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Audit of EU Joint Undertakings in brief

Introducing the European Court of Auditors'
2020 annual report on EU Joint Undertakings

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Contents

	Paragraph
Acronyms	
Executive summary	I-VIII
What we audited	01-20
Joint Undertakings' legal establishment and structure	01-03
JUs operating under H2020	04-05
F4E operating under Euratom to establish ITER	06-09
JUs are located in the European Union	10-11
JUs' governance models	12
JUs' FP7 and H2020 research and innovation activities are jointly financed by all members	13-19
Discharge procedure	20
Our audit	21-24
Our mandate and using the work of others	21-23
Our audit approach for grant payments	24
What we found	25-65
Unqualified ("clean") audit opinions for all JUs...	25-28
... on the annual accounts	25
... but emphasis of matter for F4E related to the EU contribution to ITER	26
... on the revenue underlying the JUs' accounts	27
... on the payments underlying the JUs' accounts	28
... but our observations address several areas for improvement	29-47
Recurrent weaknesses in the annual planning of payments	30
JUs implemented almost fully their FP7 and TEN-T activities but face challenges in implementing H2020 activities	31-32
Private members contribute significantly more to additional activities outside of the JUs' work plans	33-34

JUs encounter serious obstacles in obtaining private members' cash contributions to their operational costs	35
Approximately 77 % of the JUs' H2020 research and innovation agenda is already committed for implementation	36
Internal controls in respect of grant payments were generally effective	37-39
Our audit of 2020 grant payments at the beneficiaries revealed persistent systemic errors for declared personnel costs	40-41
Weaknesses in the F4E's local IT application for contract management	42
Insufficient statutory staff at JUs	43-44
Use of open procurement procedure under a situation of knowledge advantage	45
JUs are not fully using the Commission's eProcurement solution and F4E developed its own portal	46-47
JUs exploited synergies to overcome the COVID-19 crisis in 2020	48-64
JUs cooperated closely to ensure business continuity under the COVID-19 pandemic situation	49-52
JUs coordinated their mitigating actions and ensured governance	53-54
JUs fulfilled their duty of care towards staff	55-56
... which contributed to a stable staffing situation during the crisis	57
Despite the COVID-19 pandemic, the JUs ensured the award of grants...	58-60
...and the payments to their beneficiaries	61-62
F4E's activities for the ITER project were delayed	63-64
Follow up on previous years' audit findings	65
Other JU-related audits and reviews	66

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
TTG	Time to Grant

Executive summary

I Within our mandate we carry out an examination of the annual accounts and the underlying transactions, for nine EU Joint Undertakings (collectively referred to as 'Joint Undertakings' or 'JUs'): the eight JUs currently operating under Horizon 2020 (H2020), the research and innovation programme under the current Multiannual financial framework (MFF 2014-2020), and the 'Fusion for Energy' (F4E) JU.

II For the financial year ended 31 December 2020, we issued for all nine JUs, an unqualified ("clean") audit opinion on the reliability of the accounts. F4E considerably improved the information quality in the 2020 annual accounts, in providing an estimate (in 2020 values) of the total costs of completing its delivery obligations for the ITER project, which it assessed at €17.97 billion. Our "emphasis of matter" paragraph draws attention to the fact that any changes in key assumptions for the estimate could lead to significant cost increases and/or further delays in the implementation of the ITER project.

III We also issued for all nine JUs, an unqualified ("clean") audit opinion on the legality and regularity of the payments and revenue underlying the 2020 annual accounts.

IV Overall, our audit of the annual accounts of the JUs and their underlying transactions confirmed the positive results reported in previous years. However, we observed various matters needing improvement in the areas of budgetary and financial management, in-kind contributions, grant payments, procurement procedures, human resources and sound financial management.

V At the end of 2020, being year seven of their ten-year life span, the JUs already committed approximately 77 % of their Horizon 2020 research and innovation agenda but only had implemented around 62 % of their members' contribution targets (including for additional activities). JUs displayed varying degrees of achievement, in relation to the contribution targets set by their respective founding regulations for H2020 activities. These variances can be partly accounted for by the different areas of research in which the JUs operate, in particular, the project duration due to the nature of their research, and the size of consortia implementing them. In addition, there is a risk that administrative resources may not be sufficient, due to an increasing number of projects from multiple MFF programmes being implemented simultaneously.

