the purchase of services from another beneficiary, who was part of the project consortium. This is only acceptable if duly justified, to avoid that the price contains a profit margin. The beneficiary neither provided the justification for the exception nor proof that the procurement process ensured best value for money for the purchase of this service. This error is non-quantifiable.

Follow-up of previous years' observations

3.6.23. An overview of the corrective action taken in response to the ECA's observations from previous years is provided in the [Annex](#).

⁶⁹ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

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Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2017	In response to the recommendations raised by the evaluators, the JU prepared an Action Plan that was adopted by the JU's Governing Board in April 2018. The Action Plan includes a wide set of actions to be implemented by the JU, for which some activities have already been completed. The majority should be implemented in 2019, while some were considered beyond the scope of the JU.	Completed
2018	In 2018, the JU detected that cash contributions for administrative costs amounting to over €1 million were not invoiced by the ENIAC JU to the industry member AENEAS before the set-up of the JU. To cope with the lack of cash for administrative expenditure, the JU received €1 million from its members as a "prepaid cash contribution", consisting of €320 000 from the Commission and €680 000 from the industry members. The JU should issue the debit note without further delay.	Completed
2019	The implementation rate for the JU's 2019 available payment appropriations of €44.8 million for the co-financing of FP7 projects was 45.3 %. This low rate was mainly due to the National Funding Authorities' (NFA) delays in providing end of project certificates for ongoing FP7 activities. As the programme was closed at the end of 2017, these delays increase the risk that the FP7 funds already allocated to the JU may not be fully used.	N/A

The Electronic Components and Systems for European Leadership Joint Undertaking (ECSEL)

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2019	The JU is obliged to implement the Commission's new internal control framework (ICF), which is based on 17 internal control principles. At the end of 2019, the JU has not yet started the implementation process.	Completed
2019	The JU reallocated €19 million of unused previous years' payment appropriations to the 2019 operational budget, increasing the initial budget for Horizon 2020 grant payments from €163 million to €182 million. The JU justified the reallocation by the expected increase of cost claims in 2019, related to 2014 and 2015 Horizon 2020 calls. At the end of 2019, 59 % of the reallocated budget was implemented.	N/A
2019	The JU has to improve the internal communication process to identify beneficiaries threatened with bankruptcy and to report, in a timely manner, on pre-financing at risk of non-recovery. Consequently, pre-financing assets disclosed in the annual accounts might be overstated.	Completed

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3.6.14

Contrary to H2020, FP7 regulations for ECSEL predecessors never foresaw or required such reporting. It is to be noted that at the time of ARTEMIS and ENIAC JUs, after discussions with DG BUDG (inter alia), it was decided not to include this information in the annual accounts.

3.6.19

The timing of the reactivation during Q3 of 2020 was beyond ECSEL's intention and control due to a pending related request that was cleared only beginning of September 2020. However, as of the reactivation, all payments were executed using in priority reactivated appropriations, in line with ECSEL's financial rules. The ECSEL JU is committed in reactivating any unused appropriations within three financial years and using them in priority according to its financial rules. The ECSEL JU estimates that by the end of 2021, any remaining operational payment appropriations will be reactivated and consumed.

3.6.20

The ECSEL JU would like to reaffirm that steps were taken to address this (recurring) finding. The ECSEL JU considers that these measures (yearly NFA written statements) are adequate, as was confirmed by the budgetary authority. The JUs' founding regulations provided that "the ARTEMIS/ENIAC Member States may carry out any other checks and audits among the recipients of their national funding as they deem necessary and shall communicate the results to the ARTEMIS/ENIAC Joint Undertaking".

3.6.22

The ECSEL JU addressed the identified findings with the respective beneficiaries.

The Bio-based Industries Joint Undertaking (BBI)

3.7. The Bio-based Industries Joint Undertaking (BBI)

Introduction

3.7.1. The Bio-based Industries (BBI) JU, located in Brussels, was set up in May 2014⁷⁰ for a period of ten years and started working autonomously on 26 October 2015.

3.7.2. The JU is a public-private partnership in the bio-based industries sector. The founding members are the European Union (EU), represented by the Commission, and industrial partners represented by the Bio-based Industries Consortium (BIC).

3.7.3. *Table 3.7.1* presents key figures for the JU⁷¹.

Table 3.7.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	191.2	132.5
Budget in new commitment appropriations (million euros)	72.2	138.6
Available payment budget (million euros) ⁽¹⁾	196.6	182.1
Available commitment budget (million euros) ⁽¹⁾	111.7	141.6
Total staff as at 31 December ⁽²⁾	23	22

⁽¹⁾ Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

⁽²⁾ Staff includes temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

⁷⁰ Council Regulation (EU) No 560/2014 of 6 May 2014 establishing the BBI JU (OJ L 169, 7.6.2014, p. 130).

⁷¹ More information on the JU's competences and activities is available on its website: www.bbi-europe.eu.

The Bio-based Industries Joint Undertaking (BBI)

Information in support of the statement of assurance

3.7.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.7.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.7.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁷² and the reports on the implementation of the budget⁷³ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

⁷² The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁷³ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

Reliability of the accounts

Opinion on the reliability of the accounts

3.7.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.7.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.7.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.7.10. The observations that follow do not call the ECA's opinion into question.

