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Introduction

This report falls under the scope of Specific Contract No. 439 under ABC III Framework Contract. The contract is performed in the context of 'Action 2016.33 EIS Governance Support' of the ISA² Programme. This action supports the European Commission in identifying instances of interoperability and public service governance within European public administrations. In particular, it helps to determine models for collaborative governance of interoperability that may serve as best practices at both EU and Member State levels. It also identifies relevant policies that affect interoperability and that need to be taken into account by organisations when implementing interoperability governance. The objective guiding this report is to *"further develop the organisational interoperability and public service governance models and organisational interoperability activities."*¹

This deliverable analyses the current governance structures of selected European countries and three European policy areas to gather insights on interoperability governance in Member States and at the European Commission. Each of the models is illustrated by a schema followed by an explanation. This report is a continuation of the work done last year under SC 288 EIS Action Review follow-up under D04.02 Interoperability collaboration governance models, as it adds the analysis of eight new Member states (Belgium, Denmark, Italy, Lithuania, Norway, Poland, Portugal, Spain) to have a total of 13 analysed Member States.

The first European Interoperability Framework (EIF)² initially introduced interoperability governance in 2010 and it was further developed in the latest European Interoperability Framework³, published in 2017. It is defined as *"decisions on interoperability frameworks, institutional arrangements, organisational structures, roles and responsibilities, policies, agreements and other aspects of ensuring and monitoring interoperability at national and EU levels"*.

Throughout the revision of the EIF, and in particular along the elaboration of a revised European organisational interoperability vision⁴, the project team defined and narrowed down organisational interoperability and interoperability governance⁵. The project stressed that interoperability governance is a **vertical facet** that interacts with all four layers of interoperability, which was later implemented in the revised EIF. The project team further distinguished between generic interoperability governance and public service

¹ This corresponds to Objective 3 of the SC 288 EIS Action Review follow-up

² COM(2010) 744, Annex 2 to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Towards interoperability for European public services', Brussels, 16.12.2010

³ COM(2017) 134, Annex 2 to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'European Interoperability Framework - implementation strategy', Brussels, 23.3.2017

⁴ See Wimmer et al, (2015) European organisational interoperability vision, Deliverable D 02.03 produced under the previous EIS contract.

⁵ This work was part of contracts 'SC 117 European Interoperability Strategy action review' and 'SC288 EIS Action Review follow-up'.

governance⁶ across the different layers of interoperability.⁷ This changed model also introduced the generic overarching governance, which is the topic of this document.

The generic governance, as defined by the vision document, means a governance, which provides the enabling framework (e.g. the EIF), processes, managerial and steering functions such as reference architecture (e.g. the EIRA) and support instruments for decision making. It supports the management and use of generic interoperability enablers and artefacts at the different interoperability layers in public service provisioning. Interoperability governance also ensures that interoperability enablers and artefacts are aligned with the overall interoperability objectives at policy (e.g. DSM) and strategic level (e.g. EIS). Finally, interoperability governance caters for change management and ensures the sustainability of existing and newly required generic interoperability enablers, artefacts and supportive measures.⁸

Therefore, this report adds into the body of knowledge of collaborative governance, by analysing additional countries, drawing lessons learned based on this analysis and updating the recommendations based on the new findings. The report is structured as follows:

- Chapter 1 outlines the research design for studying collaborative governance models and introduces the template used to describe governance structures;
- Chapter 2 presents the European Commission governance structures of ISA², CEF E-Procurement and eHealth Network;
- Chapter 3 describes the governance structures in 13 Member States (Austria, Belgium, Bulgaria, Denmark, France, Germany, Italy, Lithuania, The Netherlands, Norway, Poland, Portugal, Spain);
- Chapter 4 discusses lessons learned from the analysis;
- Chapter 5 notes the common elements that the analysis of the research identified; and
- Chapter 6 contains the high-level conclusions and next steps.

⁶ An interoperability governance of specific instantiations in end-to-end public service provisioning across policy domains

⁷ See Wimmer et al, (2015) European organisational interoperability vision, Deliverable D 02.03 produced under the previous EIS contract., pp. 11 - 17

⁸ Ibid.

1 Research design for studying collaborative governance models

The project team bases the research method for studying collaborative governance models at European Commission and Member State levels on extensive desk research using qualitative case study methodology⁹. The project team held regular meetings, both physical and virtual, to elaborate the case studies on collaborative governance structures. To ensure a common presentation of the findings, the project team developed a template to analyse interoperability governance structures, which is introduced in section 1.1. Section 1.2 explains the selection of the case studies.

1.1 Template for analysing governance structures

In 2016, the project team developed¹⁰ a template to study collaborative governance models in an effective way. Presented in Figure 1, it depicts the main characteristics of an existing collaborative governance structure. This template incorporates the following aspects:

- Level at which an actor performs governance functions (political, strategic, tactical, operational);
- Role types and main responsibilities of each identified institution and/or specific role;
- Relationships among different actors;
- Documents scoping the governance structure (can be of different type: policy/ strategic initiative, legal framework, interoperability framework, funding programme (financial instrument), governance model or guideline);
- Relation with other relevant policy initiatives or programmes to highlight interdependencies among policies or programmes.

The **levels at which an actor may perform governance functions** represent an adaptation of the multi-level approach to transition management as defined in literature¹¹ (strategic, tactical and operational). It is extended with the political level. The model reflects generic understanding of strategic planning processes from economics and management literature¹². Each level is explained below:

- **Political level:** The political level indicates the high level governance functions, which are executed by political actors. This level has been included in this model because in the public sector, unlike the private sector, there is a need to distinguish between political level and strategic level. Specifically, the division of legislative power and administrative power of public institutions has to be taken into

⁹ Cf. Baxter, Pamela & Jack, Susan (2008): Qualitative Case Study Methodology : Study Design and Implementation for Novice Researchers Implementation for Novice Researchers. In: *The Qualitative Report* 13(4), pp. 544–59. <http://nsuworks.nova.edu/tqr/vol13/iss4/2>; and Yin, Robert K. (2014). *Case study research: design and methods*. 5th edition. Sage Publications, Los Angeles et al

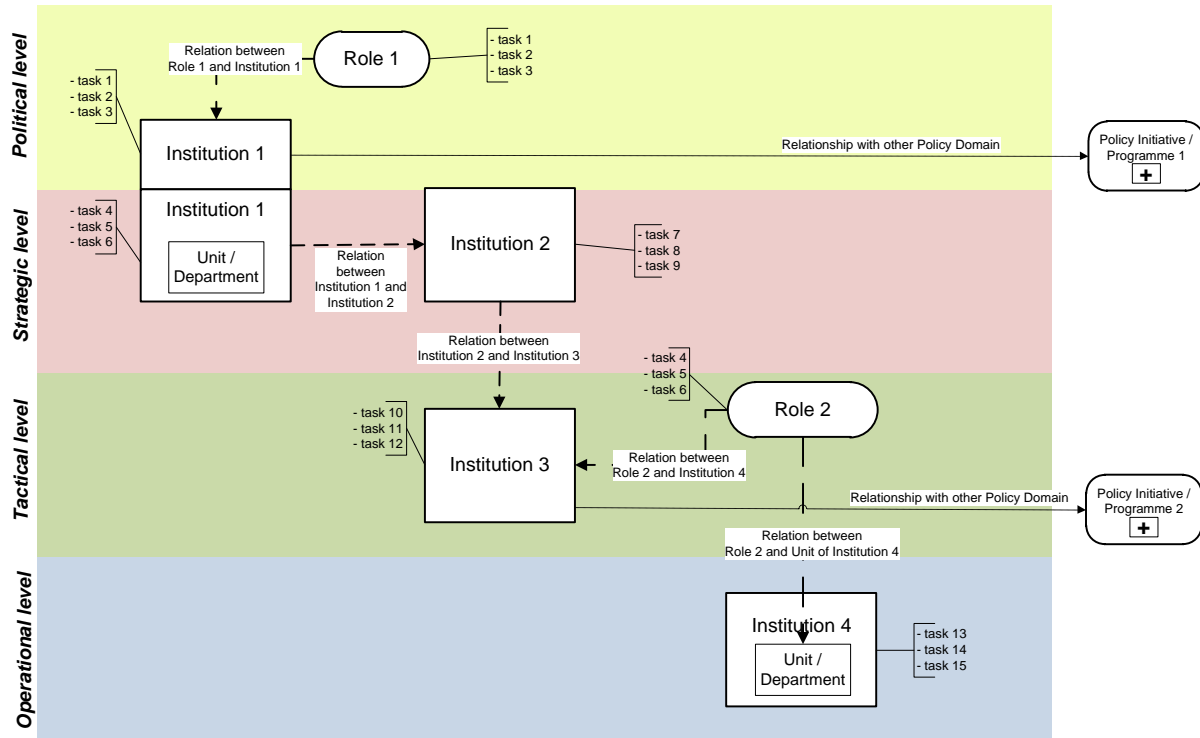
¹⁰ Wimmer et al. (2016) Organisational interoperability guidelines» (2016) SC 288/D05.02.

¹¹ Cf. Loorbach, Derk (2004): Governance and transitions: a multi-level policy-framework based on complex systems thinking. Conference on Human Dimensions of Global Environmental Change, Berlin – downloaded from: http://userpage.fu-berlin.de/ffu/akumwelt/bc2004/download/loorbach_f.pdf. Kemp, René, Loorbach, Derk, Rotmans, Jan (2007): Transition management as a model for managing processes of co-evolution towards sustainable development. In: *International Journal of Sustainable Development & World Ecology* 14, pp. 1–15

¹² See a comparison of literature e.g. in Rabl, Klaus (1990): *Strukturierung strategischer Planungsprozesse*, Wiesbaden: Gabler, where strategic planning refers to long-term planning processes, tactical planning cover mid-term coordinating and planning activities to realise the strategic objectives, and operational refers to short-term and realisation of plans in concrete projects to achieve strategic objectives.

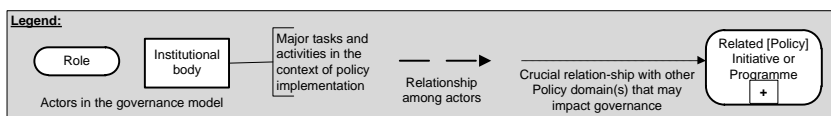
consideration. In this sense, the political level precedes the strategic level and provides overall long term decisions, leadership and commitment to strategic visions, which set the direction for the governance functions at all other levels.

Figure 1 Governance template



Artefacts scoping this governance model

- Policy frameworks/initiatives (Agenda, Strategy, Vision, Action Plan)
- Legal framework
- Interoperability framework
- Funding programs / Financial instruments
- Governance model
- Guideline (supporting e.g. the implementation of the underlying policy, the framework or the governance model)



- **Strategic level:** The strategic level maps actors and governance processes that determine how to best put political decisions into place. The borders of the two levels are not necessarily very strict, apart from the political level decision-making versus the executive strand of decision making. Thus, strategic level actors may prepare strategic visions and policy documents for the political level as well as make strategic decisions for the further implementation of policy objectives, which the political level decides.
- **Tactical level:** At the tactical level, relevant actors cater for more implementation-oriented planning activities such as developing standards or coordinating their widespread application. These actors and their activities are strongly dependent on the strategic level governance and decisions. This level's actors also reflect governance functions to guide the operational layer in e.g. the usage of

and feedback on interoperability artefacts in public service provisioning, in developing and providing the necessary tools and knowledge to support the operational level, etc.

- **Operational level:** In this taxonomy, the operational level reflects the actors responsible for the provision of public services or interoperability building blocks. This understanding also confers to Loorbach's understanding of executing projects and performing experimentation.

The **role types and main responsibilities** depict on each level of governance those core actors (institutions such as Ministries, Directorates, Networks of different actors; roles such as CIO, Minister, Director, Chancellor, etc.) that perform relevant governance functions (described in the note shapes linked to the boxes with the institutions' names). Furthermore, dotted lines and arrows visualise the **relationships among different actors** within, and across, governance levels. They also indicate a hierarchy of collaborative governance structures in combination with the levels at which an actor may perform governance functions. Furthermore, the schemas indicate interdependencies or **relationships with other relevant policy initiatives or programmes** through rounded edge rectangles outside a core governance structure.

The graphical representations of governance models are complemented with descriptions. Each case description provides an overview of the **artefacts scoping the governance models**, which were also consulted along the desk research.

1.2 Selection of study subjects

In 2016, the initial report, which this deliverable updates, researched five EU Member States (Austria, Bulgaria, France, Germany and the Netherlands) to illustrate the generic collaborative governance on a national level. The countries were chosen due to their distinct characteristics. For example, while in Germany the federal system is reflected through a rather decentralised governance structure between federal and state level, in France the decision making power is concentrated within the central government. Bulgaria was chosen as an example of a country that takes into consideration EU guidance and that is building its governance around it. This is in contrast to the Netherlands, which has a high level of maturity regarding ICT governance and has well established institutions and management. Finally, Austria boasts a governance model organised as a collaborative platform, which involves the core actors from distinct levels of the federal system.

The 2016 study also investigated three European Commission cases; ISA² and CEF eProcurement Digital Service Infrastructure represent examples of interoperability governance on more strictly European institutional level whereas the eHealth Digital Service Infrastructure is less institutionalised and is based on close collaboration between Member States and the European Commission. The current study did not revise nor update them.

The current study focuses exclusively on the Member States interoperability governance and analyses the governance of eight countries: Belgium, Denmark, Italy, Lithuania, Norway, Poland, Portugal and Spain. The project team chose these countries due to their variety in size and type. The project team further included one EFTA country to compare its interaction with the EC and analyse if there were any pertinent difference in their interoperability governance. The analysis of these eight countries brings the total number of analysed countries to 13. The new countries are marked with  sign.

It is important to note that the current study does not provide revised information of the five countries in scope of the previous report (Austria, Bulgaria, France, Germany and the Netherlands). Thus, this study does not

reflect any changes of their governance systems that may have occurred in 2017. The update of these countries can be subject for future research.

2 European Commission governance structures

This chapter presents selected EC governance structures.