VI The internal controls of the JUs were generally effective and for grant payments – based on the *ex post* audit results - the JUs reported residual error rates for 2020 below the materiality level of 2 %. In line with the *ex post* audit results, our own audits of grant payments 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.

VII In 2020, the JUs took appropriate measures to maintain business continuity during the COVID-19 pandemic and mitigate its possible impact on their service delivery. Due to their close cooperation for common preparedness and coordination of mitigating actions, they ensured proper governance arrangements, as well as maintaining a normal level of activities during the pandemic.

VIII All JUs took corrective actions to address our previous years' observations. Of the 19 audit observations outstanding at the end of 2019, 16 (84 %) were completed, while three (16 %) were ongoing or not yet addressed at the end of 2020.

What we audited

Joint Undertakings' legal establishment and structure

01 JUs are public-private partnerships between the Commission and industry, and in some cases also research or intergovernmental organisations, established 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), for the purpose of supporting market-driven projects in strategic areas of research and innovation.

02 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.

03 *Figure 1* illustrates the nine JUs with the specific research and innovation area in which each of the nine JUs operates.

Figure 1 – European Joint Undertakings and their area of action



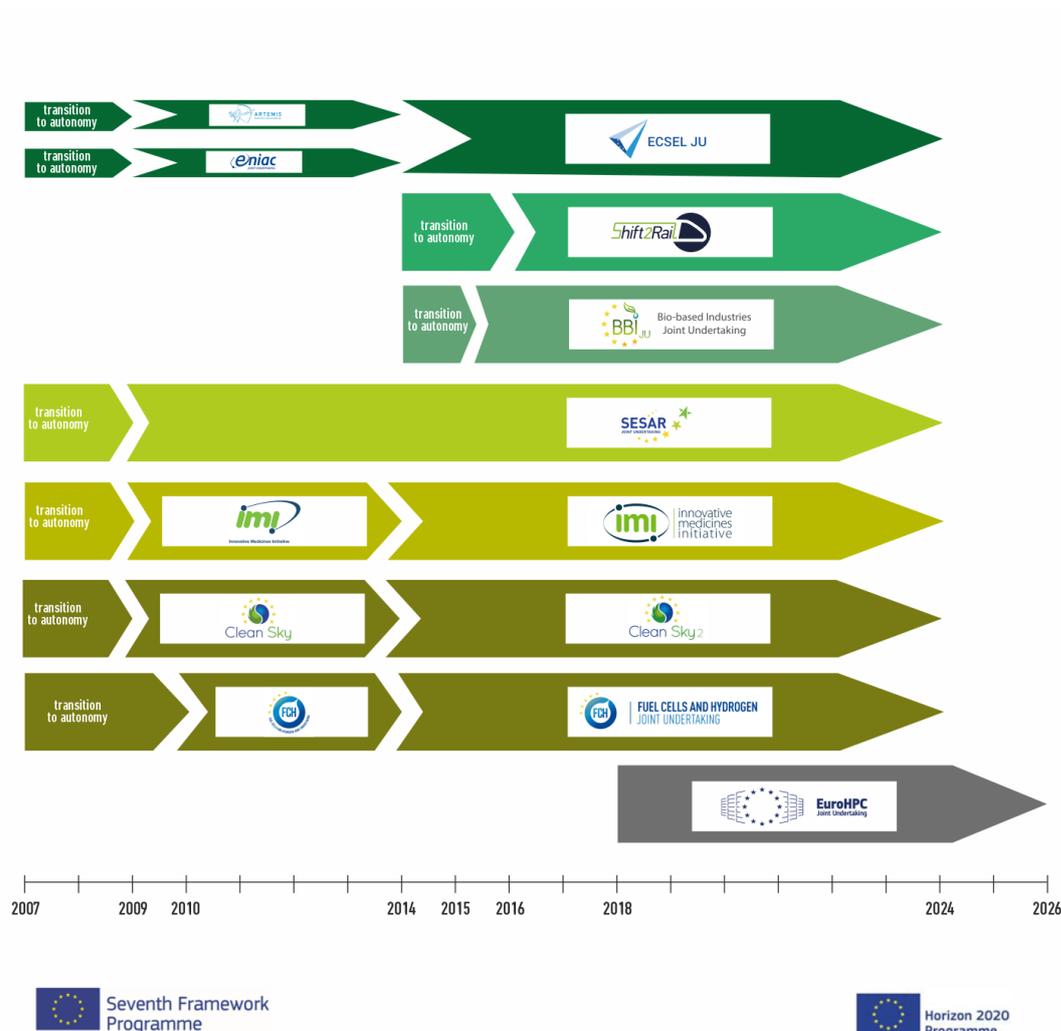
Source: ECA.