The Bio-based Industries Joint Undertaking (BBI)

Observations on the implementation of the Horizon 2020 budget

3.7.11. *Table 3.7.2* presents an overview of the members' contributions to the JU as at the end of 2020.

Table 3.7.2 – Members' contributions to BBI (in million euros)

Members	Members' contributions (as per Founding Regulation and legal decisions)				Members' contributions (as at 31.12.2020)				
	JU activities (1)	Additional activities (2)	Reductions	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG RTD)	975.0	N/A	-140.0	835.0	603.2	N/A	N/A	N/A	603.2
Private members (in-kind contributions and cash contributions to administrative costs)	462.1	2 234.7	N/A	2 696.8	12.5	42.0	53.7	929.2	1 037.4
Private members (cash contributions to operational costs)	182.5	N/A	-140.0	42.5	3.3	N/A	N/A	N/A	3.3
Total	1 619.6	2 234.7	-280.0	3 574.3	619.0	42.0	53.7	929.2	1 643.9

(1) IKOP and administrative cost contribution targets as agreed in the JU's annual work plans.

(2) Additional activities are outside ECA's audit scope. Their minimum target of € 1 755 million was raised to € 2 234.7 for private members to achieve the total minimum contribution obligation of at least € 2 730 million.

Source: Data provided by the JU.

3.7.12. According to the JU's founding regulation, the industry members should contribute in cash at least €182.5 million to the JU's operational costs. As in 2020, the industry members did not make any additional cash contributions to the JU operational costs, they remained at the same low level of €3.25 million, as at the end of 2019. This indicates that the JU encounters significant obstacles in obtaining such contributions and that the minimum target will not be achieved by the end of the Horizon 2020 programme. For this reason, the Commission's (DG RTD) reduced its cash contributions to the JU by €140 million. This significant reduction in members' contributions presented a risk to the achievement of the JU's research and innovation agenda for the H2020 programme.

3.7.13. By the end of 2020, the industry members' total in-kind contributions to additional activities only achieved 53 % of the minimum amount of €1 755 million, established in the JU's Founding Regulation. In addition, at the end of 2020, the industry members reported €95.7 million of in-kind contributions to operational activities out of the €433 million committed after all Horizon 2020 calls had been launched. This situation indicates a high risk that, by the end of the Horizon 2020 programme, the JU will not achieve the expected targets for its industry members' in-kind contributions as established in its founding regulation and adopted annual work plans.

The Bio-based Industries Joint Undertaking (BBI)

3.7.14. Regarding the JU's 2020 budget available for Horizon 2020 projects, the implementation rates for commitment and payment appropriations were 100 % and 85 % respectively.

Observations on internal controls

3.7.15. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. The JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, in 2020. For the annual self-assessment and monitoring of the effectiveness of the control activities required by the ICF, the JU developed relevant indicators for all internal control principles and related characteristics.

3.7.16. The Common Audit Service of the Commission (CAS) is responsible for the ex-post audit of Horizon 2020 payments made by the JU. Based on the ex-post audit results available by the end of 2020, the JU reported a representative error rate of 1.47 % and a residual error rate of 1.06 % for Horizon 2020 projects (clearings and final payments)⁷⁴. The Commission considered in its proposal for a Horizon 2020 regulation⁷⁵ that "for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %."

3.7.17. As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries to corroborate the ex-post audit error rates⁷⁶. The detailed audits revealed in one case, an error of above 1 % of audited costs related to the unjustified correction of already declared and accepted personnel costs in the subsequent reporting period.

⁷⁴ BBI JU 2020 Annual Activity Report, p. 168.

⁷⁵ COM(2011) 809 final.

⁷⁶ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

The Bio-based Industries Joint Undertaking (BBI)

3.7.18. The European Anti-Fraud Office (OLAF) closed an investigation in the first half of 2020 that found evidence of irregularities and fraud in the activities of two beneficiaries involved in Horizon 2020 projects, including projects co-financed by the JU. In 2020, the JU has largely implemented the OLAF recommendations in respect of these beneficiaries. This includes processing recoveries, terminating the participation of affected beneficiaries in most grant agreements, and actively looking at other potentially problematic beneficiaries.

Observations on sound financial management

3.7.19. The design of the JU's 2020 call for proposals did not ensure the fullest coverage of the four strategic demonstration topics, in line with the JU's research agenda in the work plan. Eligible and high-scored proposals for one of the demonstration topics had to be rejected for the benefit of another demonstration topic, for which several proposals were accepted for co-financing.

Follow-up of previous years' observations

3.7.20. An overview of the corrective action taken in response to the ECA's observations from previous years is provided in the [Annex](#).

The Bio-based Industries Joint Undertaking (BBI)

Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2019	<p>Of the minimum of €182.5 million of cash contributions⁷⁷, only €3.25 million were paid at the end of 2019. The BBI founding regulation⁷⁸ was amended to enable industry members to provide their cash contributions at project level. In spite of this amendment, there is still a high risk that the industry members will not achieve the minimum amount of operational cash contributions at the end of the BBI programme. As a result, the Commission (DG RTD) decided at the end of 2018 to reduce the JU's 2020 budget of €205 million by €140 million⁷⁹.</p>	N/A
2019	<p>The total amount of in-kind contributions to additional activities of €916 million at the end of 2019 included around €216 million of in-kind contributions reported for 2019, but for which the certification process had not been completed due to the COVID-19 pandemic.</p>	Ongoing

⁷⁷ Article 12(4) of the Statutes of the BBI JU (Annex I of Regulation (EU) No 560/2014).

