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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

on a strengthened public sector interoperability policy

**Linking public services, supporting public policies and delivering public benefits
Towards an ‘Interoperable Europe’**

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Table of Contents

1. SETTING THE SCENE	2
2. DRIVING INTEROPERABLE PUBLIC SECTOR DIGITALISATION.....	3
2.1 What is interoperability... ..	3
2.2 ...and why does improving interoperability matter for the EU?	4
3. CHANGING GEAR ON EU INTEROPERABILITY COOPERATION	5
3.1 Building a shared interoperability governance	5
3.2 Involving all layers of government.....	6
3.3 Advancing innovation and ‘GovTech’ cooperation	7
3.4 Monitoring impact	8
4. MAKING EU POLICIES INTEROPERABLE BY DESIGN AND DIGITAL-READY..	9
4.1 Designing EU policies in the digital age	9
4.2 Focusing interoperability funding	11
4.3 Embedding interoperability into EU data and innovation policies.....	12
4.4 Developing international cooperation on public sector interoperability	13

1. SETTING THE SCENE

Interoperable digital public services are essential for successfully digitalising the European Union’s single market. There is a lot to be gained by industry and society from making sure the digital transformation of Europe’s public sector is inclusive, fair and open, sustainable, value-driven and interoperable. The digital transformation of the public sector creates very considerable pull and push factors¹ for the digitalisation of European industry and society. The weight and potential of the public sector for a value-driven “European way” of digital transformation has been acknowledged by EU governments², and local and regional communities³, and confirmed by the EU Digital Compass, identifying the public sector as one of four cardinal points signposting the EU’s digital trajectory⁴. Digital public administrations have emerged as a particular focus points of national Recovery and Resilience Plans as well, with a combined planned investment of EUR 47 billion⁵.

A stronger focus on public sector interoperability supports Europe’s recovery effort and resilience, effectively connecting public administrations and policies, people and business for seamless service offers and data flows. This includes making EU policies fit for the digital age, ensuring effective policy implementation by digital means and interoperability from the policy design stage, in close partnership between policy makers and ICT experts. This also includes building a virtuous innovation cooperation loop for designing and delivering digital public services.

This communication accompanies the proposal for an ‘Interoperable Europe Act’⁶, which aims at establishing a common interoperability governance and at facilitating the co-creation of an ecosystem of interoperability solutions across the EU. Joint development of solutions, as well as sharing and reusing proven tools is the fast and cost-effective approach to designing digital public services. Strengthened interoperability cooperation is essential for fully tapping into the public sector’s transformation potential, avoiding fragmentation and improving connectivity and data sharing. By doing this, the proposed policy framework will contribute to safeguarding Europe’s digital sovereignty and empower digital subsidiarity. Strengthening EU government interoperability policy delivers on the Commission’s priorities and digital policy agenda, making Europe’s public sector fit for the digital age⁷.

¹ The public sector represents 53.1% of GDP in 2020, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Government_finance_statistics#Government_revenue_and_expenditure

² Such as with ministerial declarations adopted in Tallinn 2017 (<https://digital-strategy.ec.europa.eu/en/news/ministerial-declaration-egovernment-tallinn-declaration>), Berlin 2020 (https://ec.europa.eu/isa2/sites/isa/files/cdr_20201207_eu2020_berlin_declaration_on_digital_society_and_value-based_digital_government_.pdf), Lisbon 2021 (<https://www.lisbondeclaration.eu/>) and Strasbourg 2022(<https://www.eupan.eu/2022/04/presidence-francaise-2022-french-presidency-2022/>).

³ Exemplified by the ‘Living-in-EU’ cooperation, <https://living-in.eu/>

⁴ The European way for the Digital Decade, COM(2021) 118 final, https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

⁵ From https://ec.europa.eu/info/files/recovery-and-resilience-facility-annual-report_en_page_23

⁶ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down measures for a high level of public sector interoperability across the Union (Interoperable Europe Act), COM(2022)720 final.

⁷ https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/shaping-europe-digital-future_en

2. DRIVING INTEROPERABLE PUBLIC SECTOR DIGITALISATION

2.1 What is interoperability...

Public sector interoperability is what enables administrations to cooperate and make public services function across borders, across sectors and across organisational boundaries. This benefits people and businesses who depend on these connected services⁸. It also benefits communities and administrations themselves, which depend on trusted data from different public or private sources for their decisions, and which need to deliver on policy objectives that are often interconnected across borders and sectors⁹. Interoperability plays a role *within* and *across* organisations and policy sectors, in particular those with a strong public sector connection, such as justice and home affairs, taxation and customs, transport, environment and agriculture, or health, as well as business and industry regulation. Interoperability is an established theme across EU digital and data policies.