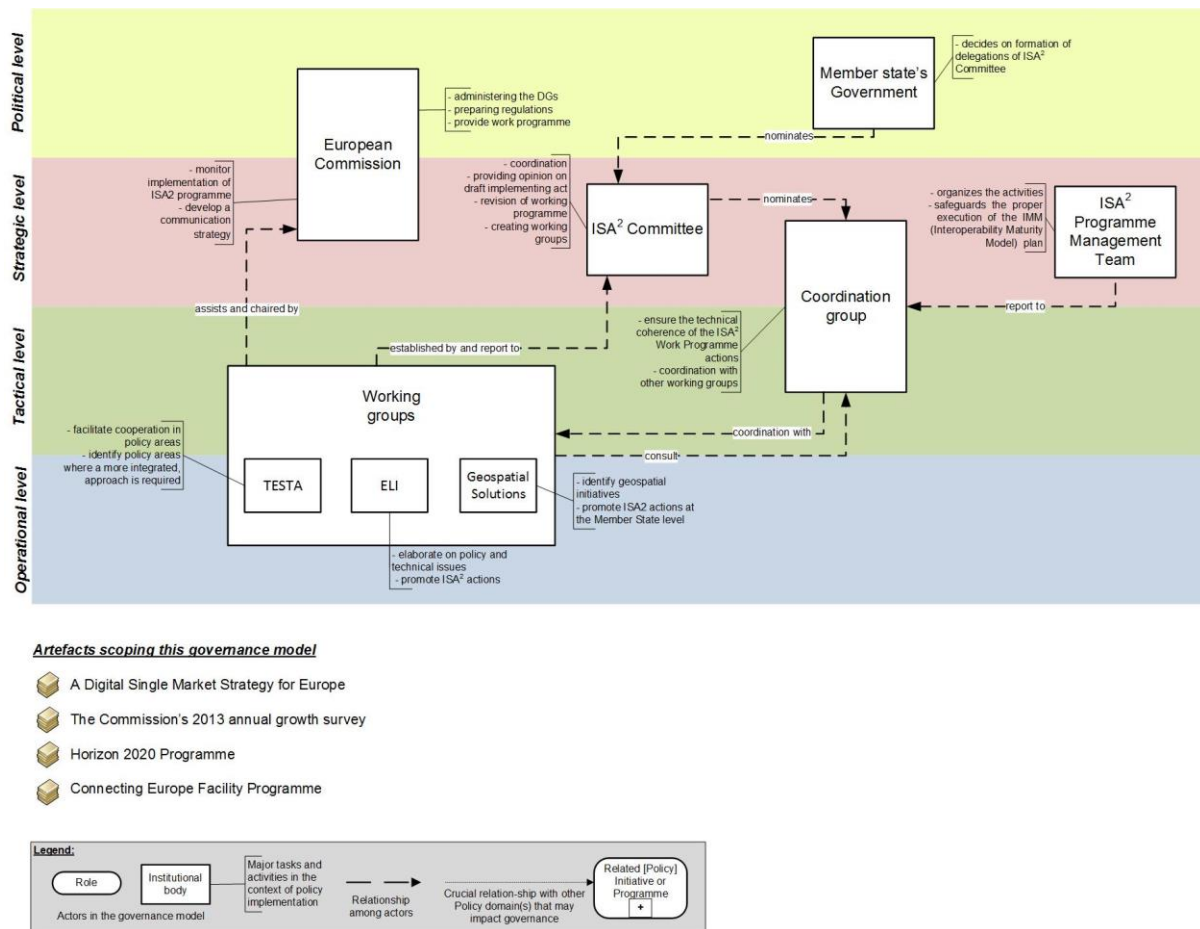
2.1 ISA²

In November 2015, the follow-up programme to ISA, ISA², was officially adopted by the European Parliament and the Council of the European Union¹³. The ISA Programme, run by DG DIGIT, was designed to support and facilitate efficient and effective cross-border and cross-sector interoperability. The programme takes an integrated approach to enhancing interoperability through more than 40 actions.

ISA² provides and maintains solutions that facilitate the reuse of data as well as its exchange. Its goal is to ease cross-border and cross-sector electronic collaboration between public administrations and with enterprises and citizens in Europe. The Programme ensures that the interoperability solutions are well coordinated at the European Union level.

Figure 2 describes the ISA² governance structure for the ISA² implementation and outlines their roles and responsibilities. Subsequently, they are described along the four governance levels.

¹³ Decision (EU) 2015/2240 of the European Parliament and of the Council of 25 November 2015 establishing a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens (ISA² programme) as a means for modernising the public sector (Text with EEA relevance).

Figure 2 ISA² governance model

2.1.1 Political level

European Commission (EC)

The European Parliament and the Council of European Union adopted the ISA² Programme in November 2015. The ISA² Programme supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services. ISA² runs from 1 January 2016 until 31 December 2020. Based on the ISA² legal decision, the EC on the political level therewith carries out the following governance functions:

- administering the DGs and cooperating with Member States participating in the implementation of the ISA² Programme;
- preparing policies, legislations and initiatives in the interoperability domain in compliance with the ISA² legal basis;
- preparing the annual work programme in order to design the strategy, the outputs and the key milestones of the actions supporting the implementation of ISA²;

Member State's (MS) Government

On political level, Member States participate in the programme through representatives in the ISA² Committee. Each Member State appoints their own representative(s). Their main responsibilities are to make proposals and to cooperate with the ISA² Committee.

2.1.2 Strategic level

European Commission

European Commission as the governing body also acts on the strategic level. The scope of the objectives and activities includes:

- monitoring regularly the implementation and reuse of interoperability solutions across the Union, as part of the rolling work programme;
- monitoring the implementation of the EIF;
- developing and executing a communication strategy;
- supporting the implementation of the actions; and
- monitoring and evaluating the programme's execution.

ISA² Committee

The Commission must be assisted by the Committee on Interoperability Solutions for European Public Administrations, Businesses and Citizens (the ISA² Committee). Each Member State has an appointed representative, which participates in the Committee.

The ISA² Committee within the meaning of [Regulation \(EU\) No 182/2011](#) is responsible for the coordination with other complementary Union programmes. It provides an opinion on draft implementing acts and also makes revisions of the annual working programmes. The ISA² Committee creates working groups to examine and elaborate particular issues.

ISA² Programme Management Team

The ISA² Programme Management Team is represented by DG DIGIT Unit D2 "Interoperability". It identifies the priorities, organises the activities such as catalogue of services, access to base registries, interoperability agreements on electronic document and electronic file. It also safeguards the proper execution of the [IMM \(Interoperability Maturity Model\)](#) development and communication plan and reports the progress and the results of the [IMM Action](#) to the ISA² Coordination Group.

ISA² Coordination group

The coordination group reports to the ISA² Committee and can consist of the ISA² Committee members and/or of high-level experts appointed by the ISA² Committee members. It operates at both strategic and tactical levels. Its main task at the strategic level is to set the general strategic directions of the Action and to ensure that all initiatives are coordinated and aligned with relevant actions at European and /or national level. At tactical level, the ISA² Coordination group supports the coordination with other working groups in terms of consultation and advisory activities.

Furthermore, in accordance with the Rules of procedure for the ISA² Committee, the ISA² Committee created working groups (WG) to examine the following issues:

- the use of geospatial data in the public and private sectors (Geospatial solutions WG);
- connecting national administrative networks and the internal networks of the European institutions (TESTA WG); and
- identifying legislative documents in order to make them both human- and machine-readable (ELI WG).

In order to carry out the supervision of the working groups, the “ISA² Coordination Group” was established.

2.1.3 Tactical and operational level

Working groups

As mentioned above, to ensure the implementation of the ISA² Programme, the ISA² Committee created three working groups: Geospatial Solutions, Trans-European Services for Telematics between Administrations (TESTA), and European Legislation Identifier (ELI). A Commission representative chairs each working group.

These groups are operating at two levels: Tactical and Operational. Specifically on Tactical level, the working groups are mainly responsible for identifying the requirements and solutions, which address the particular concerns.

Working group (WG): Geospatial Solutions

The working group is established and coordinated by the ISA² Committee. The WG consists of high-level experts appointed by the ISA² Committee members. It reports at least once per year or on a need basis on the undertaken work and results achieved. It also consults the ISA² Coordination group.

This WG plays an advisory role. It helps to identify requirements and priorities of ISA² actions addressing geospatial solutions. It further assists the Commission in implementing the ISA² action 2016.10 ELISE - European Location Interoperability Solutions for E-government - whilst establishing links with the community implementing Directive 2007/2/EC Infrastructure for Spatial Information in Europe (INSPIRE).

The responsibilities of the WG are to identify:

- policy areas
- digital public services
- links with the business community
- common challenges and requirements for electronic cross-border or cross-sector interaction and geospatial initiatives at national level.

The WG's general aim is to promote the pertinent ISA² actions at the Member State level so that the geospatial solutions are followed-up at national level.

WG: TESTA (Trans-European Services for Telematics between Administrations)

This WG plays an advisory role to the TESTA network through assisting the Commission in implementing the ISA² action. It identifies common challenges to the use of TESTA in topics such as governance, quality and cross-sector interoperability. The WG aims to facilitate cooperation between public administrations in various policy areas served by the TESTA network. It also investigates opportunities for reusing TESTA assets in other thematic sectors in line with Member States' e-government developments. Finally, the WG identifies policy areas, where a more integrated approach is required for consolidating existing networks.

WG: ELI (European Legislation Identifier)

The WG should elaborate on policy and technical issues related to the European Legislation Identifier. This includes consultancy to stakeholders interested in adopting ELI and promoting the pertinent ISA² actions at the Member State level.

2.1.4 Artefacts scoping the governance models

The ISA² Programme is to be seen in the overall context of a number of relevant EU policy documents, which are briefly outlined below. These artefacts shape the responsibilities and duties of the core actors of the ISA² governance model. They also demonstrate a high interdependency with related policy areas in the European Commission.

The Digital Single Market Strategy for Europe (DSM)¹⁴ is the roadmap, which discusses key interdependent actions that can only be taken at EU level. It is built on three pillars:

- Better access for consumers and businesses to online goods and services across Europe;
- Creating the right conditions for digital networks and services to flourish;
- Maximising the growth potential of our European Digital Economy.

The strategy recognises interoperability and standards as key factors for the successful implementation of the digital single market.

The DSM should be seen in the context of Europe 2020, and in particular, as a successor of the Digital Agenda for Europe (DAE), which supports the establishment of a Digital Single Market in the EU based on fast and ultra-fast internet and interoperable applications.

The DSM considers interoperability and standards as one of the main action items.

On a political level, another Commission Communication that supports the strategic priorities set in the ISA² Programme is the Commission's 2013 annual growth survey (AGS)¹⁵, which provided a clear direction on where Europe should be heading in the coming years. In this document, the European Commission states that interoperability between administrations makes it possible to deliver digital services more effectively and efficiently, while at the same time the sharing and reusing of existing interoperability solutions could reduce costs.

The 2013 AGS considers cross-border interoperability of online services and European public administrations' digitisation to be important contributors to growth and increased efficiency.

Moving from a strategic perspective to a more operational perspective, Connecting European Facility (CEF) Telecom package (in the area of broadband infrastructure and services) is the main financial instrument for providing key building blocks, such as e-identification, e-delivery and automated translation, to facilitate cross-border interoperability.

In the area of research & innovation, Horizon 2020 clearly mentions that interoperable solutions and standards in ICT are key enablers for the partnering of industries at Union level.

¹⁴ COM (2015) 0192 final, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions A Digital Single Market Strategy for Europe.

¹⁵ COM (2012) 750 final, Communication from the Commission, Annual Growth Survey 2013 Brussels, 28.11.2012.

The H2020 programme is an enabling financial instrument to bring forward new innovative solutions for interoperability.

2017 Update

This section of the report was in the scope of SC288 D04.02 Report *Interoperability collaboration governance models* completed in 2016. Although it is not within the scope of this contract to reopen the data collection, the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

In October 2017 during the e-governement Ministerial Conference in Tallin all Member States and EFTA countries signed the 'e-governement Declaration'¹⁶. With this declaration the Member States reaffirmed their commitment to progress in linking up their public e-services and to implement the eIDAS regulation and the once-only principle in order to provide efficient and secure digital public services that will make citizens and businesses lives easier. Therefore, it is directly related to the promotion of cross-border interoperability.

2.2 E-procurement Digital Service Infrastructure

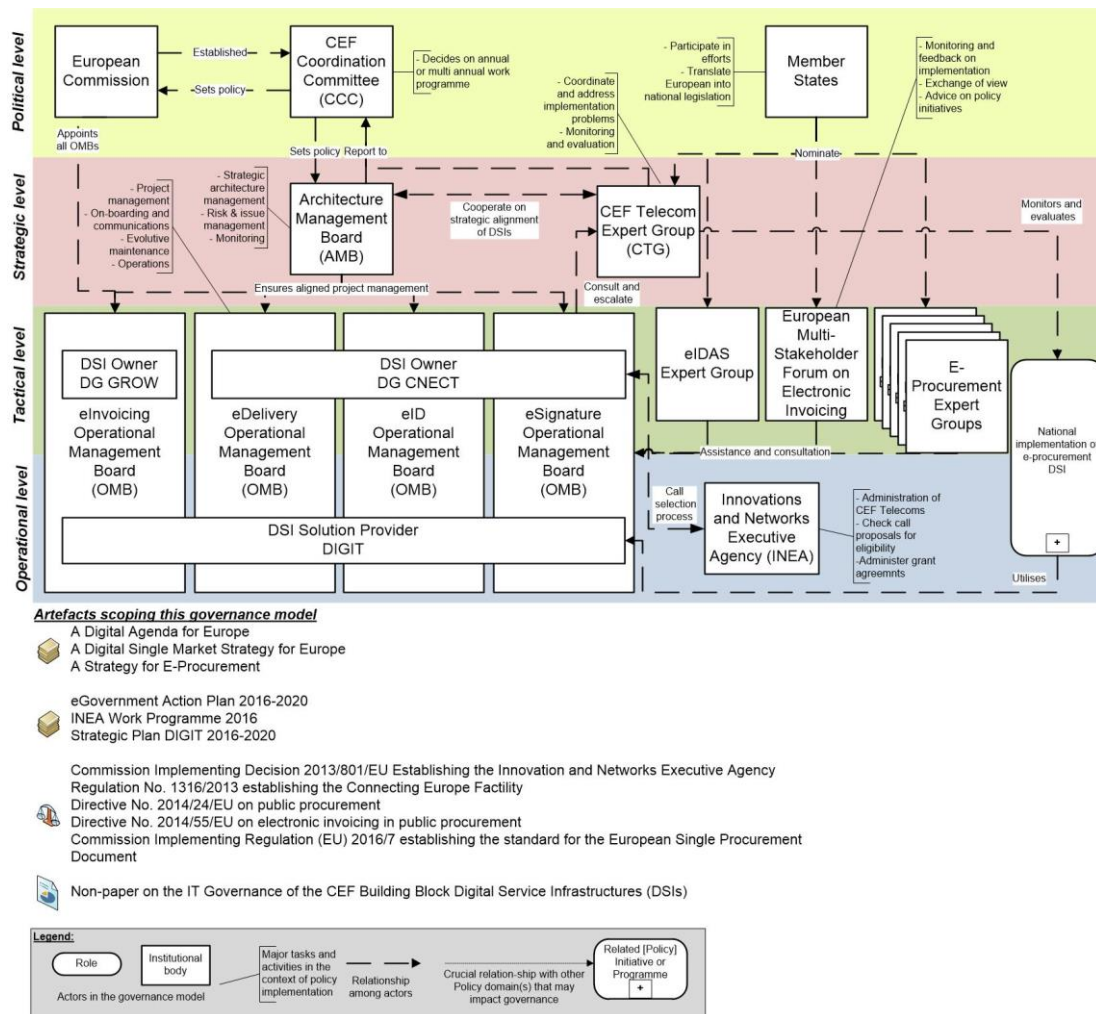
This section illustrates the interoperability governance setup for e-procurement utilising the Connecting Europe Facility Building Block Digital Service Infrastructure (CEF BB DSI). While the BB DSIs are sector agnostic, they can individually or in combination with one another enable sector-specific services. At the time of writing, five BBs are available to the European community: eDelivery, eID, eInvoicing, eSignature, and eTranslation.

Public procurement refers to the government or public entities purchasing work, goods, or services. Directives 2014/23/EU (award of concession contracts), 2014/24/EU (public procurement), 2014/25/EU (procurement by entities operating in the water, energy, transport and postal services sectors), and the Commission Implementing Regulation (EU) 2016/7 (standard form for the European Single Procurement Document) define the rules, which Member States need to follow when publishing tenders. The objective is to stimulate competition and to create equal opportunities for all business in Europe by offering their products and services to governments across Europe. E-procurement utilises the eDelivery, eID, eSignature and eInvoicing BB. Additional technical solutions that are sector-specific are the European Single Procurement Document (ESPD), e-Certis 2.0, eNotification, eAccess, and eSubmission.