⁷⁸ Council Regulation (EU) 2018/121 of 23 January 2018 amending Regulation (EU) No 560/2014 establishing the BBI JU (OJ L 22, 26.1.2018, p. 1).

⁷⁹ This amount includes the announced 2017 budget suspension of €50 million and the 2018 budget suspension of €20 million.

The Bio-based Industries Joint Undertaking (BBI)

Reply of the Joint Undertaking

3.7.12

The legal framework set up exclusively for the BBI JU for the collection of financial contributions from its industry members eventually proved to be ineffective. In line with a past recommendation from the ECA, the lessons learnt from BBI JU's specific experience shall be taken into account for the design of future Public-Private Partnerships. However, in the case of BBI JU this experience has also demonstrated that, despite the significant reduction of in-cash contributions from both members EC and BIC, the initiative succeeded in achieving its strategic objectives. Indeed, the outcomes and the impacts achieved by the financed projects are already exceeding the majority of the objectives set by the BBI Strategic Innovation and Research Agenda, which was confirmed by a recent study carried out by independent external experts. The 2020 Annual Activity Report of BBI JU provides further details in this respect.

3.7.13

The overall contributions from the industry members of the BBI JU are indeed slightly below the level expected at this point in time of the initiative. In fact, the in-kind contribution projections for IKAA and IKOP were originally expected to be linear, while recent experience shows that these investments are massively implemented at the end of the BBI JU projects. Moreover, the Covid-19 pandemic caused postponements in investments and in their certification by external auditors.

In the opinion of the BBI JU, this gap will be significantly reduced in the coming years given that the declaration and certification of in-kind contributions (IKAA and IKOP) will significantly increase in line with the closure of the BBI projects. Moreover, the industry members committed for additional investment targets for 2021 and beyond in their financial perspective presented to the BBI Governing Board.

The Shift2Rail Joint Undertaking (S2R)

3.8. The Shift2Rail Joint Undertaking (S2R)

Introduction

3.8.1. The Shift2Rail (S2R) JU, located in Brussels, was set up in June 2014⁸⁰ for a period of ten years and started working autonomously on 24 May 2016.

3.8.2. The JU is a public-private partnership in the rail sector. The founding members are the European Union (EU), represented by the Commission and rail industry partners (key stakeholders, including rail equipment manufacturers, railway companies, infrastructure managers and research centres). Other entities may participate in the JU as associated members.

3.8.3. *Table 3.8.1* presents key figures for the JU⁸¹.

Table 3.8.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	72.5	61.8
Budget in new commitment appropriations (million euros)	77.9	79.1
Available payment budget (million euros) (1)	75.8	81.6
Available commitment budget (million euros) (1)	84.1	83.1
Total staff as at 31 December (2)	24	23

(1) Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

(2) Staff includes temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

⁸⁰ Council Regulation (EU) No 642/2014 of 16 June 2014 establishing the Shift2Rail JU (OJ L 177, 17.6.2014, p. 9).

⁸¹ More information on the JU's competences and activities is available on its website: www.shift2rail.org.

The Shift2Rail Joint Undertaking (S2R)

Information in support of the statement of assurance

3.8.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.8.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.8.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁸² and the reports on the implementation of the budget⁸³ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

⁸² The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁸³ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

Reliability of the accounts

Opinion on the reliability of the accounts

3.8.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.8.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.8.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.8.10. The observations that follow do not call the ECA's opinion into question.

Observations on the implementation of the Horizon 2020 budget

3.8.11. *Table 3.8.2* presents an overview of the members' contributions to the JU at the end of 2020.

The Shift2Rail Joint Undertaking (S2R)

Table 3.8.2 – Members' contributions to S2R (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG Move)	398.0	0.0	398.0	297.7	0.0	0.0	0.0	297.7
Private members	350.0	120.0	470.0	9.2	121.9	93.1	204.8	429.0
Total	748.0	120.0	868.0	306.9	121.9	93.1	204.8	726.7

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

3.8.12. At the end of 2020, the JU implemented 100 % and 80 % respectively of the commitment and payment appropriations available for Horizon 2020 projects. The implementation rate for the operational payment appropriations declined compared to 2019 (88 %) because one grant agreement awarded under the 2020 call for proposals could not be signed by the end of 2020 and the related pre-financing had to be delayed accordingly.

Observations on internal controls

3.8.13. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. The JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, in 2020. For the annual self-assessment and monitoring of the effectiveness of the control activities required by the ICF, the JU developed relevant indicators for all internal control principles and related characteristics.

3.8.14. The Governing Board (GB) Decision 07/2018 adopting the rules on the prevention and management of conflicts of interests, applicable to the bodies of the JU, requires that up-to-date CVs and conflict of interest declarations of the JU's GB members are published on the JU's website. However, as only a few of the GB members duly submitted the information, none of the conflict of interest declarations and only half of the CVs could be published by the end of 2020.