Public services are delivered and used at different levels, foremost locally, but also at regional, national and European levels. They rarely function in isolation, as the access to registers established at different levels or sectors is necessary in order to exchange data and deliver the required service to the end-users. Much of this data is located outside the context of a given policy area, a specific public administration and, increasingly, beyond borders. This means public services across Europe represent an emerging ‘network of networks’ of largely sovereign actors at all levels of government, each with their own legal framework and mandates, yet all interconnected. In analogy to the established Trans-European Transport and Energy Networks¹⁰, public services are forming their own Trans-European network, founded on interoperability.

Interoperability is sometimes seen as a purely technical matter. However, considering the technical aspects alone is not sufficient for effectively linking administrations, data flows and services. It is necessary to ensure *technical* connection capacity and *semantic* understanding for the exchange and processing of the data concerned, and to establish the required *organisational* and *legal* context, for instance in relation to rights to access, exchange or reuse of data. For coordination and coherence, interoperability also requires an *integrated governance* approach. These basic conditions – or ‘layers’ – of interoperability are set out in the European Interoperability Framework (EIF), a conceptual model developed by digital public sector practitioners from across Europe in 2004 and updated twice since¹¹. Over this period, in sync with an increasingly connected world, interoperability emerged as an essential aspect of the digital transformation of administrations and services.

The EIF is now *the* commonly accepted policy framework for interoperability in the EU, and beyond¹². Given its specific mission to serve the common public cause, this interoperability foundation needs to be transparent, inclusive, fair and secure, and firmly based on EU values.

⁸ For instance <https://nordicsmartgovernment.org/>, an initiative of five Nordic countries to establish cross border and cross sector interoperable public services.

⁹ An example of such multi-faceted policies is the case of smart cities for which energy, environmental, transport, water, waste and digital considerations have to be taken together, https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities_en

¹⁰ Articles 170 to 172 of the Treaty on the Functioning of the European Union (TFEU) set out the EU’s competence to establish and develop trans-European networks and to promote the interconnection and interoperability of national networks. This increasingly involves combining ‘hardware’ and ‘software’ and connecting ‘sovereign’ systems in a common network of energy, transport and digital networks.

¹¹ <https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/european-interoperability-framework>

¹² <https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/national-interoperability-initiatives>.

Interoperability is what enables public sector actors to connect, cooperate and exchange data while safeguarding sovereignty and subsidiarity¹³.

2.2 ...and why does improving interoperability matter for the EU?

Improvements in public sector performance thanks to full implementation of interoperability at all levels of administration could lead to an estimated increase of 0.4% in EU GDP. Individuals could save up to 24 million hours a year, or EUR 543 million. Businesses could save 30 billion hours or EUR 568 billion a year¹⁴. The estimated annual cost savings credited to cross-border interoperability range between EUR 5.5 and 6.3 million for citizens, and between EUR 5.7 and 19.2 billion for businesses.

Case studies also show that interoperability has a positive effect on other public values, beyond efficiency gains¹⁵. For example, pro-active public services or multilingual semantic support improve access to and inclusiveness in public services, increasing public trust¹⁶.

Interoperability is vital in times of crisis, as Covid-19 has shown. Not only was interoperability necessary for the creation of digital Covid-19 certificates that are accessible EU-wide, but also for the real-time sharing of data on available beds in intensive care in hospitals¹⁷. Interoperability helps the State to be more agile and ensure access to real-time information across sectors and administrative levels; it helps assess policy performance and gives incentives to constantly innovate, share efforts and bridge gaps across policy areas.

However, the current policy framework of non-binding interoperability cooperation is not fit for making the most of these estimated gains. While digital government and data experts have developed – with remarkable commitment – a wide-ranging common EU interoperability *acquis*¹⁸ of cooperation practices, concepts, reusable solutions, open specifications and tools that support national reform efforts¹⁹ and established EU policies²⁰, recent evaluations have exposed major limitations of this entirely voluntary approach to cooperation.

Digital aspects, including data access and sharing aspects, are all too often addressed too late in the policymaking process. Interoperability considerations are not ‘wired into’ public services. This means high implementation risks and costs, missed opportunities, and, in the worst case, an undermining of large scale digitalisation-dependent policies²¹. Public

¹³ As stressed in the Berlin Declaration referred to above.

¹⁴ Study from the Commission’s Joint Research Centre, <https://publications.jrc.ec.europa.eu/repository/handle/JRC127330>

¹⁵ The DIGI4FED project is an example for this: <https://www.uantwerpen.be/en/research-groups/govtrust/research/projects/digi4fed/>

¹⁶ For example the Automatic Social Energy Tariff in Portugal, which won a United Nations award (<https://eportugal.gov.pt/en/noticias/tarifa-social-de-energia-automatica-premiada-pela-onu>), or eTranslation tools used for the Conference on the Future of Europe portal, available to public administrations (https://ec.europa.eu/info/resources-partners/machine-translation-public-administrations-etranslation_en).