Among the EC cases of governance structures, the e-procurement DSI in the CEF policy area was selected as case study. Figure 3 shows the overall governance model. Subsequently, the model is explained along the layers of governance.

¹⁶ <https://ec.europa.eu/digital-single-market/en/news/ministerial-declaration-egovernment-tallinn-declaration>

Figure 3 Governance model for e-procurement DSI



2.2.1 Political level

European Commission (EC)

With Regulation 1316/2013, CEF was established as a financial instrument by the EC. Its objectives are stipulated in Article 3:

“In particular, the CEF shall support the implementation of those projects of common interest which aim at the development and construction of new infrastructures and services, or at the upgrading of existing infrastructures and services, in the transport, telecommunications and energy sectors. It shall give priority to missing links in the transport sector. The CEF shall also contribute to support projects with a European added value and significant societal benefits which do not receive adequate financing from the market.”

The EC’s institutional role in this setup is to provide the CEF funding, which is administered through the Innovation & Networks Executive Agency (INEA), and to develop a corresponding annual work programme to achieve strategic objectives.

The EC also passes regulations, as the need arises, for ensuring that BBs can be used as envisioned. It further appoints DSI Owners who manage a policy domain in which BBs are being used and DSI Solution Providers who develop and maintain these BBs.

CEF Coordination Committee (CCC)

The EC is assisted by the CCC in elaborating the work programme and by ensuring that it leverages sector spanning synergies, which are efficiently coordinated, based on Article 25 of Directive 1316/2013. As the CCC's decision on the work programme is binding to the EC, it fulfils a political role.

Member States (MS)

The MSs' role is to participate in this setup by:

- translating European legislation into national laws;
- ensuring that DSIs are implemented on a national level; and
- nominating representatives for DSI specific Expert Groups.

2.2.2 Strategic level**CEF Telecom Expert Group (CTG)**

The CTG brings together national experts whose role is to investigate national implementations in line with Article 22 of Directive 1316/2013. The assessment of national implementations and their problems is done by looking at national strategies, at the financial assistance and support that is provided, and at the technical project implementation. The findings enable the CTG to formulate strategic recommendations which they provide to the CCC for the purposes of setting up the work programme. This monitoring and evaluation activity allows for emerging issues to be spotted and for strategic actions to be planned on a European level. The CTG also plays an advisory role by resolving issues that are escalated from the Operational Management Boards (OMB) and by providing expertise on draft measures from the CCC.

Architecture Management Board (AMB)

The AMB brings together all representatives of the DSI OMBs, including all DSI Owners, all DSI Solution Providers, and, when relevant, the representatives of the DGs that are reusing any DSI BB.

The role of the AMB is to monitor the development of each BB and the contributions it provides to the overarching policy objectives. Therewith, it ensures alignment and can propose corrective measures when required. This also addresses risk and issue management and may lead to activities involving DSIs. Ultimately, the AMB ensures that a European interoperability ecosystem based on a common target architecture is realised. This includes maintaining a Catalogue of CEF BB DSIs, providing recommendations to each DSI OMB as required, and therefore ensuring that technical implementations are properly managed.

2.2.3 Tactical level**[eID | eDelivery | eInvoicing | eSignature] DSI Operational Management Board (OMB)**

The OMBs relevant to e-procurement are constituted of the relevant DSI Owner which are DG CNECT and DG GROW respectively, the DSI Solution Provider which is DIGIT, Representatives of the DGs that are reusing sector-specific DSIs, and Extended DSI Expert Groups. Table 1 shows the actors involved in the respective OMBs for e-procurement.

Table 1 DSI owners and solution providers (actors) relevant in e-procurement

	eDelivery	eID	eSignature	eInvoicing
DSI Owner	DG CNECT (eIDAS Task Force and Public Services Unit)	DG CNECT (eIDAS Task Force and Public Services Unit)	DG CNECT (eIDAS Task Force and Public Services Unit)	DG GROW
DSI Solution Provider	DIGIT	DIGIT	DIGIT	DIGIT

The **DSI Owner** acts on a tactical level and is responsible for tasks such as project management including budgeting, lifecycle management, risk and issue management, stakeholder management (on-boarding of new users and communication activities, and reporting). The DSI Owner as the head of the OMB ensures that policy objectives are met and that DSIs function as intended.

The **DSI Solution Provider** is responsible for operational tasks which includes configuration management and maintenance such as tracking of release plans and change requests. Additionally, operational services and service level agreements are being tracked as well as support services provided for the implementation. The DSI Solution Provider, hence, is accountable for ICT delivery.

Extended DSI Expert Groups

The Extended DSI Expert Groups provide the users' point of view to the OMB by providing their feedback on drivers and challenges of national implementations. The members of these groups are appointed by the Member States and may include also user communities when the need arises. The topics that are covered are primarily of a tactical nature such as consideration about new services or new standards. The following actors are involved in the case of e-procurement with regards to BB and sector-specific DSI:

Table 2 Extended DSI Expert Groups actors

	eDelivery	eID	eSignature	eInvoicing	E-Procurement
eIDAS Expert Group	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
eDelivery Extended Expert Group	<input checked="" type="checkbox"/>				
User Communities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
European Multi-Stakeholder Forum on Electronic Invoicing				<input checked="" type="checkbox"/>	
<ul style="list-style-type: none"> • Commission Government Experts' Group on Public Procurement • Stakeholder Expert Group on Public Procurement • Multi-Stakeholder Expert Group on e-Procurement • Expert Group on Defence and Security Procurement • Advisory Group on Cross-border Access for SMEs to Defence and Security Contracts 					<input checked="" type="checkbox"/>

The **eIDAS Expert Group** is led by DG CNECT and constituted by Member States' representatives. Its focus is on best practices, support initiatives, and legislation regarding electronic identification and trust services.

To that end, it assists the EC in the preparation of policy initiatives and in the implementation of existing legislation, it facilitates the exchange of view among MS, and it enables Member States to advise and provide feedback on draft measures.

The **European Multi-Stakeholder Forum on Electronic Invoicing** is led by DG GROW and constitutes financial institutions as well as representatives of national multi-stakeholder fora. Its area of expertise lies with invoicing. As such, it is responsible for monitoring and reporting on the uptake, barriers, and success strategies regarding e-invoicing within and across Member States in Europe. The EC may ask the group for advice on these topics in general and pending legislative initiatives in particular.

All **e-procurement specific expert groups** are led by DG GROW and consist of representatives from national administrations. Depending on the setup they can also include academia, industry, and NGOs. Respective to the domain of their expertise, they assist in providing insight from national implementation efforts, exchanging of views, and advising on legislation.

2.2.4 Operational level

Innovation & Networks Executive Agency (INEA)

INEA's work is guided by the political direction articulated by the EC and the specific objectives stipulated in its work programme, approved and passed by the EC. It is monitored and supervised by four DGs and it administers a range of funding mechanisms such as CEF and Horizon 2020. Telecoms related projects are supervised by DG CNECT and administered by Unit C4 Energy & ICT¹⁷.

In its current INEA Work Programme 2016, one of its seven specific operational objectives reads to:

“Support for the deployment and promotion of interconnected and interoperable European Digital services through the effective and efficient technical and financial management of the part of the CEF Telecoms Programme related to generic services.”

To that end, INEA is responsible for publishing the call, checking proposals for eligibility, and conducting a technical evaluation supported by independent, external experts. Once approved, DG CNECT together with its ICT Directors and the CTG (CEF Telecom Expert Group) conducts an internal review and consultation on the forwarded proposals. When it is decided to approve and fund a project, INEA takes care of the administrative aspects such as the preparation and signature of grant agreements.

2.2.5 Artefacts scoping the governance model

Table 2 provides a comprehensive overview of a range of regulations and strategies that are scoping the e-procurement governance setup with three documents that are elaborated below.

¹⁷ <https://ec.europa.eu/inea/en/mission-objectives/organisation>

The E-Government Action Plan 2016-2020 describes the following vision:

*“By 2020, public administrations and public institutions in the European Union should be open, efficient and inclusive, providing borderless, personalised, user-friendly, end-to-end digital public services to all citizens and businesses in the EU. Innovative approaches are used to design and deliver better services in line with the needs and demands of citizens and businesses. Public administrations use the opportunities offered by the new digital environment to facilitate their interactions with stakeholders and with each other.”*¹⁸

In this document, the EC stipulates the seven principles 1) digital by default, 2) once only principle, 3) inclusiveness and accessibility, 4) openness and transparency, 5) cross-border by default, 6) interoperability by default, as well as 7) trustworthiness and security. It emphasises the reuse of DSI BB and provides specific actions relating to domains such as e-procurement, ensuring that there is sustainable support:

*“The reuse of open services and technical building blocks (such as eID, eSignature, eDelivery and eInvoice) by Member States is critical for interoperability. The availability of these services is currently guaranteed by funding from the Connecting Europe Facility (CEF); it is however necessary to ensure their availability and long-term sustainability beyond this funding programme. Therefore, the Commission will present a way forward for their sustainability beyond 2020. [...] The Commission will coordinate with Member States the development of a prototype for a European Catalogue of ICT standards for public procurement which will support interoperability in the acquisition of digital solutions by encouraging the reference to common sets of ICT standards and profiles in Public Procurers' calls for tenders.”*¹⁹

The E-Government Action Plan 2016-2020 commits the European Commission and Member States to work towards interoperability across European public administrations and its constituency and to do this in a sustainable and open way.

The governance setup in its current form is shaped by the Non-Paper on IT Governance of the CEF Building Block Digital Service Infrastructures (DSIs). It integrates policy and ICT governance given that individually developed and administered BB will be reused in different policy domains. To ensure that the needs of these domains are accounted for, policy governance in the form of institutionalised consultations with stakeholders from the EC and Member States play a central role. Also, ICT service and lifecycle management is closely linked to tactical decisions that bridge policy objectives and ICT operations through the OMB. Ultimately, the alignment of policies and ICT ensures that CEF funding is non-redundant and sustainable.

Finally, Directives 2014/23/EU, 2014/24/EU and 2014/25/EU on public procurement and Directive 2014/55/EU on electronic invoicing in public procurement provide the legal foundation and impetus to enable standards and technical solutions for e-procurement and e-invoicing to be developed. These also commit Member States to use these solutions supporting the ideas of digital, cross-border, and interoperability by default.

¹⁸ European Commission (2016) *EU eGovernment Action Plan 2016-2020. Accelerating the digital transformation of government*. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0179&from=EN>. Quote from pages 3.

¹⁹ Ibid. Quote from pages 5-6.

The directives 2014/23/EU, 2014/24/EU and 2014/25/EU and the Commission Implementing Regulation (EU) 2016/7 on public procurement as well as the directive 2014/55/EU on electronic invoicing set the necessary legal grounds for cross-border and interoperable digital services in public procurement.

Table 3 Documents scoping the governance model of the CEF e-procurement DSI

Document title	Document type	Purpose of the document	Relation to interoperability and or governance
A Digital Single Market Strategy for Europe	Strategy	<p>"This Single Market Strategy [...] has a multi-annual scope and is focused on key interdependent actions that can only be taken at EU level [and] will be built on three pillars:</p> <ul style="list-style-type: none"> • Better access for consumers and businesses to online goods and services across Europe [...] • Creating the right conditions for digital networks and services to flourish [...] • Maximising the growth potential of our European Digital Economy" 	recognises interoperability and standards as key factors for the successful implementation of the digital single market
A strategy for e-procurement	Strategy	<p>"This Communication presents the strategic importance of electronic procurement (e-procurement) and sets out the main actions through which the Commission intends to support the transition towards full e-procurement in the EU.</p> <p>One objective of these proposals is to achieve a full transition to e-procurement in the EU by mid-2016. The ultimate goal is "straight through e-procurement" with all phases of the procedure from notification (e-notification) to payment (e-payment) being conducted electronically."</p>	The document is relevant for interoperability as it involves the assessment of the framework for electronic identification, authentication and signatures to enhance trust and security and to ensure the ease of use and the interoperability of such systems across the EU.
Regulation No. 1025/2012 on European Standardisation	Regulation	"This Regulation establishes rules with regard to the cooperation between European standardisation organisations, national standardisation bodies, Member States and the Commission, the establishment of European standards and European standardisation deliverables for products and for services in support of Union legislation and policies, the identification of ICT technical specifications eligible for referencing, the financing of European standardisation and stakeholder participation in European standardisation."	Interoperability is one of various items that are subject to the standardisation process.
End-to-End e-procurement to	Communication	"This Communication identifies the state of implementation of "end-to-end e-procurement" (from	The Communication addressed the need for enhancing

Document title	Document type	Purpose of the document	Relation to interoperability and or governance
<u>modernise public administration</u>		the electronic publication of notices to electronic payment) in the EU [...] The management of public procurement is of primary policy importance in the current context of fiscal consolidation. End-to-end e-procurement is therefore a key enabler of the above priorities, and can contribute to the sustainable growth objectives of the EU 2020 Strategy.	interoperability of cross-border processes.
<u>Regulation No. 1316/2013 establishing the Connecting Europe Facility</u>	Regulation	"This Regulation establishes the Connecting Europe Facility ("CEF"), which determines the conditions, methods and procedures for providing Union financial assistance to trans-European networks in order to support projects of common interest in the sectors of transport, telecommunications and energy infrastructures and to exploit potential synergies between those sectors."	"In the telecommunications sector, the CEF shall support actions that pursue the objectives specified in a Regulation on guidelines for trans-European networks in the area of telecommunications infrastructure, which relates to interoperability
<u>Commission Implementing Decision 2013/801/EU Establishing the Innovation and Networks Executive Agency</u>	Decision	Establishing the Innovation and Networks Executive Agency (hereinafter referred to as 'the Agency')	The INEA is mandated to implement the Connecting Europe Facilitate programme which in turn sets out to address interoperability through funding
<u>Directive No. 2014/23/EU on the award of concession contracts</u>	Directive	"Article 1 This Directive establishes rules on the procedures for procurement by contracting authorities and contracting entities by means of a concession, whose value is estimated to be not less than the threshold laid down in Article 8."	The tools and devices to be used for communicating by electronic means, as well as their technical characteristics shall be interoperable with the information and communication technology products in general use."
<u>Regulation No. 283/2014 on guidelines for trans-European networks</u>	Regulation	"This Regulation lays down guidelines for the timely deployment and interoperability of projects of common interest in the field of trans-European networks in the area of telecommunications infrastructure."	"It is important that digital service infrastructures that are necessary to meet legal obligations under Union law and/or are developing or providing building blocks, with a potential high impact on the development of pan-European public services, be funded so as to support multiple digital service infrastructures and, over time, gradually build up a European interoperability ecosystem.
<u>Regulation No. 2015/1986 establishing standard forms for the publication of notices in the field of public procurement</u>	Directive	The regulation establishes standard forms for the publication of notices in the field of public procurement	In order to comply with Directives 2014/23/EU, 2014/24/EU and 2014/25/EU and to ensure the full effectiveness of Directives 89/665/EEC and 92/13/EEC, it is necessary to adapt the standard forms annexed to Implementing

Document title	Document type	Purpose of the document	Relation to interoperability and or governance
			Regulation (EU) No 842/2011 and to add new standard forms.
<u>Commission Implementing Regulation (EU) 2016/7 establishing the standard for the European Single Procurement Document</u>	Decision	The regulation establishes the standard form for the European Single Procurement Document	The standard will enable interoperability.
<u>INEA Work Programme 2016</u>	Programme	The programme provides the strategy and objectives of INEA for the year 2016.	The Work Programme has objectives related to interoperability, such as: - Support for the deployment and promotion of interconnected and interoperable European Digital services through the effective and efficient technical and financial management of the part of the CEF Telecoms Programme related to generic services
<u>DG DIGIT Strategic Plan 2016-2020</u>	Strategy	The strategic plans proposes actions to fulfil DIGIT's vision to take on and drive forward the digital leadership role within the Commission. DIGIT must develop and lead the digital transformation of the Commission so that it can deliver EU policy better, more efficiently and more productively, fully seizing the opportunities offered by new technologies.'	DIGIT provides interoperability solutions to external stakeholders, such as the Member States and other EU institutions, through the implementation of the ISA2 programme
<u>European Interoperability Framework for European public services 2010</u>	Framework	The purpose of the European Interoperability Framework (EIF) is to promote interoperability, to guide public administrations, and to complement National Interoperability Frameworks (NIFs) at European level.	The EIF is one of a series of interoperability initiatives that aim to support the establishment of European public services.
<u>European Interoperability Strategy (EIS) 2010</u>	Strategy	The EIS aims to provide guidance and to prioritise the actions needed to improve interaction, exchange and cooperation among European public administrations across borders and across sectors for the delivery of European public services.	Promotion of interoperability through a strategic of cooperatively and sustainably funding and developing interoperability standards Is meant to support governance of interoperability according to the EIF: "The EIS steers the EIF and all other associated efforts by setting strategic priorities and objectives." (EIF: 3)

2017 Update

This section of the report was in the scope of SC288 D04.02 Report *Interoperability collaboration governance models* completed in 2016. Although it is not within the scope of this contract to reopen the data collection,

the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

In March 2017 the Commission adopted the new Communication on the European Interoperability Framework - Implementation Strategy²⁰, which introduced the updated Annex I Interoperability Action Plan²¹ and Annex II European Interoperability Framework - Implementation Strategy²². The new Communication and Annexes support the implementation of the ISA² Programme, and propose more specific actions and guidance, which Member States could take and apply to improve cross-border interoperability.