3.8.15. The Common Audit Service of the Commission (CAS) is responsible for the ex-post audit of Horizon 2020 payments made by the JU. Based on the ex-post audit results available at the end of 2020, the JU reported a representative error rate of 2.9 % and a residual error rate of 1.99 % for Horizon 2020 projects (clearings and final

The Shift2Rail Joint Undertaking (S2R)

payments)⁸⁴. The Commission considered in its proposal for a Horizon 2020 regulation⁸⁵ that “for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2 % and 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 project. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, correction and recovery measures will have been taken into account, is to achieve a level as close as possible to 2 %.”

3.8.16. As part of the operational payment controls, we audited randomly sampled Horizon 2020 payments made in 2020 at the level of the final beneficiaries to corroborate the ex-post audit error rates⁸⁶. These detailed audits revealed in one case, a systemic error because of the use of a wrong method for the calculation of declared personnel costs. In another case, a systemic non-quantifiable control weakness related to the absence of the beneficiary’s validation procedure for the hours declared as worked on the project, was detected.

Follow-up of previous years’ observations

3.8.17. An overview of the corrective action taken in response to the ECA’s observations from previous years is provided in the [Annex](#).

⁸⁴ S2R JU 2020 Annual Activity Report, p. 189.

⁸⁵ COM(2011) 809 final.

⁸⁶ Regarding the grant payment transactions tested at the beneficiaries, the reporting threshold for quantifiable errors is 1 % of the audited costs.

The Shift2Rail Joint Undertaking (S2R)

Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2017	<p>In response to the recommendations raised by the evaluators, the JU prepared an Action Plan adopted by the Governing Board on 28 June 2018. While not all recommendations raised in the Interim Evaluation will be addressed under the current Financial Framework Programme, some actions included in the Action Plan have already been initiated, while others, in accordance with their nature and the current legal framework, are new addressed in the Commission's proposal of 23 February 2021, to establish the future European Partnership for rail research and innovation.</p>	N/A

The Shift2Rail Joint Undertaking (S2R)

Reply of the Joint Undertaking

3.8.14

The following actions were undertaken by the S2R JU:

- The Governing Board (GB) Members were several times reminded to submit the missing declarations of conflict of interest;
- In June 2021, 28% of the CVs and declaration of conflict of interests are still missing (12 out of 43 current active representatives);
- During the GB meeting of 22 June 2021, a status report was presented to the GB members. It was also explained that any GB member not having complied with the requirements in terms of Col declaration and CV is considered de facto in a conflict of interest situation, leading to an exclusion from Governing Board decision making process.

3.8.16

The finding in respect of the absence of the beneficiary's validation procedure for hours declared was identified in an ex-post audit report performed by the Commission's Common Audit Service (CAS) at the end of 2020 without financial adjustments required. This report concluded that in general, the time recording system of the beneficiary is reliable. In addition, the beneficiary has confirmed that improvement in the time recording validation system will be implemented, which the S2R JU will follow-up.

The European High Performance Computing Joint Undertaking (EuroHPC)

3.9. The European High Performance Computing Joint Undertaking (EuroHPC)

Introduction

3.9.1. The European High Performance Computing (EuroHPC) JU, located in Luxembourg, was set up in October 2018 for a period until 31 December 2026⁸⁷. It started working autonomously on 23 September 2020.

3.9.2. The JU is a public-private partnership, enabling the pooling of resources from the European Union (EU), European countries and private partners for the development of high performance computing in Europe. The founding members of the JU are the EU, represented by the Commission, the Participating States⁸⁸, and two private partners, represented by the European Technology Platform for High Performance Computing (ETP4HPC) and the Big Data Value (BDVA) associations.

⁸⁷ Council Regulation (EU) 2018/1488 of 28 September 2018 establishing the European High Performance Computing JU (OJ L 252, 8.10.2018, p. 8).

⁸⁸ Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and Turkey (Source: EuroHPC Website)

The European High Performance Computing Joint Undertaking (EuroHPC)

3.9.3. *Table 3.9.1* presents key figures for the JU⁸⁹.

Table 3.9.1 – Key figures for the JU

	2020	2019
Budget in new payment appropriations (million euros)	181.5	N/A
Budget in new commitment appropriations (million euros)	509.1	N/A
Available payment budget (million euros) (1)	181.5	N/A
Available commitment budget (million euros) (1)	509.1	N/A
Total staff as at 31 December (2)	11	N/A

(1) Available budget includes unused appropriations of previous years, which the JU re-entered in the budget of the current year, assigned revenues and reallocations to the next year.

(2) Staff includes officials, temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

Information in support of the statement of assurance

3.9.4. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.9.5. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

⁸⁹ More information on the JU's competences and activities is available on its website: www.eurohpc-ju.europa.eu.