¹⁷ See <https://www.sciencedirect.com/science/article/pii/S2468042722000033>

¹⁸ Including assets developed in cooperation with EU countries and with financial support from the former ISA² and CEF-Telecom programmes, see <https://joinup.ec.europa.eu/>

¹⁹ Such as the Spanish national interoperability law and practice, see <https://www.boe.es/buscar/act.php?id=BOE-A-2010-1331> and https://www.boe.es/biblioteca_juridica/index.php?tipo=C

²⁰ Some important EU policies started as and/or were supported by interoperability projects, e.g. the eIDAS regulation (<https://digital-strategy.ec.europa.eu/en/policies/eidas-regulation>) or the EU Blockchain Service Infrastructure (<https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/ebsi>).

²¹ Addressing digital and interoperability aspects early on during policy design offers particular benefits, as pointed out in the ICT Impact Assessment guidelines produced by the Commission in 2018 (https://ec.europa.eu/isa2/sites/isa2/files/ict_impact_assessment_guidelines.pdf) and specified in the

administrations can only be interoperable if the right assessments and choices are made early on in the policy design phase. Not acting to improve interoperability could make the EU miss the opportunity to considerably reduce administrative burden. This would lower the resilience of public administrations, limit their capacity to innovate and, in the worst case, make them unable to act in times of crisis²². Cooperation of public administrations across borders must become as natural and seamless as trains crossing borders, or energy flows between national networks. The response to Covid-19 only highlighted the importance of stable digital public sector interaction across borders and across sectors.

In this context, and with digital transformation gaining momentum, EU ministers responsible for public sector transformation and Member State chief information officers (CIOs) have become increasingly vocal about the need to strengthen European interoperability cooperation. They call for a stable organisational structure, for generalising the application of the EIF, for designating commonly accepted and open specifications and solutions ready for reuse. They also call for an ‘interoperability by design’ approach and for better coordinating experimentation and innovation in the public sector, including cooperation with the private sector (‘GovTech’²³). The Commission’s proposal for a strengthened EU public sector interoperability policy responds to these needs.

3. CHANGING GEAR ON EU INTEROPERABILITY COOPERATION

3.1 Building a shared interoperability governance

The proposed Interoperable Europe Act focuses on building a structured, transparent and inclusive cooperation framework, providing for the adaptability and innovation capacity that the public sector needs in a dynamic technical, societal and political context. Interoperability cannot be achieved from the top down by a single entity, nor can it be achieved from the bottom up by individual actors: it requires effective cooperation between policy-makers and policy implementers across all levels of government and across sectors. It also requires an open but stable and integrated governance framework. One that ensures subsidiarity by establishing effective co-ownership. One that is sustainable for the future because something designed to be interoperable becomes less quickly outdated. One that turns the public sector’s transformation potential into reality and safeguards public values. The proposed Interoperable Europe Act seeks to provide this cooperation framework. It provides for the establishment of an Interoperable Europe Board to steer the common interoperability effort, bringing together Member State central digital transformation authorities and EU Institutions. It also provides for an open Interoperable Europe Community of experts, practitioners and interested parties to ensure transparency and link to grassroots practice.

Interoperability is a moving target because of the fast pace of technology development and ever evolving policy needs. It requires a dedicated, innovation-friendly and open legal setup that avoids regulatory and technological lock-ins. Other options, such as enshrining the technologies used today in law, would risk undermining future innovation and limit the

recommendations from the members of the Commission expert group on interoperability of public services (<https://joinup.ec.europa.eu/collection/interoperable-europe/news/official-expert-recommendations-new-interoperability-policy>).

²² For example, the lack of data consistency hampered the EU’s capacity to respond cooperatively early on in the COVID-19 crisis, as found by Renda, A., and Castro, R. (2020) in ‘Towards stronger EU governance of health threats after the COVID-19 pandemic’, *European Journal of Risk Regulation*, 11(2), pp 273-282.

²³ See ‘GovTech Practices in the EU’ (<https://publications.jrc.ec.europa.eu/repository/handle/JRC128247>) or ‘Exploring Digital Government Transformation in the EU - Understanding public sector innovation in a data-driven society’ (<https://publications.jrc.ec.europa.eu/repository/handle/JRC121548>)

capacity of administrations to adapt to changing needs and new technologies. Interoperability policymaking and regulation in themselves need to be innovative and digital-ready²⁴. The proposed Interoperable Europe Act seeks to provide such built-in innovation framework for the public sector.

The EIF is the reference instrument for public sector interoperability implementation. In order to ensure it stays relevant, it needs to be regularly reviewed and updated. It also needs further development of implementation recommendations and support²⁵, for instance, to support the upcoming EU sectoral data spaces²⁶, in close coordination with the European Data Innovation Board and the requirements of the upcoming Data Act²⁷. The proposed Interoperable Europe Act provides for such regular updating, in line with innovation-friendly and digital-ready regulation.

3.2 Involving all layers of government

A strengthened EU interoperability governance co-owned by Member States and the EU offers a much-needed improved policy and support framework for EU public sector reform objectives²⁸. This effort needs to be collective, spanning all levels of government, in order to maintain and update the rich interoperability *acquis* of concepts, guidelines, specifications and reusable assets.