2.3 eHealth Digital Service Infrastructure (DSI)

Health related activities cover aspects such as health promotion, diagnosis, therapy, rehabilitation, and long-term care²³. The digitalisation of these services and information fall under the concept of eHealth²⁴. The large-scale project European Patient Smart Open Services (epSOS) has developed cross-border solutions for patient summaries and e-prescription which are at the heart of the sector-specific eHealth Digital Service Infrastructure. While public health is subject to national legislation, efforts to coordinate activities and develop interoperable eHealth services are coordinated through the European governance structure as presented in Figure 4 and outlined subsequently.

²⁰ COM(2017) 134, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions European Interoperability Framework – Implementation Strategy, Brussels, 23.3.2017. Retrieved from: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2017:134:FIN>

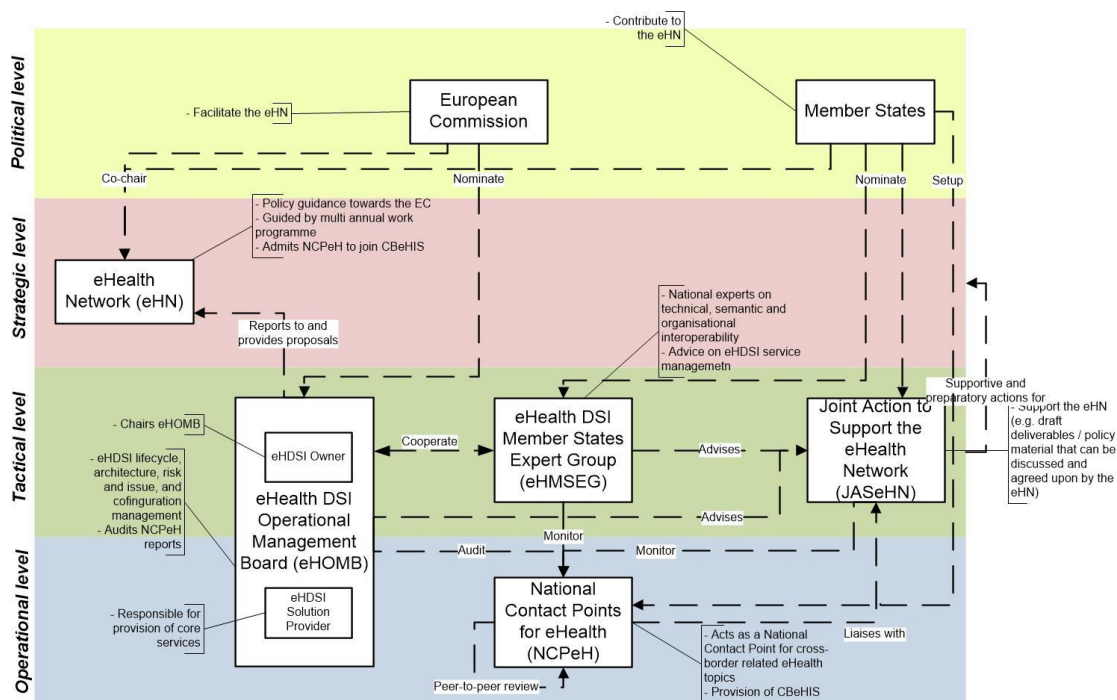
²¹ COM(2017) 134, Annex to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions European Interoperability Framework – Implementation Strategy, Interoperability Action Plan, Annex I Brussels, 23.3.2017. Retrieved from: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2017:134:FIN>

²² COM(2017) 134, Annex to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions European Interoperability Framework – Implementation Strategy, Annex II, Brussels, 23.3.2017. Retrieved from: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2017:134:FIN>

²³ Dobrev, A., Stroetmann, K.A., Stroetmann, V.N., Artmann, J., Jones, T., & Hammerschmidt, R. (2008). *The conceptual framework of interoperable electronic health record and ePrescribing systems*. Retrieved from http://www.ehr-impact.eu/downloads/documents/EHRI_D1_2_Conceptual_framework_v1_0.pdf.

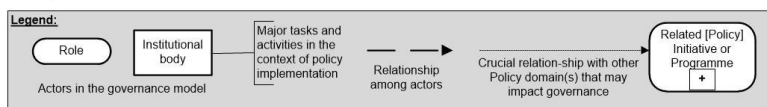
²⁴ World Health Organization (WHO) (2016). *World health statistics 2016: monitoring health for the SDGs, sustainable development goals*. Retrieved from http://apps.who.int/iris/bitstream/10665/206498/1/9789241565264_eng.pdf.

Figure 4 Governance model of the eHealth DSI



Artefacts scoping this governance model

- A Digital Agenda for Europe
- eHealth Action Plan 2012-2020
- Multi-Annual Work Programme 2015-2018
- Directive on Cross-Border Healthcare
- Commission Implementing Decision
- Refined eHealth European Interoperability Framework
- Governance model for the eHDSI during the CEF funding
- Guideline on an Organisational Framework for eHealth National Contact Point



2.3.1 Political level

European Commission

The European Commission has established the eHealth Network (eHN) through the [Directive 2011/24/EU](#) and the [Commission Implementing Decision 2011/890/EU](#). Its intention is to promote European cross-border healthcare with the eHN as an institution that facilitates the coordination of European and national developments within this domain. To that end, the EC and its Member States co-chair the eHN.

The EC's role is to ensure the proper and transparent management of the eHN through the eHealth Network secretariat which prepares meetings and liaises with European stakeholders such as DG CNECT, the Connecting Europe Facility (CEF) and the Joint Action to Support the eHealth Network (JASeHN). The EC co-chairs the eHN and also nominates representatives for the eHealth DSI Operational Management Board (eHOMB).

Member States (MS)

The Member States' role is mainly to participate and contribute to the eHN by co-chairing it, by nominating experts for technical, semantic, and organisational interoperability respectively who come together in the **eHealth DSI Member States Expert Groups (eHMSEG)**, and by setting up **National Contact Points for eHealth (NCPeH)** that facilitate cross/border healthcare.

2.3.2 Strategic level**eHealth Network (eHN)**

The eHN is a decision-making body and is supported by the eHOMB, the eHMSEG, and JASeHN. The work of the eHN is facilitated by and requires the involvement, support and contact with a broad range of stakeholders such as Heads of Units from DG SANTE, DSI owners, eHealth solution providers, and national eHealth experts.

According to Article 6(2) of the Commission Implementing Decision 2011/890/EU, the eHN's sets up and is guided by a multi annual work programme which shall also be evaluated on a regular basis. The current work programme is valid for the period 2015-2018 and targets the four areas 1) interoperability and standardisation, 2) monitoring and assessment of implementation, 3) exchange of knowledge, as well as 4) global cooperation and positioning. The eHN thereby ensures the development, funding, and operation of eHealth Digital Service Infrastructure (eHDSI) as well as formulating strategies on the use of standards in eHealth and eHealth policies in general. Based on audit reports of the eHOMB, the eHN also makes the decision of admitting an NCPeH to join the Cross-Border eHealth Information Services (CBeHIS).

eHealth DSI Operational Management Board (eHOMB)

The eHOMB is constituted of the relevant DSI owner which is DG SANTE, the DSI co-owner which is DG CNECT, the eHDSI solution provider and core building blocks solution provider which are DG SANTE as well as DIGIT, and the Chair of the eHMSEG.

It is responsible for:

- lifecycle management
- architecture management
- risk and issue management
- configuration management of the eHDSI.

This means that it single-handedly steers the eHDSI governance through monitoring tasks as well as tactical and operational decision making. The evaluation tasks also extend to the NCPeHs and their audit reports which is why the eHOMB is responsible for liaising with the MS. It can also escalate reports to the eHN and JASeHN asking for their advice and or requesting the eHN to provide a decision. Eventually, the eHN receives input from the eHOMB regarding the multi annual work programme and financial planning.

eHealth Member States Expert Group (eHMSEG)

The eHMSEG is constituted of nominated national experts on technical, semantic, and organisational interoperability. These experts come from a range of Member States who either contribute to the development of cross-border solutions regarding e-prescriptions and patient summaries or who are interested in joining these initiatives.

The role of the eHMSEG is to assist the eHOMB by providing advice on eHDSI service management related tasks such as lifecycle management of software and services, architecture management as well as risk and issue management. Vice versa, the eHOMB informs the eHMSEG before decisions that may affect the implementation of national solutions are taken. The eHMSEG's role in parallel is to monitor national implementations regarding their compliance with legal agreement and eHN adopted technical solutions as well as to highlight issues regarding terminologies and semantic interoperability. Thus, the eHMSEG also liaises with JASeHN and relevant work package leaders to address these topics.

2.3.3 Tactical level

Joint Action to Support the eHealth Network (JASeHN)

JASeHN is the preparatory body for the eHN and as such is mainly focused on the four priority areas identified in the multiannual work programme. Its tasks are to prepare meetings, disseminate input from Member States and relevant stakeholders to the eHN, and to liaise with eHealth stakeholder groups including the eHOMB, the eHMSEG, and the NCPeHs regarding the implementation of eHealth services.

2.3.4 Operational level

National Contact Points for eHealth (NCPeH)

According to Article 6 of Directive 2011/24/EU, each Member State is asked to setup an NCPeH as a means to systematically exchange information amongst one another regarding their healthcare system with the objective of enabling and promoting cross-border healthcare. This information includes information on quality and safety related guidelines and standards, healthcare providers, as well as patients' rights which includes legal and administrative options in the case of a dispute. Thus, NCPeHs also communicate directly with patients, patient organisations, healthcare providers, and healthcare insurers to ensure that they can make use of their rights of treatment in the Member State.

The operation of an NCPeH is audited in a peer-to-peer process by a MS. The audit and the functioning of an NCPeH is evaluated by the eHOMB based on which the eHN can make the decision to admit an NCPeH to the CBeHIS.

2.3.5 Artefacts scoping the governance models

The eHealth DSI interoperability governance is subject to a number of European and national policies. The below provides a concise illustration of the most important policies that have an immediate effect on eHealth interoperability governance with Table 4 providing a more comprehensive context of the documents, both with their focus on the European level.

The *eHealth Action Plan 2012-2020* articulates a vision for eHealth in Europe building on the work and achievements of policies and strategies, and emphasising stakeholder cooperation. It lists a number of time-bound and measurable tasks regarding technical, semantic, organisational, and legal interoperability, such as:

- the establishment of semantic and technical cross-border interoperability specifications;
- the proposition of eHealth related quality evaluation and certification mechanisms for eHealth; and

- the study of legal interoperability regarding MS' laws on electronic health records.

The eHealth Action Plan 2012-2020 commits the European Commission and Member States to work towards interoperability of digital public services in the health sector.

The eHN's work is driven by the Multi-Annual Work Programme 2015-2018, which ensures a transparent description of pending tasks and aspired support mechanisms relevant to both internal and external stakeholders. It is conscious of its mandate and the diversity of eHealth as a policy domain, stating that *"the principal role of the Network can be different according to agenda topic. Some decision for example might need additional political and financial consultation at national level, while others are clearly within the competence of the Network Members to decide upon"*.²⁵...

Among the four priority areas of the Multi-Annual Work Programme 2015–2018 is interoperability and standardisation.

In terms of interoperability governance, the eHN elaborated two documents based on the Non-paper on the IT Governance of CEF Building Block Digital Service Infrastructures (DSIs) of DG CNECT and DG DIGIT. The Governance model for the eHDSI during the CEF funding describes the institutional alignment of actors such as the EC, the MS, the eHN, the eHMOB, the eHMSEG, and the NCPeH, and their respective roles within this setup such as being a DSI owner or DSI solution provider. Thus, its focus is on the governance of the eHDSI and CBeHIS.

In addition, the Guideline on an Organisational Framework for eHealth National Contact Point is a guideline that is meant to ensure organisational interoperability between the NCPeHs leading towards a functioning CBeHIS. This includes coordination and compliance mechanisms which need to be adopted on a national level with respect to national laws and regulations. Emphasis is put on securing European interoperability to which end the identification and discussion of issues is considered to be essential. The document addresses legal interoperability through Multilateral Legal Agreements, semantic interoperability through the Master Value Set Catalogue and the Master Translation Catalogue, as well as technical interoperability such as technical specifications and the OpenNCP4 reference implementation.

Table 4 illustrates additional important documents.

²⁵ eHealth Network (2014). *Multi-Annual Work Plan 2015-2018*. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0179&from=EN>. Quote from page 12.