JUs operating under H2020

04 *Figure 2* presents an overview of the evolution of the JUs under the FP7 and the H2020 programme. Currently, eight JUs are implementing H2020 projects, and are planned to be operational for a period of ten years until 2024, with the exception of EuroHPC, which will be operational for eight years until 2026.

05 Their research and innovation actions are in the areas of transport (CS, SESAR and S2R), green energy (FCH), health (IMI), circular economy (BBI), digitalisation (ECSEL), and supercomputing (EuroHPC). EuroHPC became autonomous on 23 September 2020 and was audited for the first time for the financial year 2020.

Figure 2 – Evolution of European Joint Undertakings



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

F4E operating under Euratom to establish ITER

06 The ITER project involves seven global partners: the EU represented by the European Atomic Energy Community (Euratom)¹, the United States, Russia, Japan,

¹ The members of Euratom are the EU Member States and the Associated States Switzerland and the United Kingdom (UK).

China, South Korea and India. The EU² has taken the lead with a 45 % share of the construction costs. The other ITER members' share is around 9 % each.

07 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. It coordinates activities and performs the necessary procurements, in preparation for the construction of a demonstration fusion reactor and related facilities.

08 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 2035. The host 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). 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 2027³.

09 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 Associated 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.

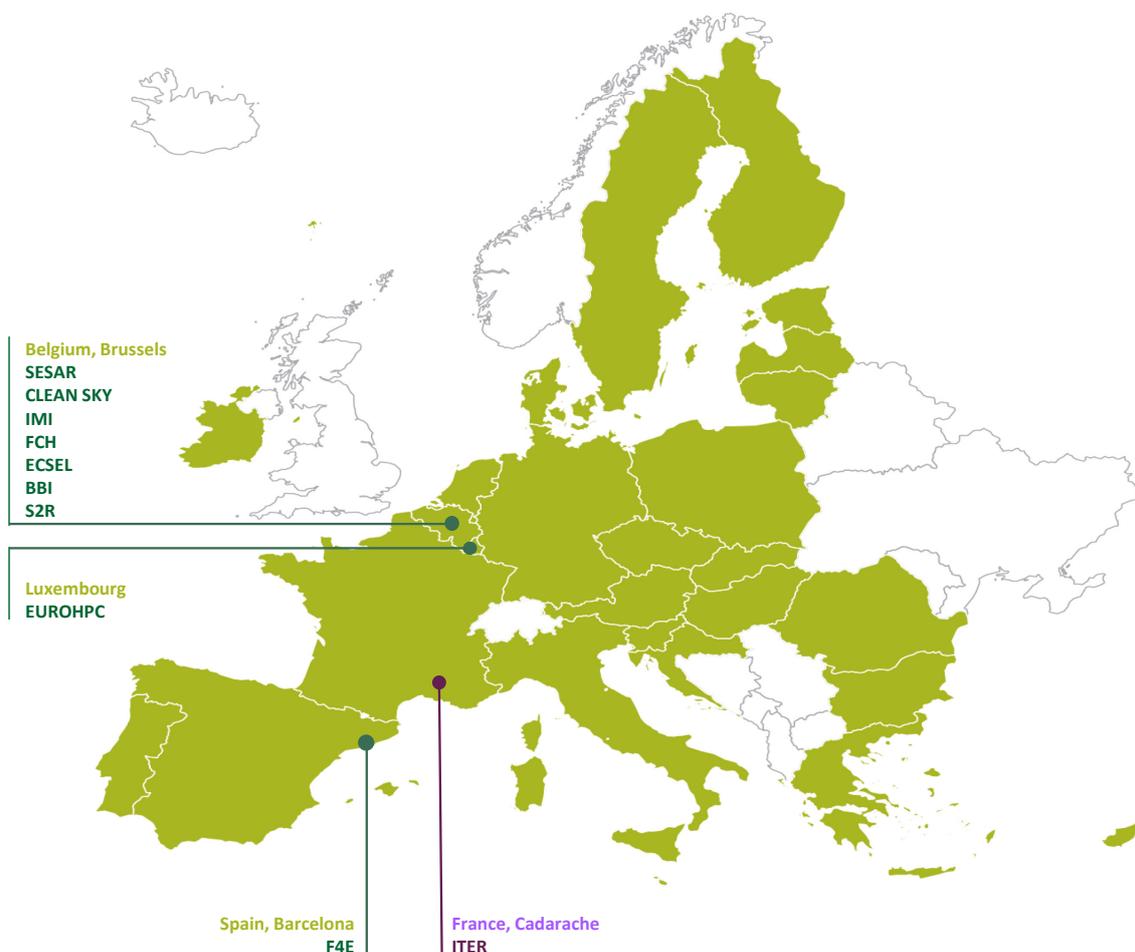
JUs are located in the European Union

10 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, whereas the main fusion facilities of ITER are being built at Cadarache, France (see [Figure 3](#)).

² The EU Member States and its Associated States Switzerland and UK.

³ Council decisions 2021/281 (Euratom) amending Decision 2007/198 (Euratom) establishing the European Joint Undertaking for ITER and the Development of Fusion Energy and conferring advantages upon it.

Figure 3 – Joint Undertakings in the European Union in 2020



Source: ECA.

11 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.

JUs' governance models

12 Most JUs 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).

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

13 For the JUs implementing FP7 and H2020 projects, both the EU and its partners contribute to funding the JUs' research and innovation activities:

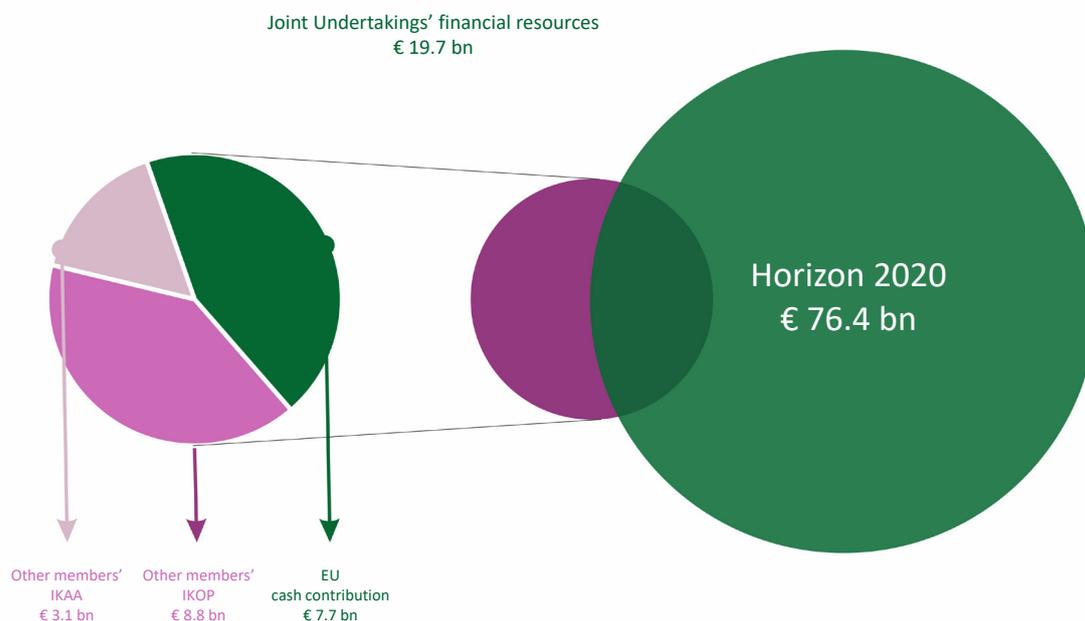
- The EU (represented by the Commission) provides cash funds mainly from the FP7 and the H2020 programmes to co-finance the JUs' research and innovation projects⁴.
- The private partners from industry and research, provide in-kind contributions by implementing the JU's research and innovation activities, in which they invested their own financial resources, human 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 equally finance the JUs' administrative costs.