Adequate involvement and representation of regional and local communities is a prerequisite, not only because they constitute the ‘first and last mile’ of public service delivery, but also in order to be able to tap into the considerable innovation capacity of cities and regions²⁹. Here, public-private innovation and service cooperation play an important role. Movements such as ‘Living-in-EU’, as well as extended project cooperation such as ‘Open and Agile Smart Cities’³⁰, show that there is a strong demand for cooperation around interoperability and readiness to engage from regional and local levels. The variety and expertise of locally developed interoperability solutions is an important asset and should be systematically contributing to catalogues of recognised and commonly available interoperability resources. This is why the proposed future EU interoperability governance should include representatives from rural and urban local and regional authorities and societal groups on the future Interoperable Europe Board and why experts from all levels of government are actively encouraged to contribute to the work of the future Interoperable Europe Community.

²⁴ A policy (or legal act) is digital-ready if it enables smooth and digital-by-default policy implementation and is conducive to digital transformation through the best use of technologies and data (<https://joinup.ec.europa.eu/collection/better-legislation-smoother-implementation/digital-ready-policymaking>). See also the European Commission’s Better Regulation Tool #28 on digital-ready policymaking (https://ec.europa.eu/info/files/chapter-3-identifying-impacts-evaluations-fitness-checks-and-impact-assessments_en).

²⁵ <https://joinup.ec.europa.eu/collection/national-interoperability-framework-observatory/eif-toolbox>.

²⁶ The Commission already adopted the first proposal for a sectoral data space, the proposed Regulation for the European Health Data Space, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_2711
²⁷ https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1113

²⁸ European Public Administration Network (<https://www.eupan.eu/>), or the Commission Expert Group on Public Administration and Governance (https://ec.europa.eu/reform-support/public-administration-and-governance-policy-making/expert-group-public-administration-and-governance_en).

²⁹ Smart Cities marketplace (<https://smart-cities-marketplace.ec.europa.eu/projects-and-sites>). Examples of local activities include: AI for the detection of cardiac arrests (<https://cordis.europa.eu/article/id/421437-artificial-intelligence-detects-cardiac-arrest-in-emergency-calls>); managing capacity in public spaces (Fuengirola <https://www.themayor.eu/en/a/view/fuengirola-digitized-its-beach-control-and-got-an-award-for-it-8098>); AI for Local Digital Twins (DUET <https://www.digitalurbantwins.com/>), LEAD (<https://www.leadproject.eu/>), SHPERE (<https://sphere-project.eu/>).

³⁰ <https://oascities.org/minimal-interoperability-mechanisms/>

To cater specifically for local and regional conditions, the Commission, in close cooperation with private and public stakeholders, has developed a ‘European Interoperability Framework for Smart Cities and Communities’ (EIF4SCC) fully aligned with the EIF. Following extensive public discussion and consultation, this specialisation of the EIF is presented in the staff working document accompanying this communication³¹. The Commission encourages experts and practitioners from other policy areas to follow this example of adapting the EIF to specific and/or sectoral use cases. The future Interoperability governance will be given the task of assessing the alignment of the specialised interoperability frameworks with the EIF. For instance, a specialisation of the EIF has been developed in the past for digital health purposes³². Traditionally, interoperability also plays an important role in environmental policy³³, justice and home affairs³⁴ or transport³⁵.

3.3 Advancing innovation and ‘GovTech’ cooperation

Avoiding falling behind in technology integration is a constant challenge for the public sector. While often criticised for technology risk aversion, public authorities, in their unique role serving the common cause, need to demonstrate a particular duty of care as regards technology adoption and lawful, fair and trustworthy technology use. Yet, new technologies have the potential to make public services more accessible, more inclusive and more efficient than ever. Ensuring continuous digital innovation for the public sector is as challenging as it is important.

Across Europe there are already several hundreds of activities testing and piloting digital technologies in the public sector; learning about the benefits and risks of these technologies is essential. The Commission is setting up an Innovative Public Services Observatory³⁶ to analyse trends and identify good and bad practices, to inform the adoption of emerging technologies and to ensure interoperability by design. The observatory will assess how technologies such as Artificial Intelligence are transforming public sector processes and governance structures. This will help EU as well as national and local authorities to take informed decisions about implementing emerging technologies.

Europe is full of thriving regional ecosystems of innovative small technology companies and start-ups³⁷, supported, amongst other, by a network of Digital Innovation Hubs³⁸ and by the European Innovation Council³⁹. Openly available, reusable and recognised interoperability resources are important assets for small innovative companies and civil society initiatives to engage with the public sector.

³¹ SWD(2022)710 final.

³² See the European eHealth Interoperability Framework (<https://op.europa.eu/en/publication-detail/-/publication/7e8e2f60-6f87-4be8-9125-477e212e3a74>) and (<https://eufordigital.eu/wp-content/uploads/2021/03/Common-Guidelines-for-eHealth-Harmonisation-and-Interoperability.pdf>).