Table 4 Documents scoping the governance model of the eHealth DSI

Document title	Document type	Purpose of the document	Relation to interoperability and or governance
<u>A Digital Single Market Strategy for Europe</u>	Communication	<p>"This Single Market Strategy [...] has a multi-annual scope and is focused on key interdependent actions that can only be taken at EU level [and] will be built on three pillars:</p> <ul style="list-style-type: none"> • Better access for consumers and businesses to online goods and services across Europe [...] • Creating the right conditions for digital networks and services to flourish [...] • Maximising the growth potential of our European Digital Economy" 	recognises interoperability and standards as key factors for the successful implementation of the digital single market
<u>Directive on the application of patients' rights in cross-border healthcare (2011/24/EU)</u>	Directive	<p>"This Directive provides rules for facilitating the access to safe and high-quality cross-border healthcare and promotes cooperation on healthcare between Member States, in full respect of national competencies in organising and delivering healthcare. [...]</p> <p>It applies to the provision of healthcare to patients, regardless of how it is organised, delivered and financed.</p>	<p>The directive emphasises the role of Member States on cooperation on standards and guidelines on quality and safety and the exchange of information, especially between their national contact points in accordance with Article 6, including on provisions on supervision and mutual assistance to clarify the content of invoices.</p> <p>Member States shall facilitate cooperation in cross-border healthcare provision at regional and local level as well as through ICT and other forms of cross-border cooperation."</p>
<u>Commission implementing decision providing the rules for the establishment, the management and the functioning of the network of national responsible authorities on eHealth (2011/850/EU)</u>	Decision	"This Decision sets the necessary rules for the establishment, the management and the functioning of the Network of national responsible authorities on eHealth, as provided for by Article 14(1) of Directive 2011/24/EU."	"The objectives of the eHealth network shall be to [...] support Member States in developing common identification and authentication measures to facilitate transfer- ability of data in cross-border healthcare."
<u>Governance model for the eHealth Digital Service Infrastructure during the CEF funding</u>	Governance	Presents a governance model for the eHealth Digital Service Infrastructure, which stems from the general CEF governance model.	<p>The eHN has the mandate to support the EC in the promotion of eHealth service</p> <p>The document tackles eHealth DSI and Cross Border eHealth Information Services</p>
<u>Guideline on an Organisational Framework for eHealth National Contact Point</u>	Guideline	Propose an Organisational Framework guideline to support the governance, establishment and operation of National Contact Points for eHealth (NCPeH) towards the provision of Cross-Border eHealth Information Services (CBeHIS).	indirect link to IOP, as it refers to eHealth

2017 Update

This section of the report was in the scope of SC288 D04.02 Report *Interoperability collaboration governance models* completed in 2016. Although it is not within the scope of this contract to reopen the data collection, the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

Firstly, two new actors came into light within the governance of eHealth DSI: the internal task force and the civil society. In February 2017, the European Commission created an internal task force bringing together technology and health policy makers to examine EU policy actions and to ensure that transformation of health care in the Digital Single Market will benefit people, health care systems and the economy. In addition, it launched a public consultation on the Transformation of Health and Care in the Digital Single Market between July and October 2017, making the civil society a relevant actor in the governance model for eHealth DSI.

Finally, it is also worth mentioning the release of a Blueprint to innovate health and care in Europe, published in December 2016, the new Multiannual Work Programme 2018-2021, published in April 2017, as relevant artefacts for eHealth DSI.

3 Member States' governance structures

This chapter presents the Member States governance structures catering for digitisation and interoperability of public services. The selected countries have different size and type of organisation to allow for differing governance models. For instance, Germany has a decentralised government structure, while in France it is centralised. Both countries are amongst the biggest in Europe. On the other hand, countries like Bulgaria, Austria and the Portugal are medium-sized countries and all have different organisational background. In addition, Spain as a large country has quite a complex and decentralised interoperability governance unlike Poland with rather centralised governance.

Table 5 presents an overview of the 13 analysed countries. From Table 5 it is evident that seven of the countries are parliamentary republics (Austria, Bulgaria, Germany, Italy, Lithuania, Poland and Portugal), one is Semi-presidential republic (France) and five Constitutional monarchies (Belgium, Denmark, the Netherlands, Norway and Spain). Three of them are federal states (Austria, Belgium and Germany) and the rest are all unitary states, despite the fact that Spain could be regarded more as a federal than unitary state. A parallel could be made between the country structure and the interoperability governance type, as the federal states have a decentralised governance, while unitary states have a centralised governance. Interestingly, federal Belgium has a rather centralised interoperability governance structure whereas unitary Spain has a decentralised interoperability governance structure. This observation refers to the governance structures in regards to ensuring interoperability in public service provisioning. As mentioned before, the report does not provide updated information of the five countries in scope of the previous report (Austria, Bulgaria, France, Germany and the Netherlands).

Table 5 Overview of foundations of selected countries

Name country	Political structure (as per e-government fact sheet)	Semi-presidential republic Parliamentary republic Constitutional monarchy	Unitary state Federal state	Country size	Approach to interoperability governance
Austria	Austria is a federal republic. Legislative and executive powers are divided between the Federal Parliament and the nine Provincial Parliaments (Länder).	Parliamentary republic	Federal State	Medium	Decentralised
Belgium	Belgium is a federal constitutional monarchy, where executive and legislative powers are divided among the Federal Government, three Regions (Flanders, Wallonia and Brussels-Capital) and three Communities (Dutch, French and German-speaking).	Constitutional Monarchy	Federal State	Small	Centralised
Bulgaria	Bulgaria is a parliamentary republic. Its present Constitution provides for a multi-party parliamentary system, free elections and separation among legislative, executive and judicial powers.	Parliamentary republic	Unitary state	Medium	Centralised

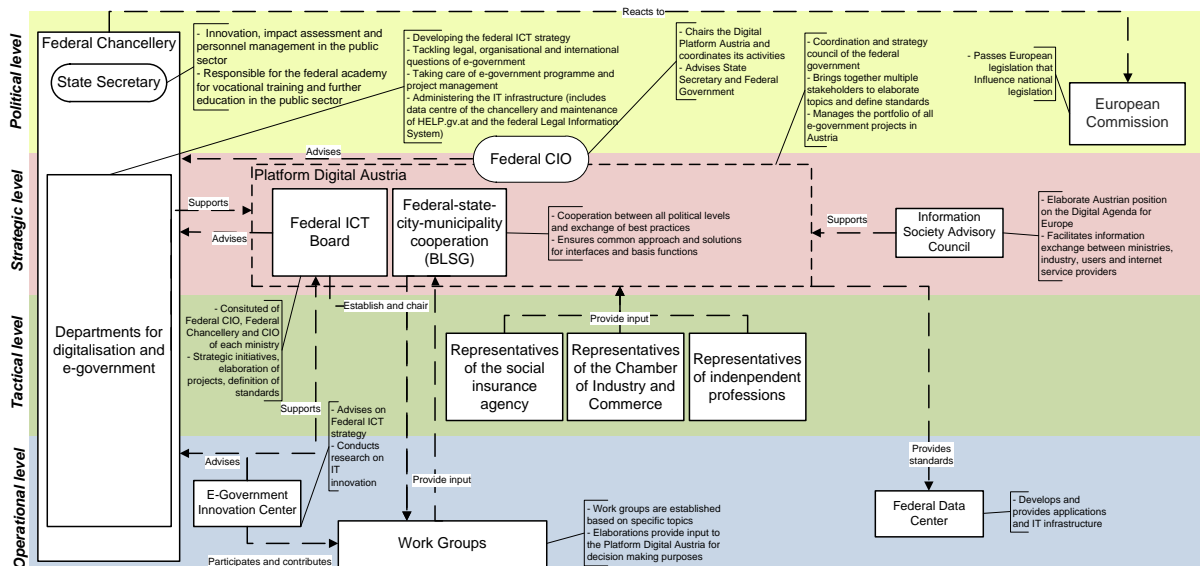
Name country	Political structure (as per e-government fact sheet)	Semi-presidential republic Parliamentary republic Constitutional monarchy	Unitary state Federal state	Country size	Approach to interoperability governance
Denmark	Denmark is a constitutional parliamentary monarchy. The legislative power is held by a Unicameral parliament. The executive power is held by the Prime Minister.	Constitutional Monarchy	Unitary state	Small	Centralised
France	The political system of the Fifth French Republic combines the characteristics of a parliamentary democracy with a strong executive power and is often defined as a semi-presidential system.	Semi-presidential republic	Unitary State	Large	Centralised
Germany	Since its reunification in 1990, Germany has been a federal republic made up of 16 states – or 'Länder' – one of which is the capital city, Berlin. These Länder have their own legislative and executive bodies.	Parliamentary republic	Federal State	Large	Decentralised
Italy	Italy is a parliamentary republic. Legislative power is held by a bicameral Parliament made up of a Chamber of Deputies and a Senate.	Parliamentary Republic	Unitary state	Large	Centralised
Lithuania	Lithuania's Head of State is the President of the Republic, Legislative power is held by unicameral Parliament known as Seimas) headed by the Prime Minister	Parliamentary Republic	Unitary state	Medium	Decentralised
Netherlands	The Netherlands is a constitutional monarchy. Legislative power is held by a bicameral Parliament.	Constitutional monarchy	Unitary state	Small	Centralised
Norway	In Norway, the Parliament has the legislative power, the Government the executive power and the courts (the judicial power). The territorial distribution of political power is divided into State, County and municipal levels.	Constitutional monarchy	Unitary state	Large	Decentralised
Poland	Poland is a parliamentary republic with bicameral parliament. Poland has a three-tier structure of Local Government, with 16 regions (voivodeships).	Parliamentary Republic	Unitary State	Large	Decentralised

Name country	Political structure (as per e-government fact sheet)	Semi-presidential republic Parliamentary republic Constitutional monarchy	Unitary state Federal state	Country size	Approach to interoperability governance
Portugal	Portugal is a parliamentary republic. Legislative power is held by a unicameral; Parliament. The National Government, led by the Prime Minister, holds executive power.	Parliamentary Republic	Unitary state	Medium	Centralised
Spain	Spain is a constitutional monarchy. Legislative power is held by a bicameral Parliament (Cortes Generales) comprising a Lower House (Congress of Deputies) and an Upper House (Senate).	Constitutional monarchy	Unitary state	Large	Decentralised

3.1 Austria

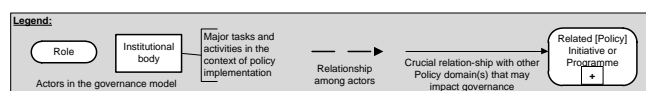
The model for interoperability governance in Austria is depicted in Figure 5. It illustrates the role of the Platform Digital Austria as the coordination and strategy council regarding ICT standards. It further depicts their role in the public sector, as well as the multi-level cooperation of stakeholders from the federal level down to the municipal level.

Figure 5 Governance model of Austria



Artefacts scoping this governance model

- E-Government Visions 2020
- Federal E-Government Strategy
- IT Coordination between federal and state levels



3.1.1 Political level

Federal Chancellery

At the time of writing, the Federal Government in Austria comprises twelve Ministries, none of which is solely responsible for the domain of e-government. The topic is instead assigned to the Austrian Federal Chancellery which is home to the Federal Chancellor, the Federal Minister for Art, Culture, the Constitution and the Media, and the State Secretary for Diversity, Civil Service and Digitalisation. The State Secretary's areas of responsibility include innovation, impact assessment and personnel management in the public sector as well as the Federal academy for vocational training and further education in the public sector. Additionally, the Federal Chancellery has dedicated departments which supports the work of the Platform Digital Austria (PDA) by:

- developing the Federal ICT strategy;
- tackling legal, organisational and international questions of e-government;
- taking care of e-government programme and project management;
- administering the ICT infrastructure.

3.1.2 Strategic level

Federal CIO

The Federal CIO's role is the head of the PDA who chairs and coordinates its activities. The CIO also advises and provides guidance on ICT related topics to the State Secretary for Diversity, Civil Service and Digitalisation as well as the Federal Government.

Platform Digital Austria (PDA)

The PDA frames and leads the Austria's development in e-government. The platform is a forum of stakeholders that are engaged to contribute to the development and introduction of services and standards in the field. It includes the Federal CIO, a management board, and a secretariat supporting the work of the PDA. The Federal Chancellery, the Information Society Advisory Council and the e-government Innovation Centre assists the PDA in the formulation of the Federal ICT strategy.

Federal ICT Board

The Federal ICT Board brings together the Federal CIO and representatives of the Federal Chancellery and all CIOs of the federal Ministries. Their role is to advise the Federal Chancellor on ICT related topics which includes the coordination of cross-ministerial tasks and projects.

Being guided by the PDA's strategic objectives, it also prepares strategic initiatives, it elaborates and evaluates projects, and it defines and agrees upon standards, interfaces and specifications.

Federal-State-City-Municipality Cooperation (Cooperation BLSG)

The Cooperation BLSG brings together representatives from all political levels who are able to share best practices and views. This cooperation ensures that actions are coordinated and that standards regarding interfaces and basic functions are agreed upon and supported at all political levels.

Information Society Advisory Board

The Austrian government also addresses and tackles its development towards an information society. To that end, questions are coordinated by the Federal Chancellery and are discussed in the Information Society Advisory Council. It is constituted of the Federal Chancellery, representatives of all Ministries and of the industry, as well as users and internet service providers. These actors exchange views and experiences regarding initiatives that are relevant to tackle the topic of digitalisation which includes e-government. It ensures that an Austrian position is elaborated and responsive to the needs and demands of the *Digital Agenda for Europe*.

3.1.3 Tactical level

Interest groups

The PDA's work is also influenced and dependent on the engagement of its additional stakeholders which are the representatives of the social insurance agency, the Chamber of Industry and Commerce as well as the independent professions. Their role is to share their stakeholder specific views and to contribute in working groups.

3.1.4 Operational level

Working groups (WG)

The Federal ICT Board is monitoring the work of the following WG:

- the WG Federal Client
- the WG Smart Phone
- the WG Common Content Management.

Together with the BLSG, the WG Registry Workshop and the WG Leadership Team are being co-monitored. Sub-ordinate to this leadership team are all temporary projects as well as five permanent WGs on:

- Integration and Access
- Legal and security
- Infrastructure and interoperability
- Presentation and data standardisation
- Execution of the European Directive on the reuse of public sector information.

E-government Innovation Centre (EGIZ)

E-government Innovation Centre (EGIZ) was developed in parallel to the PDA. It supports the Federal Chancellery in formulating its Federal ICT Strategy. It conducts research on technical innovations, contributes in international projects, as well as consults and support local administrations in implementing solutions. Additional focus points are specifically ICT security, promotion of interoperability, and further education. The centre is hosted by the Graz University of Technology and has, hence, a strong background in academic research.

Federal data centre

The Federal data centre utilises the standards that are agreed in the setup of the PDA and, thereon, develops and implements technical solutions for their clients from the Austrian federal administration. It provides a range of

services starting with consultation such as on architecture management and security, development of customised solutions, installation of software, implementation of e-government basis functions, project management, as well as maintenance and support of multiple services.

3.1.5 Artefacts scoping the governance models

This Austrian ICT governance setup is framed by two documents – the Federal e-government Strategy and the e-government Visions 2020.

The Federal e-government Strategy sets out the goal that all citizens and businesses must be able to interact with their public administration without any prior knowledge or special skills which requires the co-operation of all public actors including actors on the Federal, state, city, and municipal level. The Austrian e-government strategy is based on the involvement of all actors and the close cooperation between Federal and state levels as well as cities and municipalities. There are four elements that are meant to constitute all subsequent e-government strategies and endeavours:

- The documentation of the requirements regarding the use of online services from the perspective of the user;
- the methods and procedures within public administration to match these services;
- the provisioning of modules by the Federal Chancellery to build online applications; and
- sample applications that are open to public and private users.

The Strategy promotes standards and includes interoperability as one of its principles to achieve the objectives set out in the document.

The e-government Visions 2020 provides the principles for cooperation between the members of the PDA. It further provides the following visions:

- Comfort and simplicity
- Increase in efficiency
- Trustworthiness and security
- Transparency and openness
- Participation
- Innovation
- Added Value for the economy
- National and international convergence and synergies.

The vision indirectly promotes interoperability in that the overarching goal of one stop government requires administrations to be connected and to be able to interchange information.

2017 Update

This section of the report was in the scope of SC288 D04.02 Report *Interoperability collaboration governance models* completed in 2016. Although it is not within the scope of this year report to reopen the data collection, the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

Following the Austrian legislative elections held in October 2017, a new government came into place in December 2017. However, this change of government did not lead to any change in Austria's governance model since then.