14 As to the previous 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.

15 For the current MFF 2014-2020, JUs manage around €7.7 billion or 10 % of the global H2020 budget. As illustrated in [Figure 4](#), 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.

⁴ SESAR also received funding from the Trans-European Transport Network (TEN-T) programme under the previous multiannual financial framework (MFF 2007-2013) and under the current MFF 2014-2020, SESAR and EuroHPC receive additional funding from the Connecting Europe Facility (CEF).

Figure 4 – EU cash contributions to JUs and leverage of other members' contributions under H2020

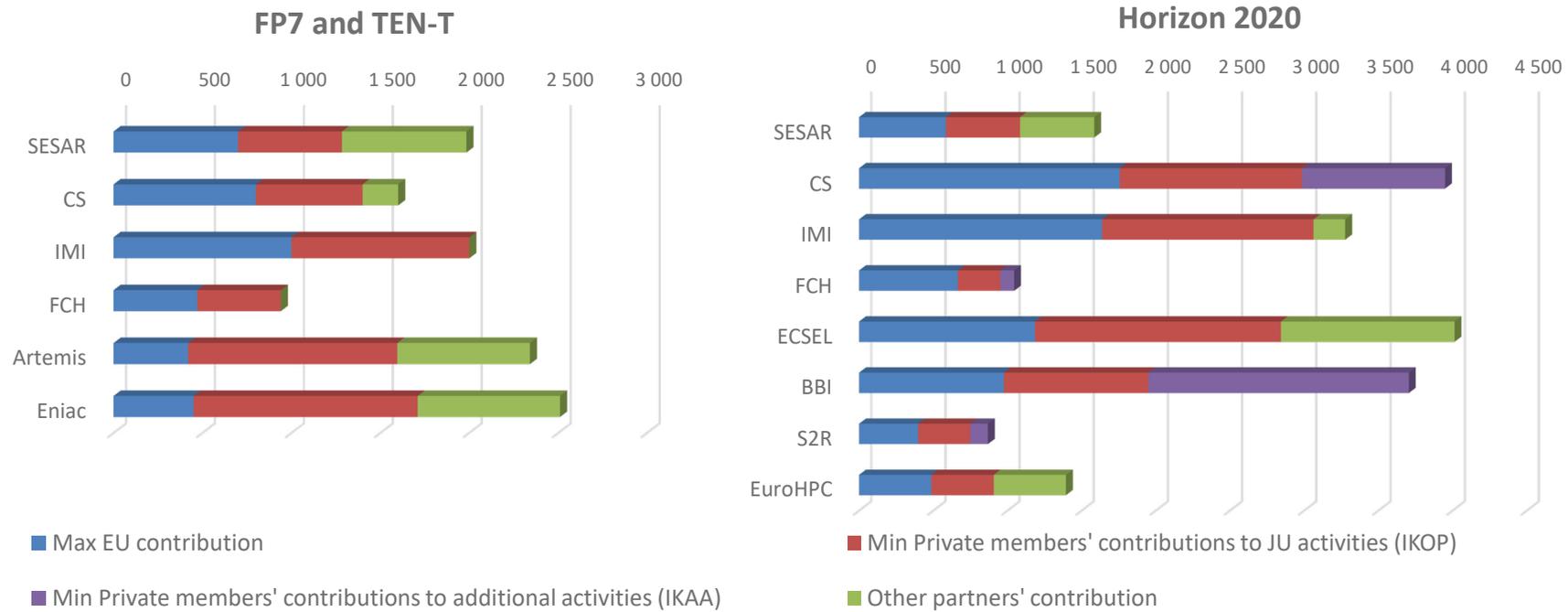


Source: ECA.

16 For FP7, the JU had to ensure that the private members' and other partners' contributions together match at least the EU contribution. For H2020, the respective JU founding regulations define the maximum amount of the EU cash contribution as well as the minimum amount of private members' and other partners' in-kind and/or cash contributions⁵ for the H2020 research and innovation agenda of the JU (see *Figure 5*).

⁵ In the case of SESAR, the contributions of the private partners and of Eurocontrol are defined in separate agreements.

Figure 5 – Members’ contributions over JU lifetime (in million euros)



Source: ECA.