The Commission has since proposed establishing a dedicated European Health Data Space (https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space_en).

³³ Such as <https://inspire.ec.europa.eu/inspire-directive/2>

³⁴ Such as <https://e-justice.europa.eu/home?plang=en&action=home> and https://ec.europa.eu/home-affairs/policies/schengen-borders-and-visa_en

³⁵ Such as https://transport.ec.europa.eu/transport-themes/intelligent-transport-systems_en

³⁶ <https://joinup.ec.europa.eu/collection/innovative-public-services>

³⁷ As for instance here: <https://atomico.com/insights/launching-the-7th-annual-state-of-european-tech-report>

³⁸ <https://digital-strategy.ec.europa.eu/en/activities/edihs>

³⁹ https://eic.ec.europa.eu/index_en and the Horizon Europe Programme

Public-private ‘GovTech’ or ‘CivicTech’ cooperation⁴⁰ stimulates public sector innovation, supports Europe’s technological sovereignty and opens pathways to public procurement. Gaining access to public procurement is a core concern for smaller companies, to be able to scale up and gain recognition and stable operating income⁴¹. Supporting GovTech is a dedicated strand of both the Digital Europe Programme and the proposed Interoperable Europe Act, fully aligned with the EU innovation support framework. Industry will have a link to the future Interoperable Europe Board via the European Economic and Social Committee and is invited to join the future Interoperable Europe Community.

3.4 Monitoring impact

The impact assessment for a future interoperability policy has exposed the difficulties of collecting data and estimating the cost and benefits of interoperability as an activity that is not in itself the end purpose but an important support instrument for public sector digitalisation. It is however useful to measure interoperability maturity in order to guide investments and gauge progress. A multitude of reporting and monitoring tools exist for digital government, depending on specific user, sector or geographic focus⁴². These tools are not always aligned or sufficiently connected, and the results are rarely presented in an easy-to-use machine-readable format. They also may impose a considerable burden on administrations as the Commission expert group on interoperability of public services has pointed out⁴³.

For these reasons it is important to develop transparent and reusable, digital-ready reporting and monitoring tools, to help reach the Digital Decade targets. Existing monitoring formats should be integrated into a ‘once-only’ logic, reusing data and surveys where possible and making the results openly available in machine-readable formats. This is in itself an aspect of digital-ready policymaking, with tools and concepts reusable, integrated and transferrable, for the benefit of practitioners and policymakers.

The Commission proposal for an Interoperable Europe Act:

- establishes a structured EU cooperation on interoperability and co-ownership with Member States of the EU interoperability acquis by creating the Interoperable Europe Board composed of digital government practitioners representing Member States; it creates the Interoperable Europe Community as an open forum of professionals and interested parties advising on interoperability and public sector innovation;
- mandates the Interoperable Europe Board to develop the EIF and ensure its future evolution;
- introduces in a proportionate manner a mandatory interoperability assessment for any change to, or introduction of, an information system or system component of cross-border relevance that enables public services to be delivered or managed electronically;

⁴⁰ Both terms refer to public-private cooperation on technologies for the public sector. Where GovTech usually involves technology startups and SMEs, for instance piloting AI use, CivicTech usually involves civil society organisations, for instance promoting technology based citizen engagement.

⁴¹ See the EU SME strategy, https://ec.europa.eu/growth/smes/sme-strategy_en

⁴² Such as DESI (<https://digital-strategy.ec.europa.eu/en/policies/desi>), or the LORDI project (Local and Regional Digital Indicators: <https://living-in.eu/groups/commitments/monitoring-measuring>). Also the OECD (<https://goingdigital.oecd.org/indicator/58>), the United Nations (<https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2020>) and the World Bank (<https://www.worldbank.org/en/events/2021/09/16/govtech-maturity-index-the-state-of-digital-transformation-in-the-public-sector#:~:text=The%20World%20Bank%20has%20developed,citizen%20engagement%2C%20and%20GovTech%20enablers>) also run relevant monitoring projects.

⁴³ Recommendation 16 at <https://ec.europa.eu/transparency/expert-groups-register/core/api/front/expertGroupAdditionalInfo/43164/download>

- introduces catalogues of recognised interoperability assets that can be reused by administrations and in policymaking, such as digital tools, specifications or solutions; and
- strengthens interoperability support for digital-ready EU policies and for common GovTech innovation projects.

The Commission will:

- adopt a renewed EIF, based on a proposal by the future Interoperable Europe Board. The new EIF will focus on concrete implementation recommendations, including for EU data spaces, in close coordination with the European Data Innovation Board;
- support the development of sectoral interoperability specialisations aligned with the EIF, such as the EIF for smart cities and communities (EIF4SCC) published alongside this communication;
- ensure close interaction of its GovTech cooperation and support activities with EU innovation instruments such as Digital Innovation Hubs (DIHs), the European Innovation Council and Ecosystems (EIC and EIE) and the European Institute of Technology (EIT); and
- ensure reporting and monitoring on interoperability is fully aligned with and, as needed, integrated into relevant EU policy monitoring tracks (especially the Digital Economy and Society Index DESI, the Digital Decade process, monitoring of the Berlin Declaration and of national Recovery and Resilience Plans).