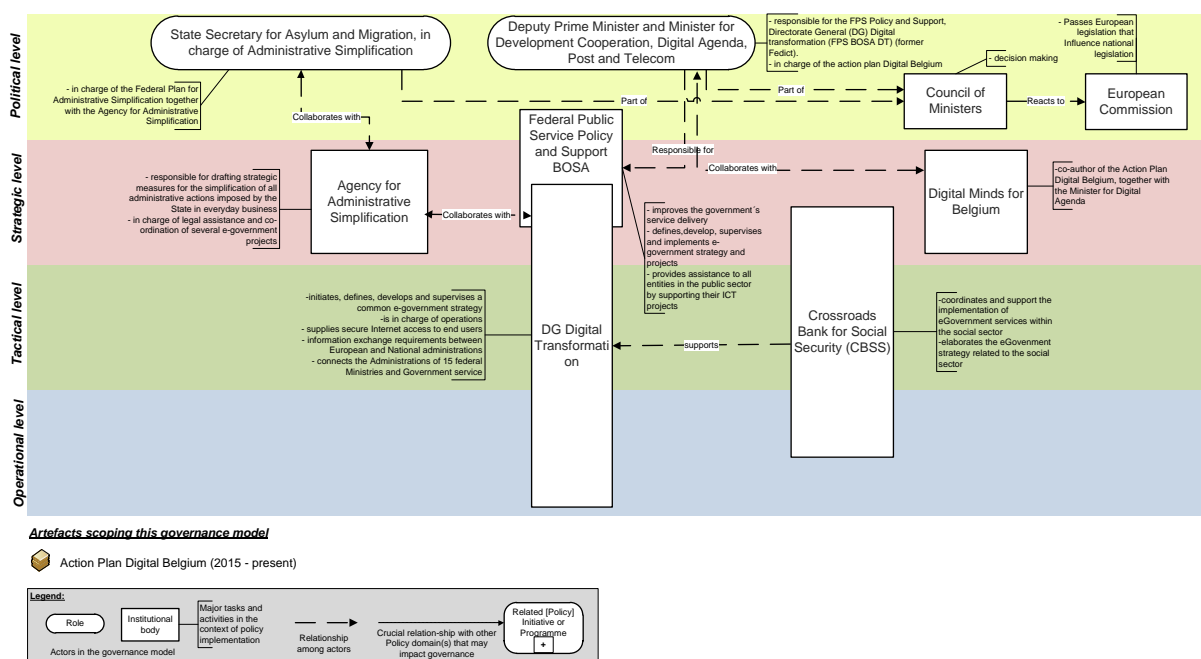


3.2 Belgium

Figure 6 depicts the model for interoperability governance in Belgium. Descriptions of the core actors of each of the four levels subsequently follow. Belgium is a federal constitutional monarchy, which divides executive and legislative powers among the Federal Government, three Regions (Flanders, Wallonia and Brussels-Capital) and three Communities (Dutch, French and German-speaking). The bicameral federal legislative consists of a Lower House (House of Representatives) and an Upper House (Senate), which now represents the country's Regions and Communities.

Executive power at federal level is held by the Federal Government, headed by the Prime Minister, comprising Ministers and State secretaries (deputy Ministers) drawn from the political parties that form the current coalition government.

Figure 6 Governance model of Belgium



3.2.1 *Political level*

Deputy Prime Minister and Minister for Development Cooperation, Digital Agenda, Post and Telecom

The deputy Prime Minister and Minister of Development Cooperation, Digital Agenda, Telecom and Postal Services is responsible for the Federal Public Service (FPS) Policy and Support, Directorate General (DG) Digital Transformation (FPS BOSA DT- former Fedict). He is also in charge of the Action Plan Digital Belgium.

State Secretary for Asylum and Migration, in charge of Administrative Simplification

The State Secretary is in charge of the Federal Plan for Administrative Simplification together with the Agency for Administrative Simplification. In concrete terms, this involves the abolition of unnecessary certificates such as the reduction of VAT in renovation projects and better concentration of data in central databases that are easily accessible to all relevant public services.

Council of Ministers

The Prime Minister chairs the Council of Ministers and is one of the main epicentres of Belgian politics. It deliberates and takes decisions on general policy issues, including e-government.

The Constitution stipulates that the Council of Ministers must deliberate on all draft royal decrees and draft resolutions.

The Council of Ministers must also discuss the following issues for which the government is responsible:

- draft bills
- draft cooperation agreements to which the State is a party
- draft bills approving cooperation agreements
- draft royal or ministerial decrees that have major political or budgetary implications
- draft circulars with budgetary implications
- any issue that could compromise government solidarity

Federal Public Services (FPS) Policy and Support (BOSA)

The Federal Public Service (FPS) Policy and Support is a new FPS and was set up on 1 March 2017. It comes from the integration of various departments and services into one entity: agencies from the FPS Personnel and Organisation (including Selor²⁶, OFO/IFA²⁷, FED+²⁸ and PersoPoint²⁹), the FPS Budget and

²⁶ Selor is the HR partner for more than 150 different government departments. It mainly recruits employees for the federal government, but also for the municipalities and regions. Selor also organises tests for the security and the security sector, and language tests.

²⁷ OFO/IFA is the Training institute of the federal government

²⁸ FED+ is the agency responsible for the well-being of the federal civil servants. It works under the supervision of the Minister for Civil Affairs.

²⁹ PersoPoint is the secretariat responsible for the staff administration and salary's administration of the federal government

Management Control³⁰, Fedict³¹ and Empreva³². The project is the result of the 'redesign' of the federal government in accordance with their coalition agreement of 9 October 2014.

Several Ministers share the responsibility and are in charge of BOSA: the Minister for the Budget, the Minister for the Digital Agenda and the Minister for Civil Service Affairs³³.

BOSA assists the government and supports the federal organisations in various areas: ICT, HR, organisational control and integrity policy, budget, accounting and public procurement contracts.

It provides a range of products and services such as policy support, implementation and evaluation in all the above-mentioned areas. The FPS consists of six directorates, DG Digital Transformation being the one relevant to e-government.

3.2.2 Strategic level

DG Digital Transformation (former FEDICT)

The FPS Information and Communication Technology (Fedict) was created in May 2001. Since March 1, 2017 the DG Digital Transformation has taken over the functions of Fedict within the Federal Public Service Policy and Support³⁴ (BOSA). On the strategic level, it initiates, defines, develops and supervises a common e-government strategy, which also includes cross-government standards, frameworks, projects and services that are necessary in order to deliver the e-government strategy (hence, DG Digital Transformation acts also on tactical and operational level – see below).

Agency for Administrative Simplification

The Agency for Administrative Simplification is responsible for drafting strategic measures for the simplification of all administrative actions imposed by the State in everyday business. It is also in charge of legal assistance and co-ordination of several e-government projects (e.g. the once-only programme). It further manages the Kafka Contact Point, which gives an opportunity to citizens and businesses to provide ideas and suggestions on administrative simplification.

Digital Minds for Belgium

The Digital Minds for Belgium group is the co-author of the Digital Belgium Action Plan, together with the Minister of Development Cooperation, Digital Agenda, Telecom and Postal Services. Representatives of the ICT private sector³⁵ and academics participate in it. The different stakeholders regularly come together and

³⁰ The FPS Budget and Management control supports the government in developing, monitoring and implementing budget policy, while taking account of Belgium's international obligations and the institutional framework of the Federal State. It also supervises the introduction of internal auditing within the public services, as well as promoting the integrity and auditing of the public accounts.

³¹ See under « DG Digital Transformation » for the description of Fedict's tasks and competences.

³² Empreva is the central cell of the Common Service for Prevention and Protection at Work of certain Federal Government Services

³³ At the time of writing, respectively Sophie Wilmès, Alexander De Croo and Steven Vandeput. More information on the composition of the Belgian federal government is to be found on the belgium.be portal.

³⁴ http://www.fedict.belgium.be/en/over_fedict/newsitems/since_march_1_2017_fedict_is_part_of_the_federal_public_service_policy_and

³⁵ Companies such as: Microsoft, Google, Mobistar, Comeos, Ericsson

support digital initiatives, always with the same objectives in mind: more jobs, more growth and greater prosperity.

Crossroads Bank for Social Security (CBSS)

The Belgian Social Security system identified a number of problems in delivering services effectively to citizens. To tackle this, the Crossroads Bank for Social Security (CBSS) was founded in 1990. Since then, the CBSS has created secure and innovative technology solutions for e-government within the social sector.

The mission of the CBSS with regard to e-government is to:

- stimulate and support the actors in the Belgian social sector to grant more effective and efficient services with a minimum of administrative formalities and costs for all the involved; based on a common and concerted vision, the actors in the Belgian social sector benefit from the new technologies to improve and re-organise radically their mutual relationships and processes; and to
- promote the information security and the privacy protection by the actors in the Belgian social sector so that all the involved institutions and people can have justified confidence in the system

On a strategical level, CBSS's activities include the elaboration of the e-government strategy within the Belgian social sector and overseeing its realisation.

3.2.3 Tactical level

DG Digital Transformation

DG Digital Transformation helps Government Departments and Agencies to elaborate and initiate their e-government projects. It also coordinates project implementation. In addition, through the DG Digital Transformation, institutions can count on continuous, reliable access to the most powerful domestic and international networks. Furthermore, the DG Digital Transformation has developed and provides the national infrastructure such as the federal portal 'Belgium.be', the network FedMAN (Federal Metropolitan Area Network) and the Federal Service Bus (FSB) middleware.

Crossroads Bank for Social Security (CBSS)

On a tactical level, CBSS e-government's activities include:

- coordination of the implementation of the e-government projects in the social sector
- support of the implementation of e-government services in the social sector
- support of the implementation of integrated services across all public authorities
- management of the 'Register bis'³⁶

³⁶ Register bis is the register of all persons who do not have the Belgian nationality, but who are located in Belgium and are registered with the Belgian Social Security institutions.

3.2.4 Operational level

DG Digital Transformation

DG Digital Transformation (DT) provides assistance to all federal entities in the public sector by supporting their ICT projects. Its role is to implement and monitor the digital transformation of the federal government. To this end, DT develops transversal digital services and platforms, in collaboration with the federal organisations. DT offers services such as:

- Token request: token can be request online via the federal portal, using an eIDcard reader. Users need to have a token to access secured government applications.
- Legal advice and support for public contracts: Legal advice in the area of e-government and support for public sector ICT procurement and/or ICT contracts.
- Information Security: Advice on all aspects of information security.
- Open standards: Advice and support for the use of open standards within a public service or institution.

Crossroads Bank for Social Security (CBSS)

On operational level, the CBSS provides the ICT infrastructure to enable both the collection of social security contributions as well as the delivery of a range of social security benefits.

3.2.5 Artefacts scoping the governance models

The Action Plan Digital Belgium (2015 – present) scopes the ICT governance in Belgium.

On 20 April 2015, the Deputy Prime Minister and Minister of Digital Agenda and Telecom and the 'Digital Minds for Belgium' group introduced the Action Plan Digital Belgium. Its key objective is to achieve growth and create jobs through digital innovation over five years. This consists of three ambitions to be achieved by 2020: Belgium to be among the top three most digital European countries, to generate 1000 new start-ups, and to create 50 000 jobs nationally.

Digital Belgium is an action plan that outlines the long-term digital vision for the country and translates this into clear ambitions. Belgium aims to reaffirm its place on the digital map as based on the following five priorities, each of which with three to six priority projects:

1. Digital economy;
2. Digital infrastructure;
3. Digital skills and jobs;
4. Digital trust and digital security;
5. Digital government

The Action Plan Digital Belgium has as objective to improve interoperability and encourage better usage of standards

A notable priority of the Digital Belgium Action Plan is the 'Digital government'. It strives to allow both citizens and businesses to conduct all communication with the government digitally by 2020 and to be able to do so using a user-friendly channel.

It has four main directions:

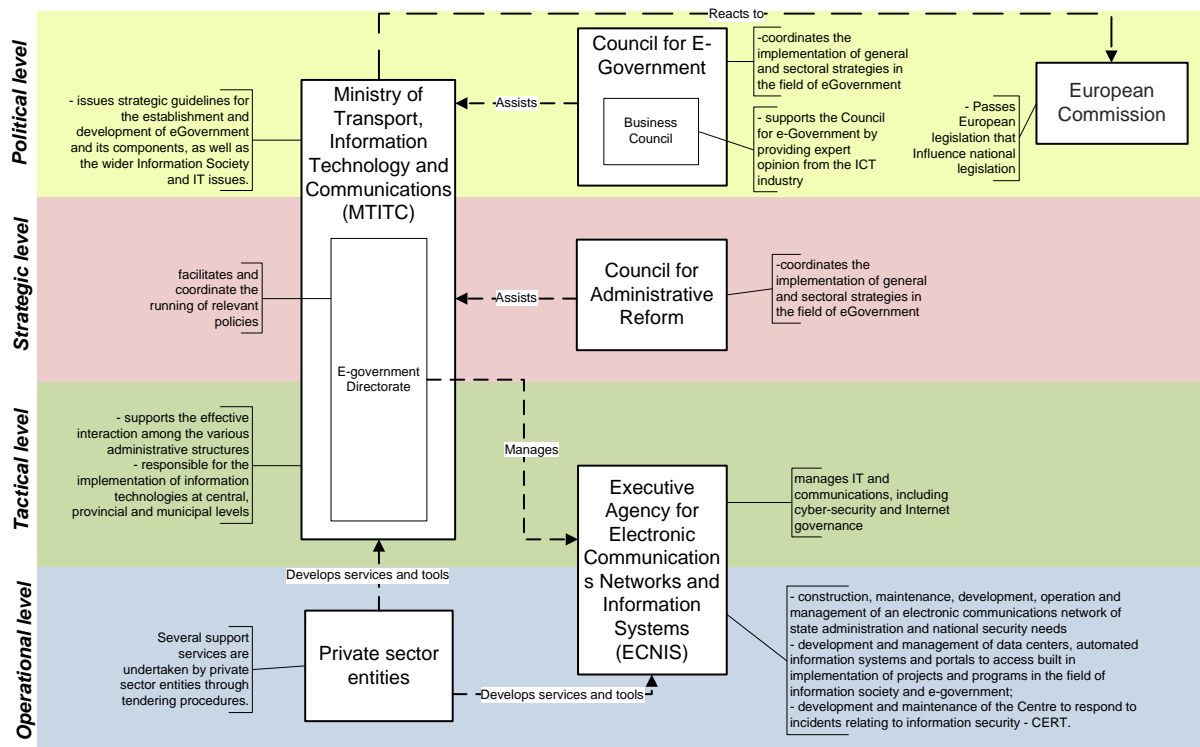
- Digital Portal
- Businesses and start-ups
- Next generation open data
- Operational efficiency

Government management will be encouraged to follow ICT government contracts carefully and to create efficiency by further digitising services and processes. The government will also utilise new technologies, such as social media and big data, and shall do so with a clear objective: providing better services at lower cost.

3.3 Bulgaria

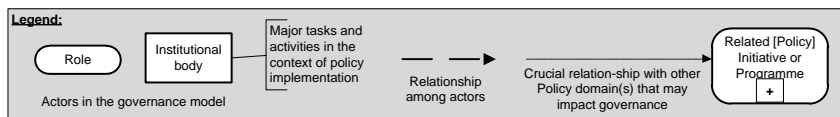
The model for ICT policy governance for Bulgaria is depicted in Figure 7. It illustrates and underlines the central role of the Ministry of Transport, Information Technology and Communications through its e-government Directorate as driver of ICT policy governance. It is supported by two Councils – the Council for e-government on political level and the Council for administrative reform on strategic level. Further, the Ministry is assisted by its Executive Agency for Electronic Communications Networks and Information Systems (ECNIS) on Tactical and operational level. They are further explained below, including their main functions and organisational structures.