17 Under H2020, there are two types of private members' in-kind contributions:

- For all JUs, the private members have to contribute a minimum amount to the total costs of the JU research and innovation agenda, so-called "in-kind contributions to operational activities" (IKOP).
- In the case of four JUs (CS, FCH, BBI and S2R), the private members have in addition to provide a minimum amount of in-kind contributions to fund activities performed outside the JUs' work plans but falling within the scope of the JUs' objectives, so-called "in-kind contributions to additional activities" (IKAA).

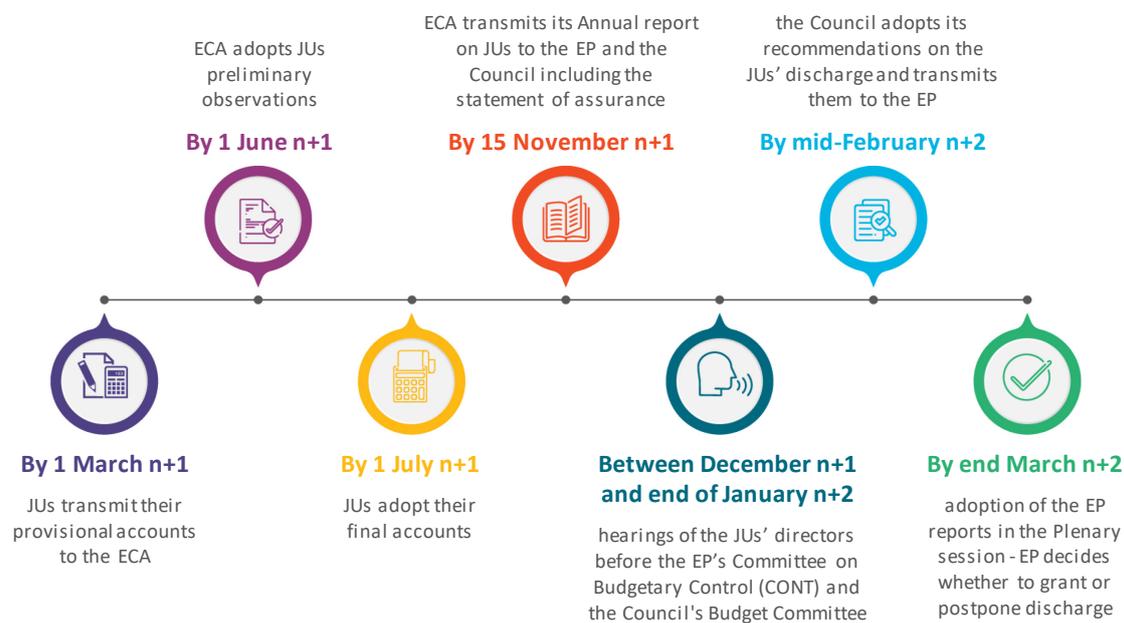
18 In 2020, the total payments budget for all JUs amounted to €2.3 billion (2019: €1.9 billion). The 2020 payments budget for the eight JUs implementing research and innovation activities was €1.5 billion (2019: €1.2 billion), and €0.8 billion for F4E (2019: €0.7 billion).

19 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).

Discharge procedure

20 The timeline of the annual discharge procedure is shown in [Figure 6](#).

Figure 6 – Annual discharge procedure



Source: ECA.

Our audit

Our mandate and using the work of others

21 As required by Article 287 of the TFEU, we audited the accounts of nine JUs (SESAR, CS, IMI, FCH, ECSEL, BBI, S2R, EuroHPC and F4E) for the financial year ended 31 December 2020 and the legality and regularity (compliance) of the transactions underlying those accounts.

22 For the audit of the reliability of the JU accounts, and in line with Articles 70 (6) and 71 of the EU financial regulation, we based our opinion on the final audit reports of the independent external auditor contracted by the JU. For each JU, we examined the quality of the external auditors' work for the most risk-prone areas.

23 For the audit of the compliance of the underlying payments, we took account of the results of *ex post* work performed by the Commission's Common Audit Service (CAS) and its contracted external audit firms for FP7 and H2020 grant payments. Moreover, we considered the results of the audits that the Commission's Internal Audit Service (IAS) performed in 2020 on JU-specific processes.