4. MAKING EU POLICIES INTEROPERABLE BY DESIGN AND DIGITAL-READY

4.1 Designing EU policies in the digital age

Digital aspects in general, and interoperability specifically, have traditionally been delegated to technical experts and addressed only downstream, late in, or even after conclusion of the policymaking process. This carries high policy implementation risks and costs from unintended barriers and limitations. To overcome this, it is necessary to adopt a systemic interoperability-by-design approach to policy making.

The policy making and implementation cycle is increasingly data-driven and digital, ranging from foresight and impact assessment⁴⁴, to data collection and monitoring⁴⁵, to services and tools⁴⁶. EU policies contain more and more digital aspects⁴⁷. With policy objectives, data sets and digital solutions closely inter-connected, EU policy making and implementation can only be effective and efficient if supported by a partnership between policy makers and ICT

⁴⁴ For instance https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en

⁴⁵ For instance reporting on sustainability information has gained prominence, see Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector, which entered into force in 2021.

⁴⁶ For instance Regulation (EU) 2021/953 on a framework for the issuance, verification and acceptance of interoperable COVID-19 vaccination, test and recovery certificates (EU Digital COVID-19 Certificate) to facilitate free movement during the COVID-19 pandemic: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0953>. In maritime surveillance policy new tools such as Copernicus Maritime Services or Remote Electronic Monitoring (REM) are being used. <https://www.efca.europa.eu/en/content/new-technologies-maritime-surveillance>, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0953>

⁴⁷ Of the 284 legislative initiatives presented by the Commission between March 2020 and June 2021, 47% referred to digital elements and 67% to data in their roadmap or at the inception impact assessment stage (<https://joinup.ec.europa.eu/collection/better-legislation-smoother-implementation>); Digital-ready policymaking boosted by COVID-19 (<https://joinup.ec.europa.eu/collection/better-legislation-smoother-implementation/news/digital-ready-policymaking-boosted-covid-19>).

experts. This partnership needs to start as early as possible in the policy formulation and development process.

The Commission's own Digital Strategy⁴⁸ and Better Regulation agenda⁴⁹ firmly incorporate digital thinking into the EU policy cycle, promoting the 'digital-by-default' principle in policy development. Digital and interoperability aspects need to be considered at all stages: policy design, stakeholder consultations, impact assessments, policy implementation, monitoring and evaluation.

The aim of 'digital checks' as a dedicated, if evolving, component of the Commission's Better Regulation Toolbox⁵⁰, is to help policymakers identify and address the relevant digital aspects of a policy early on. Checks must go hand in hand with structural expert advice, e.g. on system architecture, data and cloud technologies and privacy and cybersecurity. Reuse of data from authoritative sources, reuse of existing solutions and uptake of innovative technologies will make implementation simpler and more resource-efficient, while paving the way for the use of data analytics, secure and safe data flows and Artificial Intelligence and emerging technologies. This practice has proven its potential for simplification and reducing administrative burden⁵¹.

For legislative proposals, there will be a greater focus on interoperability, systematically assessing conformity with the EIF (and, if relevant any of its specialisations) and identifying the scope for reuse of interoperable systems, concepts and components. This enables the Commission and Member States to structure data collection and monitoring practices and prevent development of duplicated and conflicting systems, vendor lock-in and unsustainable ICT practices. The structured cooperation of public administrations across EU countries proposed under the Interoperable Europe Act, will yield advice on EU policies with high impacts on the digital infrastructure of Member States and enable timely implementation of EU policies.

Digital-ready and interoperability-by-design policymaking will support the emergence of genuinely trans-European digital services for people, businesses and public policy, relevant for the Digital Single Market. It will increase cross-border trust, as demonstrated by, for example, the EU Digital Covid-19 certificates, secure digital identity⁵², the Internal Market

⁴⁸ https://ec.europa.eu/info/news/commission-adopts-new-digital-strategy-address-transformation-opportunities-post-pandemic-world-2022-jun-30_en

⁴⁹ COM(2021) 219 Better Regulation: Joining forces to make better laws (https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en) and SWD(2021) 305 Better Regulation Guidelines (https://ec.europa.eu/info/sites/default/files/better_regulation_joining_forces_to_make_better_laws_en_0.pdf and https://ec.europa.eu/info/sites/default/files/swd2021_305_en.pdf)

⁵⁰ 'Have I considered...' check lists in Tool #28 on digital-ready policymaking of the Better Regulation Toolbox: https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox-0_en and https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en

⁵¹ For instance in Denmark (<https://en.digst.dk/digital-governance/digital-ready-legislation/guidances-and-tools/>) or in the healthcare sector where interoperability considerations support policy design (https://ec.europa.eu/health/blood-tissues-cells-and-organs/overview/revision-eu-legislation-blood-tissues-and-cells_en).