The European High Performance Computing Joint Undertaking (EuroHPC)

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.9.6. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁹⁰ and the reports on the implementation of the budget⁹¹ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.9.7. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

⁹⁰ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁹¹ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

The European High Performance Computing Joint Undertaking (EuroHPC)

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.9.8. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.9.9. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

3.9.10. The observations that follow do not call the ECA's opinion into question.

Observations on the implementation of the Horizon 2020 budget

3.9.11. *Table 3.9.2* presents an overview of members' contributions to the EuroHPC JU at the end of 2020.

Table 3.9.2 – Members' contributions to EuroHPC (in million euros)

Members	Members' contributions (as per Founding Regulation)			Members' contributions (as at 31.12.2020)				
	JU activities	Additional activities (1)	Total	Cash	In-kind validated	In-kind reported not validated	In-kind to additional activities	Total
EU (DG CONNECT)	536.0	N/A	536.0	190.9	0.0	0.0	N/A	190.9
Participating States	486.0	N/A	486.0	28.9	0.0	0.0	N/A	28.9
Private members	422.0	N/A	422.0	0.0	0.0	0.0	N/A	0.0
Total	1 444.0	N/A	1 444.0	219.8	0.0	0.0	N/A	219.8

(1) Additional activities are outside ECA's audit scope.

Source: Data provided by the JU.

The European High Performance Computing Joint Undertaking (EuroHPC)

3.9.12. Regarding the JU's 2020 budget available for Horizon 2020 projects, the implementation rates for commitment and payment appropriations were 95.5 % and 22.5 % respectively. The low implementation level for the payment appropriations is partially explained by the fact that the Commission migrated the full annual payment budget to the JU when it achieved its financial autonomy on 23 September 2020.

3.9.13. At the end of 2020, delays in the recruitment of key staff together with the impact of the COVID-19 pandemic on planned costs for IT, communication, missions, meetings, events and other services, significantly reduced the implementation rates for administrative payment budget (representing around 1.5 % of the total available budget) down to 16.5 %.

3.9.14. For 2020, the JU's operational payment budget was planned for the pre-financing related to the acquisition of the three precursor to exascale supercomputers and five petascale supercomputers (around €135 million) and for completed calls for proposals (around €44 million). However, at the end of 2020, pre-financing payments could only be made for the signed contracts related to the supercomputers LEONARDO and PetaSC, amounting to around €34 million, and for signed grant agreements, amounting to around €6 million. This resulted in a low implementation rate for operational payment appropriations of 22.6 %.

Observations on internal controls

3.9.15. The JU has set up reliable ex-ante control procedures based on financial and operational desk reviews. At the end of 2020, the JU implemented the Commission's internal control framework (ICF), which is based on 17 internal control principles, to a large extent. However, for the control principles related to risk assessment, and control and monitoring activities, the JU still needs to complete several actions to ensure their effective functioning.

3.9.16. At the end of 2020, the JU had neither developed reliable procedures for the validation and certification of in-kind contributions declared by its private members and Participating States, nor established an appropriate accounting procedure for the recognition of these in-kind contributions. This situation does not allow the JU to manage, monitor and report on the achievement of the minimum level of in-kind contributions, to be made by this private members and Participating States.

The European High Performance Computing Joint Undertaking (EuroHPC)

Other issues

3.9.17. Considering the JU's current workload concerning administrative and operational processes and the launching of its first important activities, we consider the JU to be currently understaffed. During the 2020 organisational setup, the JU mainly concentrated on ensuring the main operational processes and tasks, but neglected the need for administrative key staff, in particular, the head of administration and finance and the internal control and audit coordination manager. Without addressing this resource deficit, the JU risks encountering weaknesses in financial, budgetary and staff management, as well as in internal control processes for operational payments and in-kind contributions. Finally, the high proportion of contractual staff (74 %) may result in a significant level of staff turnover in the near future, further increasing the pressure on the JU's precarious staff situation.

The European High Performance Computing Joint Undertaking (EuroHPC)

Reply of the Joint Undertaking

The Joint Undertaking has taken note of the ECA's report.



**Joint Undertaking operating under
EURATOM**

The European Joint Undertaking for ITER and the Development of Fusion Energy (F4E)

3.10. The European Joint Undertaking for ITER and the Development of Fusion Energy (F4E)

Introduction

3.10.1. The European JU for ITER⁹² and the Development of Fusion Energy (F4E) was set up in April 2007 for a period of 35 years⁹³. One of the main tasks of the JU is to provide the contribution of the European Atomic Energy Community (Euratom) to the ITER International Fusion Energy Organisation (ITER-IO), in charge of the implementation of the ITER project. While the main fusion facilities were to be developed at Cadarache in France, the JU is located in Barcelona.

3.10.2. The founding members of the JU are Euratom, represented by the Commission, the Euratom Member States and Switzerland, which concluded a cooperation agreement with Euratom.

⁹² International Thermonuclear Experimental Reactor.

⁹³ Council Decision 2007/198/Euratom of 27 March 2007 establishing the European JU for ITER and the Development of Fusion Energy and conferring advantages upon it (OJ L 90, 30.3.2007, p. 58), amended by Council Decision (Euratom) 2013/791 of 13 December 2013 (OJ L 349, 21.12.2013, p. 100), the Council Decision (Euratom) 2015/224 of 10 February 2015 (OJ L 37, 13.2.2015, p. 8), and the Council Decision (Euratom) 2021/281 of 22 February 2021 (OJ L 62, 23.2.2021, p. 41).