Our audit approach for grant payments

24 In 2018 and 2019, we reviewed on a sample basis, the *ex post* audits carried out by the CAS and its contracted external auditors. These reviews revealed persisting audit quality weaknesses and methodological differences⁶. 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 projects⁷.

⁶ 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).

⁷ EuroHPC was excluded as in 2020 it has only made pre-financing payments for its grant agreements.

What we found

Unqualified (“clean”) audit opinions for all JUs...

... on the annual accounts

25 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.

... but emphasis of matter for F4E related to the EU contribution to ITER

26 F4E considerably improved the information quality in the 2020 annual accounts, in providing an estimate (in 2020 values) of the total costs in euros of completing its delivery obligations for the ITER project, rather than ITER credits, which it assessed at €17.97 billion. Our “emphasis of matter” paragraph draws attention to the fact that any changes in key assumptions concerning the estimate and the risk exposure⁸ could lead to significant cost increases and/or further delays in the implementation of the ITER project⁹.

... on the revenue underlying the JUs’ accounts

27 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.

⁸ 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.

⁹ 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.

... on the payments underlying the JUs' accounts

28 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.

... but our observations address several areas for improvement

29 Without calling our opinions into question, we also observed various matters needing improvement in the areas of budgetary and financial management, in-kind contributions, the internal control and monitoring framework for grant payments, human resources, procurement procedures, and sound financial management.

Recurrent weaknesses in the annual planning of payments

30 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. ECSEL reactivated €57.2 million of unused payment appropriations in the operational budget for H2020 activities, of which it could only use 70 % 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.

JUs implemented almost fully their FP7 and TEN-T activities but face challenges in implementing H2020 activities

31 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. In addition, there is a 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.

32 *Table 1* 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 54 % excluding IKAA.

Table 1 – Horizon 2020 Members' contributions (in million euros)

Members' contributions (as per Founding Regulation and legal decisions)					Members' contributions (as at 31.12.2020)						
EU	Other members' IKOP and cash (1)	Other members' IKAA (2)	Total	JUs under Horizon 2020	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	SESAR 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

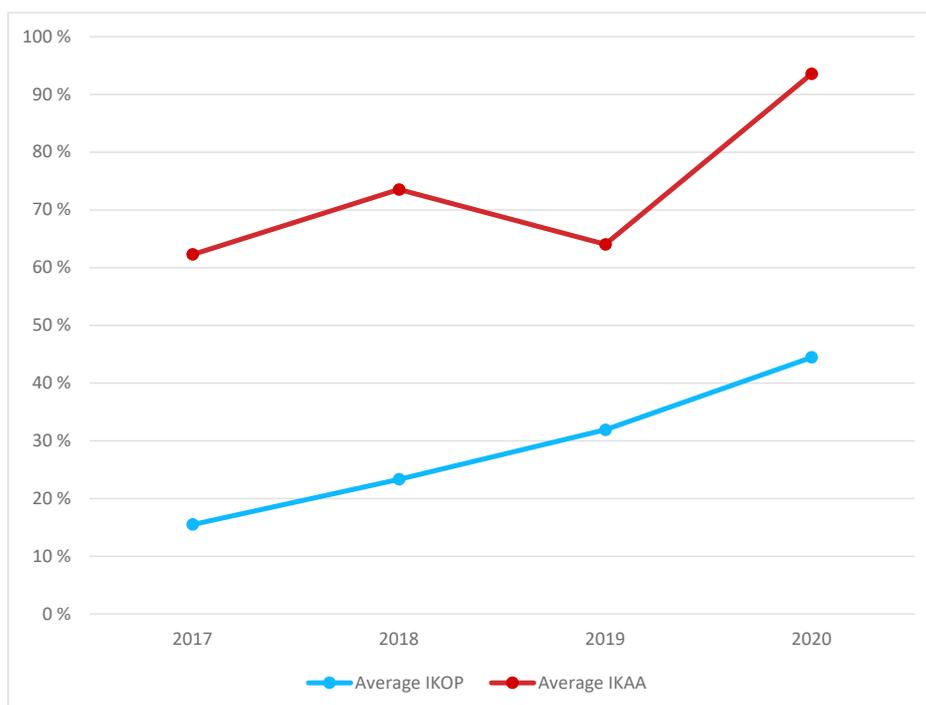
Source: Data provided by the JUs.