⁵² <https://digital-strategy.ec.europa.eu/en/policies/eidas-regulation>

Information System (IMI)⁵³ and a growing number of cross-border services enabled by the Digital Single Gateway⁵⁴.

While the Commission has committed itself to digital-ready policymaking and will ensure its application to policy initiatives and legislative proposals, this is only the start. To make EU legislation fully digital-ready and interoperable-by-design, it is important to seek, and eventually ensure, a shared understanding between the co-legislators, in full respect of the roles of each Institution. The common EU interoperability governance under the proposed Interoperable Europe Act is an essential instrument for helping this shared understanding emerge.

4.2 Focusing interoperability funding

EU programmes provide dedicated funding for research, development and maintenance of EU public sector interoperability resources, such as interoperability assessment tools, semantic vocabularies, GovTech or reusable building blocks for data exchange and electronic identity⁵⁵. It is important that Member States IT and policy practitioners – the ultimate users of these resources and implementers of policies – advise on the priorities for EU funding addressing interoperability. The future Interoperable Europe Board will be tasked with giving advice on any policy implementation or innovation support measures deemed necessary, as envisaged in the proposed Interoperable Europe Act.

EU funding for interoperability also supports implementation of EU policies relevant for digital government, such as the Single Digital Gateway, the EU eID wallet or Local Digital Twins⁵⁶. With the Structural Funds⁵⁷, the Recovery and Resilience Facility⁵⁸, the Connecting Europe Facility⁵⁹, and the Technical Support Instrument (TSI)⁶⁰, the EU supports public sector modernisation investments in the Member States. The EU public administration network is developing an ambitious modernisation agenda⁶¹. The Digital Decade proposal and the TSI make provision for multi-country projects supporting digital transformation, including European Digital Infrastructure Consortium (EDIC)⁶². Such modernisation and reform support strands should ensure early-stage coordination and take interoperability needs into account, for instance through regular exchange with and advice from the practitioners on the future Interoperable Europe Community.

⁵³ The IMI allows public authorities to exchange information, supporting the free movement of services and persons in the Single Market

⁵⁴ Regulation (EU) 2018/1724 establishing a single digital gateway to provide access to information, to procedures and to assistance and problem-solving services (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.295.01.0001.01.ENG&toc=OJ:L:2018:295:TOC)

⁵⁵ In particular the Digital Europe Programme (DEP), integrating earlier funding resources from the former ISA² and CEF Telecom programmes (<https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/2018/11/08/Meet+the+new+CEF+Building+Blocks>), and Horizon Europe.

⁵⁶ Supported by the DEP (<https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital>).

⁵⁷ https://ec.europa.eu/info/funding-tenders/funding-opportunities/funding-programmes/overview-funding-programmes/european-structural-and-investment-funds_en

⁵⁸ https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

⁵⁹ https://hadea.ec.europa.eu/programmes/connecting-europe-facility_en

⁶⁰ https://ec.europa.eu/info/funding-tenders/find-funding/eu-funding-programmes/technical-support-instrument/technical-support-instrument-tsi_en

⁶¹ Including the Strasbourg Declaration adopted in 2022 and the EUPAN 2022-2025 strategy, see at <https://www.eupan.eu/>

⁶² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0574>

4.3 Embedding interoperability into EU data and innovation policies

Interoperability policy is a necessary complement to the emerging EU data and digital policy landscape. It builds on and completes legislation on data availability and data exchange, from a public sector angle⁶³. It supports central common tools like ‘data.europa.eu’, the official portal for European data⁶⁴. It can provide the semantic expertise needed for building data spaces and EU cloud policy. Accordingly, and for the strengthened EU interoperability policy to be fully effective, a close interaction with relevant operational and regulatory digital policy structures needs to be guaranteed, in particular with the European Data Innovation Board⁶⁵. The 2030 Digital Compass, the EU’s digital policy reference framework, recognises digital government as one of its core vectors and the strengthened EU interoperability policy is designed to support the concomitant Digital Decade process⁶⁶.

By default, EU interoperability assets are available as open specifications or open source software⁶⁷. They need to be open in order to be readily reusable by public administrations at all levels, that create interoperable systems and services, and by private sector and industry partners working with these administrations. While open source is not the only approach to creating interoperability, EU funded projects for public services should be open source by default. This is why the proposed Interoperable Europe Act provides for access to reusable solutions, including code, where appropriate and possible. The Commission itself makes code available as open source and contributes to open source projects⁶⁸. A dedicated European Public License (EURL) is available in all official EU languages with a licensing assistant providing online legal support⁶⁹. With Open Source Programme Offices (OSPOs) or their like being set up across Member State administrations, the Interoperable Europe Board and Interoperable Europe Community will be supporting best practice exchanges and help identify reusable solutions and development needs⁷⁰.