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3.10.3. *Table 3.10.1* presents key figures for the JU⁹⁴.

Table 3.10.1 – Key figures for the JU

	2020	2019
Budget in payment appropriations (million euros)	794.8	721.1
Budget in commitment appropriations (million euros)	878	689.5
Available payment budget (million euros) (1)	816.5	761.2
Available commitment budget (million euros) (1)	885.7	729.7
Total staff as at 31 December (2)	435	439

(1) Available budget includes carry overs of administrative commitments and assigned revenues not yet endorsed by the Governing Board.

(2) Staff includes temporary and contract agents and seconded national experts.

Source: Data provided by the JU.

3.10.4. At the end of 2020, the implementation rates of the available commitment and payment appropriations reached 100 % and 98 % respectively.

Information in support of the statement of assurance

3.10.5. The audit approach we took comprises analytical audit procedures, direct substantive testing of transactions at the JU and beneficiaries, and an assessment of key controls of the JU's supervisory and control systems. The results of this work were supplemented by evidence provided by the work of other auditors and an analysis of information provided by the JU's management.

3.10.6. Please refer to section 3.1 of the report for the description of the basis for the opinion, responsibilities of management and those charged with governance and the auditor's responsibilities for the audit of the accounts and underlying transactions. The signature on page [146](#) forms an integral part of the opinion.

⁹⁴ More information on the JU's competences and activities is available on its website: www.f4e.europa.eu.

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The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.10.7. We have audited:

- (a) the accounts of the JU, which comprise the financial statements⁹⁵ and the reports on the implementation of the budget⁹⁶ for the financial year ended 31 December 2020, and
- (b) the legality and regularity of the transactions underlying those accounts, as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.10.8. In our opinion, the accounts of the JU for the year ended 31 December 2020 present fairly, in all material respects, the financial position of the JU at 31 December 2020, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

⁹⁵ The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

⁹⁶ The reports on implementation of the budget comprise the reports, which aggregate all budgetary operations and the explanatory notes.

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Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.10.9. In our opinion, the revenue underlying the accounts for the year ended 31 December 2020 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.10.10. In our opinion, the payments underlying the accounts for the year ended 31 December 2020 are legal and regular in all material respects.

Emphasis of matters

3.10.11. Without calling into question the opinion expressed in paragraphs [3.10.8](#) and [3.10.10](#), the ECA draws attention to paragraphs [3.10.13](#) to [3.10.15](#), informing that the JU's annual accounts for the financial year 2020 disclose the JU estimate of the total cost for completing its delivery obligations for the ITER project, assessed at €17.97 billion. Changes in key assumptions for the estimate and risk exposure, however, could lead to significant costs increases and/or to further delays in the implementation of the ITER project.

3.10.12. The observations that follow do not call the ECA's opinion into question.

Observations on cost estimate at completion for ITER

3.10.13. The JU maintains an estimate of the total cost of completing its delivery obligations for the ITER project in 2042, the so-called estimate at completion (EaC). At the end of 2020, the JU assessed this total cost at €17 968 million (in 2020 values). This is the sum of the total payments made at the end of 2020, amounting to €7 345 million, and the estimate of the future payments, assessed at €10 623 million (in 2020 values).

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3.10.14. Compared to the 2019 annual accounts, which presented the costs to complete estimate in ITER credits only, the JU considerably improved the information quality in the 2020 annual accounts, in presenting the costs to complete estimate in euros and in 2020 values, including the BREXIT and COVID-19 impact. Changes in key assumptions for the estimate and risk exposure, however, may lead to significant cost increases and further project delays. This is illustrated by the examples listed below:

- Nuclear safety requirements: Although the JU is cooperating with ITER-IO to ensure that the designs respect various nuclear safety requirements, the French Nuclear Safety Authority has the ultimate authority, and any future changes in the safety requirements could have a high cost impact;
- Cost estimate for the Hot Cell Complex: This has not been revised, and the current maturity stage of the ITER-IO design requirements does not allow F4E to prepare a credible cost estimate; and
- Requirement changes: Although any necessary changes will be funded via the contingencies facilities (i.e. ITER Reserve Fund or the ITER undistributed budget) and the JU has noted the positive effect of this policy, it is impossible to reduce them to zero. These changes may cause further delays and costs for ongoing and future construction activities.

3.10.15. The JU assessed that the impact of the COVID-19 pandemic has been serious but not significant. By April 2021, the pandemic has caused delays of up to four months for some deliveries, with a resulting increase in costs of around €47 million (in 2008 values) for the overall ITER project. Further repercussions are possible should the pandemic worsen in 2021.

Observations on internal controls

3.10.16. The following observations relate to the JU's local IT applications used for managing legal commitments and contracts (DACC) and for document management (IDM)⁹⁷. They are not applicable to the systems and workflow of the Commissions central financial information system (ABAC). They concern the JU's responsible authorising officer (RAO) at all levels, and the JU's deputising officers.

⁹⁷ The observations do not take into account the recent changes made by the JU in 2021, to mitigate identified risks.