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

33 Private members have to provide different types of in-kind contributions to the JUs implementing H2020 activities (*see paragraph 17*).

34 *Figure 7* 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 scope¹⁰. Consequently, there is a risk that IKAA might not be fully aligned with the JU's objectives. This risk, however, is mitigated by the JUs' certification processes for IKAA.

Figure 7 – Development of private members' in-kind contributions



Source: ECA based on JU data.

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

35 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

¹⁰ Article 4(4) of the respective JU founding regulations.

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

36 As shown in [Table 2](#), 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 – 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)				Grant agreements and contracts awarded and/or signed (as at 31.12.2020)					
EU	Other members' IKOP and cash	Total	JUs under Horizon 2020	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: Data provided by the JUs.

Internal controls in respect of grant payments were generally effective

37 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.

38 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.

39 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

40 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.

41 For the 2020 grant payments, the main sources of errors found were:

- use of an incorrect method for calculating declared personnel costs;
- 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 an incorrect exchange rate for the conversion of the declared costs into euros.

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

42 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.

Insufficient statutory staff at JUs

43 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. 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.

44 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.

Use of open procurement procedure under a situation of knowledge advantage

45 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. For example, 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 with a financial offer close to the maximum estimated contract value fixed in the tender specifications.

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

46 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 already supports open and restricted (including accelerated) procedures, middle and low value procedures, and exceptional negotiated procedures for EU institutions and bodies, including JUs.

47 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. 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.

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

48 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.

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

49 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.

50 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 tested in January and 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.

51 The tests of the common IT DRP focused 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.

52 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. Consequently, before the outbreak of the COVID-19 pandemic, all JUs had an up-dated and formally approved BCP.

JUs coordinated their mitigating actions and ensured governance

53 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.

54 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

55 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. Moreover, 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.

56 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.

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

57 The COVID-19 pandemic did not have a measurable impact on JUs' staff numbers or vacancy rates. Brussels-based JUs are currently following the Commission's Action Plan for a Gradual Return to the Office.

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

58 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.

59 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.

60 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)¹¹. This was well below the maximum allowable period of eight months or around 240 days specified in the rules for participation in the H2020 programme. 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.

¹¹ 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.

...and the payments to their beneficiaries

61 In 2020, H2020 JUs and F4E maintained the level of the payments for their operational activities within the dynamic of the last four years. 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.

62 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.

F4E's activities for the ITER project were delayed

63 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.

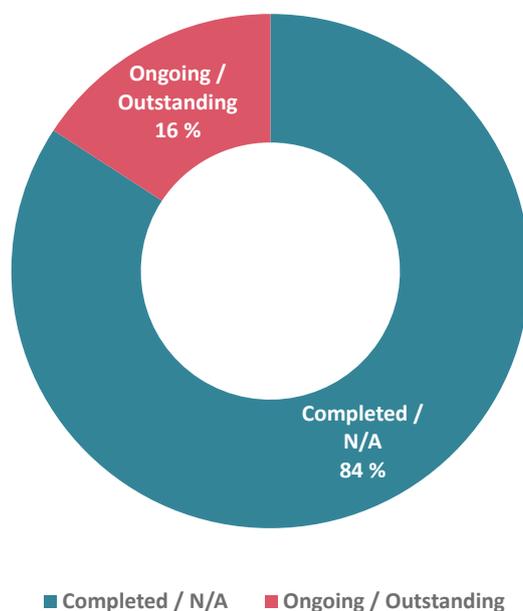
64 The Commission carried out an online survey in October 2020, in order to understand the repercussions of the COVID-19 pandemic on the companies involved in the ITER project. For two-thirds of respondents, the pandemic had a negative impact, such as delays (70 %), and decreased demand with negative 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.

Follow up on previous years' audit findings

65 In most cases, the JUs have taken corrective action to follow up the observations and comments in our specific annual reports from previous years. *Figure 8* shows that for the 19 observations not yet 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 2020¹².

Figure 8 – JUs' efforts to follow-up previous years' observations



Source: ECA.

¹² 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.

Other JU-related audits and reviews

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 9](#)).

Figure 9 – Audit results from other JU-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.

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