Figure 7 Governance model of Bulgaria



Artefacts scoping this governance model

- Roadmap on the E-Governance Development Strategy (2014-2020)
- Digital Bulgaria 2020



3.3.1 Political level

Ministry of Transport, Information Technology and Communications (MTITC)

The Ministry of Transport, Information Technology and Communications (MTITC) is the main government body, responsible for e-government in Bulgaria through its e-government department. Its functions span the political, strategic and tactical level. On the political layer the study describes its overall structure and responsibilities, while in the subsequent sections the study outlines the responsibilities, applicable to this level.

The Ministry is responsible for determining the transport and ICT policies. As such, it:

- issues strategic guidelines for the establishment and development of e-government and its components, as well as the wider Information Society and ICT issues
- manages the newly-founded Electronic Communications Networks and Information Systems Agency (ECNIS); and
- oversees all actors involved in the interoperability projects.

The Ministry has a Political Cabinet (Minister, Deputy Minister, Parliamentary secretary, Director Direction "Public relations" and Administrations); Internal Audit Unit, inspectorate; Aircraft, Maritime and Railway

Accident Investigating Unit Directorate; "Protection of Classified Information Safety and Internal Security" Unit, and General Secretary, which is in charge of the General and Specialised Administration. The e-government Directorate is part of the specialised administration.

Council for e-government

The Council for e-government is a national platform for imposing centralised and coordinated implementation of national and sector strategies in the field of e-governance. It:

- supports the Council of Ministers to implement the e-government policy;
- coordinates strategic documents and e-government policies;
- approves draft sector e-government strategies and/ or programmes for their implementation in the context of the overall e-government strategy;
- coordinates and controls the implementation of sectorial strategies / programs and the overall e-government strategy;
- if necessary, coordinates and approves forecasted programmes' budgets of state bodies, organisations and institutions for implementing the e-government policy;
- approves proposals for updating the overall e-government strategy; and
- approves and submits to the Council of Ministers an annual report on its activities by 31 March each year.

It is chaired by the Deputy Prime Minister in charge of coalition policy and state administration, followed by vice chair of the Council and different members of the Council, coming from relevant councils and Ministries.

Business Council

The Business Council is part of the e-government council. It includes representatives from the ICT industry and has the following governance functions:

- provides expert opinion to the Council for e-government for the support of the Council of Ministers for implementing e-government policy;
- aids the Council for e-government for cohering strategic documents in the field of e-government;
- help the Council for e-government for implementing the projects of sector e-government strategies and the programmes for their implementation in the context of the common strategy for e-government;
- Help the Council for e-government for coordination of implementation of sector strategies/ programmes and the overall e-government strategy;
- Participates in the reconciliation on behalf of the Council for e-government of suggestion for the overall e-government strategy actualisation;
- Suggest discussion topics to the Council for e-government.

3.3.2 Strategic level

Ministry of Transport, Information Technology and Communications (MTITC) (e-government Directorate)

The role of the e-government Directorate of the Ministry of Transport, Information Technology and Communications (MTITC) is most pronounced on strategic level. The e-government Directorate:

- coordinates activities under a single model for electronic document in the public administrations (PA);
- offers guidance to the Public Administrations;
- facilitates coordination between state and local governments on the topics of e-government;
- coordinates the implementation of programmes and projects for e-government;
- supports the administrative units engaged in the implementation of ICT by providing guidelines; and
- supports the development of ICT with regard to the effective interaction among the various administrative structures and the development of digital content in accordance with the Law on e-government.

Council for Administrative Reform

The main objective of the Council for Administrative Reform is to coordinate the implementation of general and sector strategies in the field of e-government. For this purpose, it established the permanent working group 'Electronic Governance', which includes a coordinating function. The Council for Administrative Reform:

- provides an overview of the structure, activity and organisational status of administrations in the executive branch and offers strategic guidelines and policies for their development and improvement;
- Coordinates the policy for improving administrative services;
- develops policy and coordinates the implementation of the initiative for open data in the public sector, as well as other activities for transparent governance in the Republic of Bulgaria; and
- monitors the fulfilment of the Republic of Bulgaria commitments under the Global Initiative "Open Government Partnership".

The Council for Administrative Reform is an advisory body of the Council of Ministers, which it support to coordinate government policy in the field of public administration. It is chaired Deputy Prime Minister in charge of coalition policy and state administration, who is also the minister of interior. Its vice-chairs include Ministers and Deputy Ministers from different relevant Ministries.

3.3.3 Tactical level

Ministry of Transport, Information Technology and Communications (MTITC)

On tactical level, the Ministry of Transport, Information Technology and Communications (MTITC) is responsible for a significant part of the implementation process of all programmes and projects related to e-government, and especially for the 'Strategy for e-government in Bulgaria 2014-2020'. It draws up concrete plans for the implementation of the e-government strategy, including resource provision. Furthermore, it is responsible for the implementation of IT at central, provincial and municipal levels.

Executive Agency for Electronic Communications Networks and Information Systems (ECNIS)

The Executive Agency for Electronic Communications Networks and Information Systems (ECNIS) functions on both tactical and operational level, as it is the main supporting body for the implementation of the policies and strategies, launched by the MTITC. In its tactical role, it:

- coordinates several projects in cyber-security and Internet governance; and

- provides consultation to institutions regarding the development and implementation of national strategies in the ICT field.

It is an executive agency, belonging to the Ministry of Transport, Information Technology and Communications (MTITC) and has an Executive Director, deputy Executive Director and Chief Secretary.

3.3.4 Operational level

Executive Agency for Electronic Communications Networks and Information Systems (ECNIS)

The Executive Agency for Electronic Communications Networks and Information Systems (ECNIS) has the following operational functions:

- Maintenance, development, operation and management of the Electronic Communications Network of State Administration and National Security (ECNSANS), which is part of the national communications and information management system and the armed forces;
- Development and management of data centres, automated information systems and access portals in the field of information society and e-government;
- Development and maintenance of the Computer Emergency Response Team - CERT.

3.3.5 Artefacts scoping the governance models

This ICT governance in Bulgaria is scoped by two documents, the e-governance Development Strategy (2014-2020) and the Roadmap on the E-Governance Development Strategy (2014-2020).

The strategy for development of e-governance in the Republic of Bulgaria (2014 - 2020) was prepared as part of the country's commitments under the preconditions for EU funds for the programming period 2014 – 2020. Its main objective is to outline the framework for all current and new activities in the field of e-government.

The strategy for the development of e-governance in the Republic of Bulgaria (2014 - 2020) contains:

- Analysis of the current state of play;
- Vision of e-government in Republic of Bulgaria;
- Strategic goals;
- Sectoral policies for e-government;
- Activities to achieve the predetermined objectives;
- Coordination and management of the strategy implementation;
- Model of e-governance: Information and Technology model.

The strategy was adopted by Decision № 163 of 21.03.2014, the Council of Ministers.

The strategy:

- describes the new activities in the field of e-government, which involves interoperability.
- provides a model of e-governance: the Information and Technology model

The Roadmap on the e-governance Development Strategy (2014-2020) includes measures and activities for implementation of the strategic goals of the Strategy for the Development of e-governance in the Republic of Bulgaria for the period 2014 - 2020, as well as the responsible institutions and the necessary financial resources.

To achieve the objectives of the Strategy for e-governance in the Republic of Bulgaria for the period 2014 – 2020, the following key areas are reviewed and analysed:

- existing legislation in the EU and the Republic of Bulgaria regulating the development of e-government respectively;
- existing strategic documents in the EU and the Republic of Bulgaria that represent the strategic framework for the development of e-governance;
- currently implemented architecture of e-government in Bulgaria;
- currently implemented or planned projects for the realisation in this area.

The roadmap details national goals and activities in the field of e-government under the National Framework for IOP.

Table 6 summarises additional important documents that scope the Bulgarian governance model.

Table 6 Document scoping Bulgaria governance model

Document title	Document type	Purpose of the document	Interoperability and/or governance
<u>Digital Bulgaria 2015</u>	Programme	- Defines the parameters (key actions, responsible institutions, deadlines, and budget) of the Information Society (IS) development in Bulgaria, as well as - supports the implementation of the EU guidelines and tasks formulated in the Digital Agenda for Europe (DAE) taking into account the social and economic potential of the Information and Communication Technologies (ICT) and the Internet by 2015.	<ul style="list-style-type: none"> • has as objective to improve interoperability and encouraging better usage of standards
<u>Digital Bulgaria 2020</u>	Programme	This programme aims to modernise and spread smart ICT solutions in all areas of economic and social life by creating: <ul style="list-style-type: none"> - environment for wider use of ICTs, - national infrastructure, - innovative electronic services for businesses and citizens, - uniform standards, and - achieving high level of network and information security and interoperability. 	The programme sets the road of IT solutions for the coming years, which should be interoperable

2017 Update

This section of the report was in the scope of SC288 D04.02 Report Interoperability collaboration governance models completed in 2016. Although it is not within the scope of this year report to reopen the data collection, the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

Following the update of the Electronic Government Act in July 2016, the State e-Government Agency (SEGA) with the Council of Ministers was established and became functional from 1 December 2016. It takes over the functions of the e-Government directorate of the Ministry of Transport, Information Technology and Communications (MTITC), as well as that of the Executive Agency for Electronic Communications Networks and Information Systems (ECNIS). The latter shall be closed following the adoption of this act.

The State e-Government Agency performs activities related to issuing and introducing control-related policies, rules, regulations and good practices in the field of electronic governance, strategic planning and initiatives, budget planning and control, coordinating sector-related policies and interdepartmental projects. The Agency also maintains central registers to meet the electronic governance requirements and needs, other central registers, a state private cloud and communication network of the State Administration.

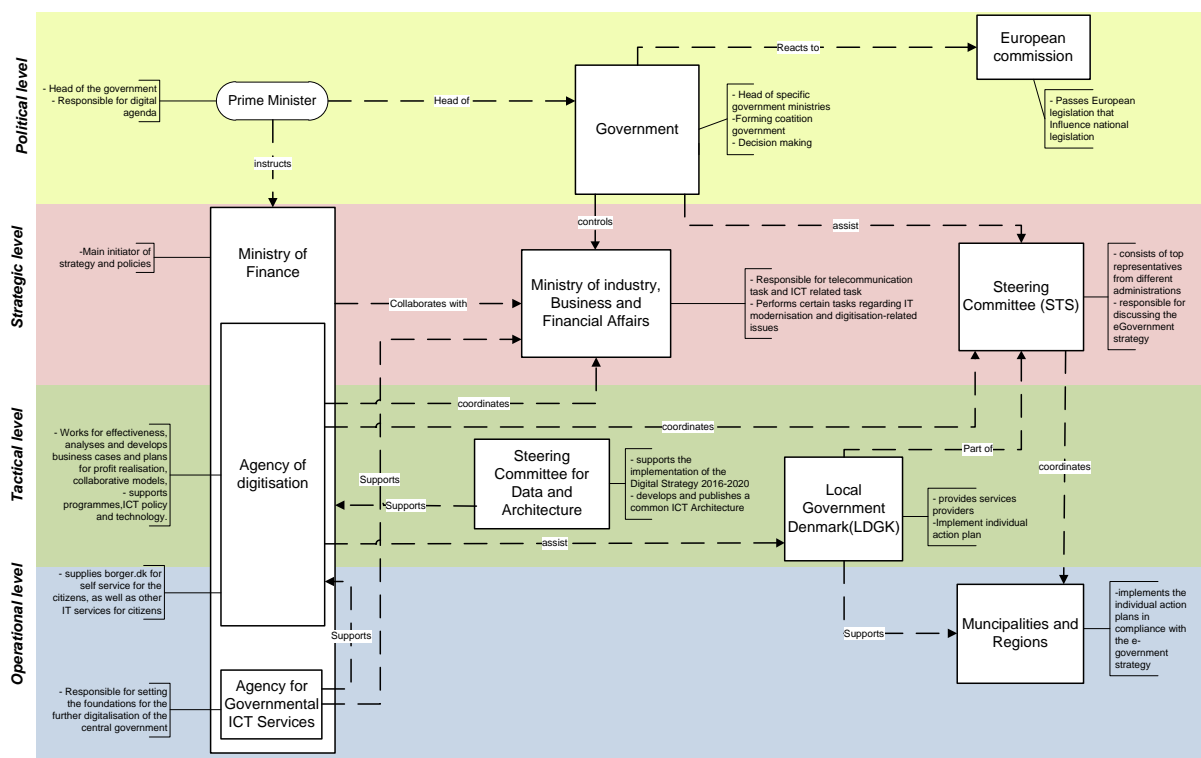
Therefore, in the governance model, the SEGA will extend on strategic, technical and operational level, and the role of the ministry will be reduced only to political and strategic level.



3.4 Denmark

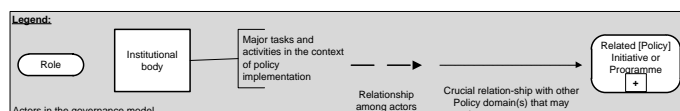
Figure 8 depicts the model for Interoperability governance in Denmark. Descriptions of the core actors of each of the four levels subsequently follow. They detail the roles and responsibilities of these actors in Denmark's interoperability governance.

Figure 8 Governance model of Denmark



Artefacts scoping this governance model

Digital Strategy 2016-2020



3.4.1 Political level

Prime Minister

The Prime Minister³⁷ is head of the Government and he/she only has the power and authority that conferred upon him/her by the Monarch, according to the Constitution. The Government, headed by the Prime Minister, who answers to the Danish parliament (Folketing) holds the executive power.

Government

The Prime Minister leads the Government. There are around 25 members of the Government, known as "Ministers", all of whom are also heads of specific government Ministries. The government sets the political direction for e-government.

3.4.2 Strategic level

Ministry of Finance

The Ministry of Finance is the main initiator of strategies and policies related to e-government in Denmark. The shaping of strategies is based upon the idea that the public sector must constantly develop and improve work procedures and methods to deliver the best possible quality of services provided. Thus, the Ministry of Finance develops initiatives concerning administration, public leadership and digitalisation to improve the efficiency of the public administration. In addition to its role in setting the overall e-government strategy, the Ministry of Finance develops and implements initiatives concerning administration, public leadership and digitalisation to improve the efficiency of the public administration.

The Agency for Digitisation (DIGST)

The Agency for Digitisation is a catalyst for the setting of Denmark's ICT strategy. The Agency was established in November 2011, after the abolition of the former National ICT and Telecom Agency and the transfer of responsibilities regarding public sector digitisation of the former Agency for Governmental Management, to further consolidate and strengthen ICT enabled efficiency and effectiveness of the public sector. DIGST is part of the Ministry of Finance and represents the Ministry in the Steering Committee for Data and Architecture. The Agency's main responsibility is to contribute to the accomplishment of the political vision, the strategy and the understanding and development of relevant technology. Hence, it acts on strategic, tactical and operational levels.

Ministry of Industry, Business and Financial Affairs

The Ministry of Industry, Business, and Financial Affairs is responsible for digital aspects of a number of policy areas which are important for the general business environment, including business regulation, intellectual property rights, competition and consumer policy, the financial sector and shipping. The Ministry works to promote digitisation within the business environment and in relation to public services for businesses. This takes place in coordination with the Ministry of Finance.

Steering Committee for joint-government cooperation (STS)

³⁷ At the time of writing, Lars Løkke Rasmussen is the current Prime Minister of Denmark.

The Steering Committee consists of top representatives from central Ministries and from the municipalities and regions; the representatives' work with the strategy for e-government builds on former strategies for 2002-2004, 2004-2006 and 2007-2010. The Agency for Digitisation services the committee.