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3.10.17. Over the years, the JU has made considerable efforts to implement an electronic document management system. At the end of March 2020, the JU's Executive Director decided that the advanced electronic signatures in DACC should not only be used for managing and signing contract amendments but also for initial contracts, as temporary administrative measures, during the COVID-19 pandemic.

3.10.18. In general, this measure enabled the JU to maintain business continuity and allowed its staff to telework since the beginning of the COVID-19 pandemic. However, the JU did not fully align its local IT applications with the internal processes for delegations. As described in following paragraphs, significant weaknesses remain to be resolved regarding:

- legal aspects related to the implementation of the JU's framework of delegations and the use of advanced electronic signatures;
- technical aspects related to the DACC and IDM applications' technical set-ups (user access rights) for RAOs; the use of accounts with virtual identities, and the applications' interfaces, and
- internal control aspects related to the compliance of the local IT systems with the delegations of rights to authorise, and to the correctness of accounting and financial data in the JU's accounting system.

3.10.19. Contrary to the ABAC workflow, the DACC application cannot evidence that staff had properly understood the contents of a document and agreed to sign it with their personal signature.

3.10.20. In its centralised authentication system for contract management, the JU created, in addition to individual user accounts, user group accounts with virtual identities to facilitate the management of its local IT applications (DACC, IDM). However, until the end of 2020, the functional group account created for the F4E Director was also used to approve and sign a variety of important documents. This practice is contrary to the basic principles of the JU's ICT access management policy that clearly requires user accounts to be unique and linked to a single user. It is therefore considered a critical internal control weakness, as it allows all persons included within the group account to perform actions, uniquely reserved for the RAO.

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3.10.21. The JU's framework of delegations has the objective of centralising the delegations to the responsible authorising officers, and among other things, it provides for an up-to-date overview of all approved delegations and deputising arrangements at F4E. However, at the end of 2020, the framework of the delegations in the JU's local IT applications (DACC and IDM) did not automatically establish technical delegations (i.e. user rights to authorise transactions) but instead, relied on each RAO to select the correct person to delegate to, based on the framework approved by the JU's Director . Moreover, delegation powers that are provided by the contracts (i.e. to sign binding decisions under certain conditions) are given to JU staff, other than the RAO (i.e. the responsible officers for contract). This is not reflected in the JU's framework of delegations.

3.10.22. Finally, unlike the ABAC workflow, the DACC application has never been subject to an internal control audit, to ensure the compliance of user rights to authorise transactions with delegations assigned to staff. Consequently, there is a high risk that non-compliance due to breaches of the JU's delegation policy may not have been identified nor mitigated.

3.10.23. Although in 2016, the JU started to use the IT application DACC for the legal commitment or contract management (in 2020 including for initial contracts), and therefore as an additional source for accounting and financial data, no validation of the JU's accounting system has been performed since 2013. This situation is contrary to the JU's financial regulation, requiring a validation of the accounting system, whenever a major change occurs.

3.10.24. We draw attention to the planned audit of the Commission's Internal Audit Service regarding delegations of authority, the efficiency of decision-making in F4E, and the cooperation mechanisms with the Commission's Directorate-General for Energy, starting at the beginning of June 2021.

Observation on recruitment procedures

3.10.25. The JU's recruitment procedures made in 2020 lacked transparency in drawing up the final shortlist of candidates to be invited for the next assessment phase (interviews and written tests). In particular, it is not clear how the selection committee took account of the advantageous criteria for shortlisting candidates.

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Other issues

3.10.26. The JU's calculation method for the 2020 annual membership contributions did not comply with the respective provisions of JU's Financial Regulation. Instead of using the contribution estimates as adopted by JU's Governing Board, the JU levied the contributions based on a yet to be adopted draft estimate.

3.10.27. The JU uses its own e-Procurement portal, which is not fully synchronized with the Commission's eProcurement solution. Future enhancements of the F4E's eProcurement tool could lead to unnecessary duplication with the Commission's development efforts and investment. This would not support the principle of a single 'electronic data interchange area' for participants, as foreseen by the EU financial regulation.

Follow-up of previous years' observations

3.10.28. An overview of the corrective action taken in response to the ECA's observations from previous years is provided in the [Annex](#).

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Annex - Follow up of previous years' observations

Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2019	The budget for Chapter 3.4 – Other Operational Expenditure is used for diverse categories of expenditure (i.e. expenditure for contracted and insourced human resources, mission expenditure, and legal support expenditure, etc.). To ensure adherence to the budget principles of transparency and specification, a separate budget chapter for each expenditure category should be created.	Completed
2019	In one high-value procurement procedure, the initial published schedules and deadlines were unrealistic. In one case, the administrative burden to prove equivalence to the specific certification, required as part of the selection criteria, may have deterred potential contractors holding equivalent certifications from submitting a tender.	N/A
2019	The JU is annually assessed by an external expert panel. The expert panel identified several problems and risks at senior management and corporate culture level. This situation, if remaining unsolved, could negatively affect the performance of the staff.	Ongoing