Close interaction with standardisation fora and activities⁷¹ is particularly important for the evolution of the European interoperability *acquis* and for ensuring an open, inclusive and value-driven digital transformation. As the EU is implementing its renewed standardisation policy framework⁷², related public sector interoperability considerations will systematically be addressed by the future Interoperable Europe Board. This includes contributing to standardisation ‘urgency areas’ in the public sector and supporting the EU’s role in developing standards for public services.

The Commission’s recently published Innovation Agenda⁷³ underlines the beneficial role of the public sector, not only as regulator but also as procurer and experimentation partner, in strengthening the EU’ innovation capacity. The Agenda stresses the potential of

⁶³ Such as the Open Data Directive (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L1024>), the Data Governance Act (https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6428) and the Data Act, in particular its chapter VIII (https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1113)

⁶⁴ <https://data.europa.eu/en>

⁶⁵ Established with the Data Governance Act.

⁶⁶ <https://digital-strategy.ec.europa.eu/en/library/proposal-decision-establishing-2030-policy-programme-path-digital-decade>

⁶⁷ Via the Joinup portal, in particular <https://joinup.ec.europa.eu/collection/open-source-observatory-osor>

⁶⁸ See https://ec.europa.eu/info/departments/informatics/open-source-software-strategy_en

⁶⁹ Joinup Licensing Assistant at <https://joinup.ec.europa.eu/collection/eupl>

⁷⁰ The Commission has established its own OSPO (<https://joinup.ec.europa.eu/collection/ec-ospo>).

⁷¹ For example the Multi-Stakeholder platform for ICT standardisation (https://ec.europa.eu/growth/single-market/european-standards/ict-standardisation_en).

⁷² See <https://ec.europa.eu/docsroom/documents/48598>

⁷³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0332>

interoperability and encourages exploring public sector experimentation in controlled environments (sandboxes) and GovTech cooperation.

4.4 Developing international cooperation on public sector interoperability

EU interoperability policy is traditionally open to cooperation with international partners, in particular in the EU neighbourhood, and with international organisations. Interoperability by its very nature is borderless and EU interoperability resources are available openly for reuse worldwide. This is in particular the case of the EIF, referenced internationally⁷⁴. In order to further develop values-based international cooperation in digital government, it is important to maintain and develop the existing interoperability cooperation with international organisations such as the OECD, the UN and the World Bank, as well as with like-minded global partners⁷⁵.

Of particular importance is deepening the existing cooperation with the EU neighbourhood; Montenegro, North Macedonia and Ukraine are longstanding partners in developing EU interoperability cooperation and other countries signalled strong interest in joining this common effort. Digital transformation of the administration is of high priority for the partners in the enlargement and neighbourhood context and the Commission encourages achieving high degrees of interoperability in line with EU standards. Deepening cooperation supports pre-accession and economic partnership integration and should therefore be a structural component in the EU's neighbourhood policy instruments⁷⁶. Developing international cooperation is not a one-way street. It will, at the same time allow the EU to learn from and with its partners, and benefit from their often very advanced solutions, expertise and experience.

The Commission:

- will incorporate digital aspects into the different stages of policy definition, development, adoption and implementation, as set out in its Digital Strategy;
- will ensure the EIF is applied in its operational and policymaking practice and seek timely feedback from Member States on the potential implementation challenges of policy proposals with significant digital and interoperable aspects;
- urges the co-legislators to endorse digital-ready policymaking principles and ensure sufficient attention is paid to digital aspects at the different stages of the EU policy cycle;
- will ensure common interoperability resources (tools, specifications, solutions) are reused and referenced in funding instruments, in particular for public sector transformation (including in TSI, structural funds, neighbourhood and pre-accession support, and the RRF);
- will ensure a close link of the interoperability governance with existing data, standardisation and sectoral governance mechanisms, in particular the European Data Innovation Board and public sector modernisation initiatives;

⁷⁴ <https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/eif-monitoring> and <https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/digital-public-administration-factsheets-2021>

⁷⁵ For instance with Uruguay (https://ec.europa.eu/isa2/news/european-commission-reinforces-cooperation-uruguay-interoperability_en/) and Ukraine (<https://eufordigital.eu/countries/ukraine/>).

⁷⁶ A Commission supported assessment framework developed with the OECD's Support for Improvement in Government and Management (SIGMA) programme is used for monitoring progress of public administration reform, and refers to 'interoperability' (Principles of Public Administration: <https://sigmaweb.org/publications/Principles-of-Public-Administration-2017-edition-ENG.pdf>)

- will ensure that the future Interoperable Europe Board is involved in designing interoperability activities funded under the dedicated interoperability section of the Digital Europe Programme; and
- will deepen international cooperation on interoperability, in particular as part of its neighbourhood policy and with international organisations.