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Year	ECA's comments	Status of corrective action (Completed / Ongoing / Outstanding / N/A)
2019	<p>Due to the restriction of the establishment plan in terms of statutory staff, the F4E increasingly uses contracted or insourced resources. In 2019, the level of these resources already reached around 62 % of the JU's statutory staff. The JU's human resource management does not have up-to date information on the size of these resources, as its management is decentralised at unit or directorate level. This situation presents significant risks for the JU, concerning the retention of key competences, unclear accountability, possible judicial disputes, and lower staff efficiency due to decentralised management.</p>	Ongoing
2019	<p>In 2019, the F4E Governing Board appointed an Ad-Hoc Group (AHG) to review the JU's reporting system and propose necessary changes. The AHG proposed that a new Earned Value Management (EVM) system be introduced, which was endorsed by the F4E Governing Board in April 2019⁹⁸. The proposed EVM system, however, does not take into account all the independent experts' recommendations⁹⁹ and does not provide clear information on what technical progress was achieved against costs incurred to-date, regarding the total of the JU's delivery obligations for the ITER project. Considering the importance of the new EVM system to track performance, it is crucial, that the JU monitors its effectiveness during the implementation phase and informs the Governing Board whenever significant issues emerge.</p>	Completed

⁹⁸ F4E Governing Board n.43 of 5 April 2019.

⁹⁹ Seventh annual assessment by an independent Review Group (30 November 2018), pp. 30-31.

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Reply of the Joint Undertaking

3.10.16 till 3.10.20

The F4E Contract Management platform DACC (acronym for Deviations, Amendments and Contract Changes) is an electronic exchange system that was developed to address critical recommendations from the European Commission's Internal Audit Service (IAS) in 2014, in relation to the contract modifications. The first version of the tool was released in 2016 to unify the deviation/change with the amendment (legal commitment) and ensure the control of modifications to F4E contracts. The tool was also designed to monitor the cost of the contractual changes compared with the Estimate at Completion (EaC) and its risk provisions. As a second phase, the tool was further developed to also cover the Commercial Modifications (e.g. Exchange of Letters), Commercial Activations (e.g. release of options), and Framework Contract changes, etc. Due to the COVID-19 situation, an additional module was urgently developed to allow contract signature directly online, which was released in April 2020 for Operational Contracts. For the administrative contracts, the different modules have been rolled out since the beginning of 2021. As for the technical requirements of such an electronic system, F4E relied on the requirements set in the F4E Financial Regulation (current art. 88), with reference to General Financial Regulation (current art. 148). In early 2021, in the frame of the annual assessment of the F4E's Internal Control system, errors were detected by the F4E internal Control Coordinator regarding the signature phase of some operational contracts in DACC. F4E identified some transactions where managers requested another person to approve a legal commitment in DACC on their behalf. Such acts are not foreseen in F4E's internal financial framework on financial delegations and deputising and hence not in line with the F4E Financial Regulation.

Although the contracts are still considered legal under Spanish and French Law, the issue revealed serious deficiencies in F4E's internal control systems. As a consequence, the F4E Director included a non-quantified reputational reservation in its annual declaration of assurance for the year 2020.

Nevertheless, F4E confirms that from 2021 onwards the F4E's Internal Audit Capability will extend the scope of its annual review of ABAC access rights to also include DACC. In addition, the IAS launched in June 2021, an audit on "Delegations and efficiency of decision making in F4E and cooperation mechanisms with DG ENER". Both engagements will contribute to increase the current assurance on the compliance with F4E delegation policy and internal control system.

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Meanwhile F4E took immediate corrective actions to address these weaknesses and ensure these errors cannot reoccur. These comprise the reinforcement of financial checks and controls within DACC and awareness raising among F4E staff.

3.10.21

With regards to the delegation powers provided by the contracts to staff other than RAO, these correspond exclusively to daily management activities of the contract, and do not amend the contract as such. The F4E JU will update the respective provision in the model contract.

3.10.22

F4E confirms that a validation of the user right is being performed by a third party to provide assurance.

3.10.23

F4E confirms that a validation of the accounting systems will be launched in 2021. However, F4E would like to stress that DACC is not automatically synchronized with ABAC. Any data entered in the accounting system is validated in line with the internal control system: ex-ante and ex-post controls are in place to ensure the quality of accounting data.

3.10.25

F4E has continued to evolve its recruitment processes. Since the start of 2021, these include fully quantitative assessments of applications.

3.10.26

F4E has adopted measures, in particular the approval of the draft Single Programming Document for the following year by the last Governing Board of the year, to avoid this issue happening again.

3.10.27

F4E took the decision to implement a commercial off-the-shelf e-submission tool because the Commission tool had a limited scope (only for open procedures) and a high number of reported incidents and stability issues. When the tool offered by the Commission covers all procurement procedure types relevant for F4E and the incident rate decreases, F4E will evaluate a potential move to the Commission toolset and take a decision based on F4E's operational requirements. Moreover, F4E's commercial off-

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the-shelf tool is fully compliant with the provisions of the EU Directives on public procurement. It provides free electronic access to call for tenders published by F4E, and is integrated with TED e-Notices and the TED website where F4E's public procurement notices are published.

This Report was adopted by Chamber IV, headed by Mr Mihails KOZLOVS, Member of the Court of Auditors, in Luxembourg on 21 September 2021.

For the Court of Auditors



Klaus-Heiner LEHNE

President

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