3.4.3 Tactical level

Agency for Digitisation (DIGST)

The Agency gathers strong strategic, professional and technical competences within one single organisation. This facilitates one of its main roles, which is to assume the responsibility to run e-government strategy and policies from concept to output. Therefore, the Agency coordinates efforts and relevant actors to ensure the benefits of realisation of the e-government strategy. The Agency coordinates the national e-government Strategy and the STS, which consists of stakeholders from all levels of government. The Agency is in charge of the digitisation of Denmark and is responsible for the implementation of the government's digital ambitions in the public sector.

Local Government Denmark (LDGK)

Local Government Denmark (LDGK) is the National Association of Local Authorities (communes). It is represented in the Steering Committee for joint-government cooperation (STS) on behalf of the local authorities in order to report relevant information from the central government to the local authorities. Local Government Denmark's mission is to safeguard the common interests of the local authorities, assist the municipalities with consultancy services and ensure that local authorities are provided with relevant up-to-date information.

Steering Committee for Data and Architecture

The Steering Committee for Data and Architecture has been created to support the implementation of the Digital Strategy 2016-2020 and is composed of representatives of most of the Ministries³⁸ as well as representatives of the Danish Regions. More specifically, it is dedicated to the Strategy's initiative 8.1 "Good data and efficient data sharing". Its role consists in developing and publishing a common ICT architecture, which will set the framework for sharing data between authorities.

3.4.4 Operational level

Agency for Digitisation (DIGST)

The Agency's framework on digitisation is at the core of the Government's commitment to the common public sector Digital Strategy 2016-2020. The Agency is responsible for the implementation of the strategy. Individual Government Departments and Agencies under them implement e-government projects falling within their respective areas of competence, as well as individual action plans decided at cross-governmental and departmental levels by domain area, in compliance with the overall national e-government strategy.

Agency for Governmental ICT Services

³⁸ The following Ministries participate in the Steering Committee for Data and Architecture: the Ministry of Finance (Agency for Digitisation), the Ministry of Employment, the Ministry of Children and social Affairs, the Ministry of Energy, Supply and Climate, the Ministry of Business, the Ministry of Justice, the Ministry of Environment and food, the Ministry of Taxation, the Ministry of Health and Elderly, the Ministry of Education and the Ministry of Economic Affairs and the Interior

Agency for Governmental ICT Services (Statens ICT) was launched on 1 January 2010 and is responsible for setting the foundations for the further digitalisation of the central government. The Agency is responsible for running efficient administrative ICT services and ensuring a high and consistent ICT service across central government. Therefore, the main tasks include the development and harmonisation of ICT policies among public bodies. Furthermore, the Agency for Government ICT Services is responsible for all administrative tasks related to ICT, ICT infrastructure and a range of tasks related to the operation, maintenance and user management of professional ICT for eight Ministries. The Agency is under the auspices of the Ministry of Finance. It also supports State Agencies, such as the DIGST with IT support, computing and networking infrastructure services.

Municipalities and Regions

Municipalities and Regions are responsible for the vast majority of community-centred service delivery and thus play a central role in the public sector. Denmark's 98 municipalities are responsible for handling most tasks related to citizen service delivery, including: social services; child care; elderly care; health care; employment; culture; environment and planning. The five regions are mainly responsible for the health sector e.g. hospitals. Municipal and regional bodies implement the individual action plans previously articulated at cross-governmental and departmental levels and by domain area, in compliance with the overall national e-government strategy.

3.4.5 Artefacts scoping the governance models

The Digital Strategy 2016-2020 outlines the ICT governance in Denmark.

The Danish Government, Local Government Denmark and Danish Regions agreed upon the Digital Strategy 2016-2020, which entered into force on 12 May 2016. The goal of the strategy is to help shape the digital Denmark of the future and to ensure that the public sector is prepared to seize the technological opportunities of tomorrow to create benefits, growth and improve its efficiency. The strategy covers numerous themes related to digitisation of the public sector, such as automation of public administrative procedures, better user experience for citizens and businesses, digital welfare, data sharing, and others. The Digital Strategy 2016-2020 contains 33 specific initiatives, which lay the foundation for the digitisation of the public sector until 2020. The strategy also consists of three main goals:

- To create more cohesive and efficient public services with digital, high-quality welfare solutions;
- To make it easier and more attractive to start and run a business in Denmark;
- To ensure that all developments related to the Strategy take into account data security of the citizens and businesses to make sure that Danes continue having high confidence and trust in digital solutions.

The Strategy refers to interoperability and standards; it also stresses the need for persistent and strong focus over the next many years on adapting ICT systems, standardising data and changing workflows.

Table 7 summarises additional important documents that scope Denmark's governance model.

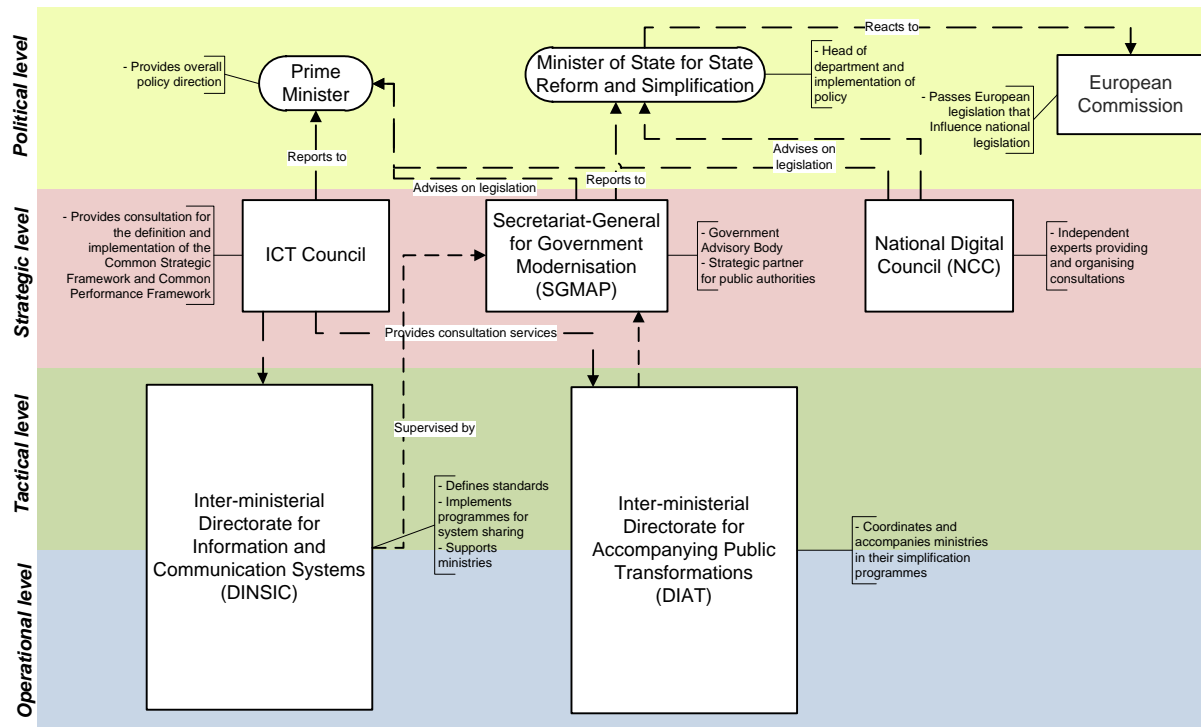
Table 7 Document scoping Denmark's governance model

Document title	Document type	Purpose of the document	Interoperability and/or governance
<u>Common Public-Sector Strategy For Digital Welfare 2013-2020</u>	Strategy	<p>The Danish government, Local Government Denmark and Danish Regions have jointly launched a common public sector Strategy for Digital Welfare (2013-2020).</p> <p>The aim of the strategy is to accelerate the use of ICT and welfare technology in frontline public service delivery. Specifically, concrete initiatives and objectives in the strategy will speed up the use of efficient and effective digital and technological solutions in healthcare, care for the elderly, social services and education.</p>	<ul style="list-style-type: none"> Overall, the strategy aims to modernise and rethink public service production by ensuring a more efficient and effective provision of public sector services. The goal is to maintain or increase the quality of public welfare services while at the same time reducing public expenditure.
<u>Open Government National Action Plan 2013-2014</u>	Strategy	<p>The Danish Action Plan for 2013-2014 focused on the modernisation of the public sector in a broad sense as well as on the outlines of a new approach to the public sector's role with more active and broad involvement of citizens, businesses, and civil society</p>	<ul style="list-style-type: none"> It improves public services, Government Integrity, Fiscal Transparency and benefits to local government.

3.5 France

Figure 9 depicts the model for interoperability governance in France, which the text below describes elaborating the core actors along the four levels.

Figure 9 Governance model of France



Artefacts scoping this governance model

- Digital Strategy of the Government
- Common Strategic Framework for Information Systems of the State (includes Reference Architecture, and Frameworks for Interoperability, Accessibility, and Security)
- Decree from 8 February, 2016
- Decree no. 2015-1165



3.5.1 Political level

Prime Minister

The French President and the French Prime Minister are sharing executive power in France's semi-presidential system. The President appoints the Prime Minister who is the Head of the Government. As such, he provides the overall policy direction to his subsequent bodies which are 18 Ministries as well as four Ministers of State that report directly to him on:

- Parliamentary relations
- Equality under public law
- State reform and simplification
- Victim support.

Minister of State for State Reform and Simplification

The Minister of State for State Reform and Simplification is the head of the corresponding ministerial department. The objective of this role is to implement government policies that are relevant to this domain, thereby supporting the Prime Minister in his objective to head the government and its administration.

3.5.2 Strategic level**ICT Council**

The ICT Council reports to the Prime Minister, provides consultation services for the definition and implementation of the Common Strategic Framework and Common Performance Management Framework, and is responsible for governance related tasks according to Article 5 of Decree no. 2015-1165 which also specifies the objectives and tasks of the Inter-ministerial Directorate for Information and Communications Systems (DINSIC). Its members include:

- the Director of DINSIC as the acting chair,
- the Director of Administrative and Financial Services of the Prime Minister,
- the Ministries' general secretaries or their deputies,
- the CIO of the Ministry of Defence,
- the Director General of Administration and Public Services,
- the Director General of the National Agency for the Security of Information Systems,
- the Budget Officer, and
- the Director of state purchases.

National Digital Council (NCC)

The National Digital Council (NCC) is an independent consulting body that provides public opinion and expert recommendations regarding the impact of the digitisation of the society and the economy. It organises meetings on a national and regional level with politicians, civil society, and representatives from the economy, and it can be asked for advice by the government on legislative matters regarding the topic of digitalisation. Its members are appointed by Decree for a specified period of time, and its setup includes:

- A President,
- Four Vice Presidents,
- 25 members,
- 9 extended members, and
- a general secretariat.

Secretariat-General for Government Modernisation (SGMAP)

The Secretariat-General for Government Modernisation (SGMAP) brings together all the departments responsible for the modernisation policy and ensures consistency to government modernisation efforts. It has an advisory role to the government in the development, implementation and monitoring of the overall public sector reform program. It has a partner role for public organisations implementing their reform plans, providing impulse, support and expertise in several areas of reform.

It is under the direct authority of the Prime Minister and reports to the Secretary of State for State Reform, the Minister of Decentralisation and the Civil Service, the Minister of Finance and Public Accounts and the Minister of Economy, Industrial Renewal and Digital Economy.

Its general secretariat is split into a monitoring department that ensures consistent modernisation efforts, a department responsible for communication from the SGMAP, and a department for internal administrative tasks such as Human Resources. The SGMAP also supervises DINSIC and the Inter-ministerial directorate for accompanying public transformations (DIAT).

3.5.3 Tactical and operational level

For the case of France, the description of the schema deviates for the tactical and operational level considering the responsibilities of the below bodies DINSIC and DIAT, which span across both levels.

Inter-ministerial Directorate for Information and Communication Systems (DINSIC)

DINSIC develops the common strategic framework for the development of ICT systems of the state which are subject to approval of the Prime Minister. It further defines the common performance management framework in the field of information and communication systems and ensures its implementation. These standards simultaneously define the French position in international and EU bodies on standardisation and the use of ICT.

Also, DINSIC promotes the development of a digital administration and ensures the transfer of services to relevant administrations to ensure exploitation. It is concerned with implementing programmes mainly for system sharing and it occasionally steers pilot projects. To that end, it directs and coordinates the actions of public administration to improve the quality, effectiveness, efficiency and reliability of ICT services of the state and other administrative authorities, this includes considerations regarding public procurement, risk management of pilots, and auditing of systems with reports to the relevant Ministers, the Minister of Budgeting, and the Prime Minister.

Inter-ministerial Directorate for Accompanying Public Transformations (DIAT)

DIAT coordinates and accompanies Ministries in their simplification programmes which includes the identification and implementation of relevant digitalisation efforts. It provides assistance to other general secretaries through their expertise and the evaluation of public policies, as well as in the implementation and execution of actions that lead towards transformation and simplification in the public sector.

3.5.4 Artefacts scoping the governance models

The French ICT governance setup mirrors the dynamic of its semi-presidential system in that regulations can be annulled and modified, which can change the role and setup of individual bodies (see for example Decrees no. 2011-193, 2014-879, and 2016-247).

A constant in France's interoperability governance efforts is its Digital Strategy of the Government. The purpose of the document is to provide guidance to transform France into a *Digital Republic*. It was passed on 18 June 2015 in version 0.1 is meant to be updated on a regular basis with new actions and tasks being added as the need arises.

The strategy's objective is based on four pillars³⁹:

- *Liberté*: Freedom to innovate that stimulates growth
- *Égalité*: Equality of laws to protect citizens and personal data
- *Fraternité*: Fraternity through digital accessibility regardless of age, location, and income
- *Exemplarité*: Exemplarity through the digital transformation of French administrations as a best practice for the provision of better public services

The strategy identifies multiple areas within the pillar of government transformation which provide detailed targets related to interoperability, such as:

- Open and accessible government including the Once Only principle,
- One state platform including the project "State as a Platform" which emphasises openness, interoperability, and user-centricity,
- Data for the use of democracy, innovation, and effective public action including Open Data, and
- Deployment of ten state start-ups by 2017; and
- Promoting public action in the territories including shared governance between the State and the territories.

2017 Update

This section of the report was in the scope of SC288 D04.02 Report *Interoperability collaboration governance models* completed in 2016. Although it is not within the scope of this year report to reopen the data collection, the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

The French presidential elections held in April and May 2017 deeply modified the structure of the French Administration, shutting down Ministries and creating new portfolios:

- The Ministry of Public Action and Public Accounts, together with the State Secretary for Digital Affairs (attached to the Prime Minister) took over the roles and responsibilities of the Minister of State for State Reform and Simplification
- The Inter-Ministerial Directorate for Accompanying Public Transformations (DIAT) was renamed "*Inter-ministerial Directorate for Public Transformation (DITP)*"⁴⁰
- Two Inter-Ministerial Directorates replaced the Secretariat-General for Government Modernisation (SGMAP): the newly nominated Inter-Ministerial Directorate for Public Transformation (DITP) and the Inter-ministerial Directorate for Information and Communication Systems (DINSIC)⁴¹

³⁹ <http://www.gouvernement.fr/partage/4492-strategie-numerique-du-gouvernement>

⁴⁰ Article 3 Decree N°2017-1584 of 20 November 2017 on the

⁴¹ Article 1 Decree N°2017-1584 of 20 November 2017 on the

- A new Committee was created: the Inter-Ministerial Committee for the Public Transformation

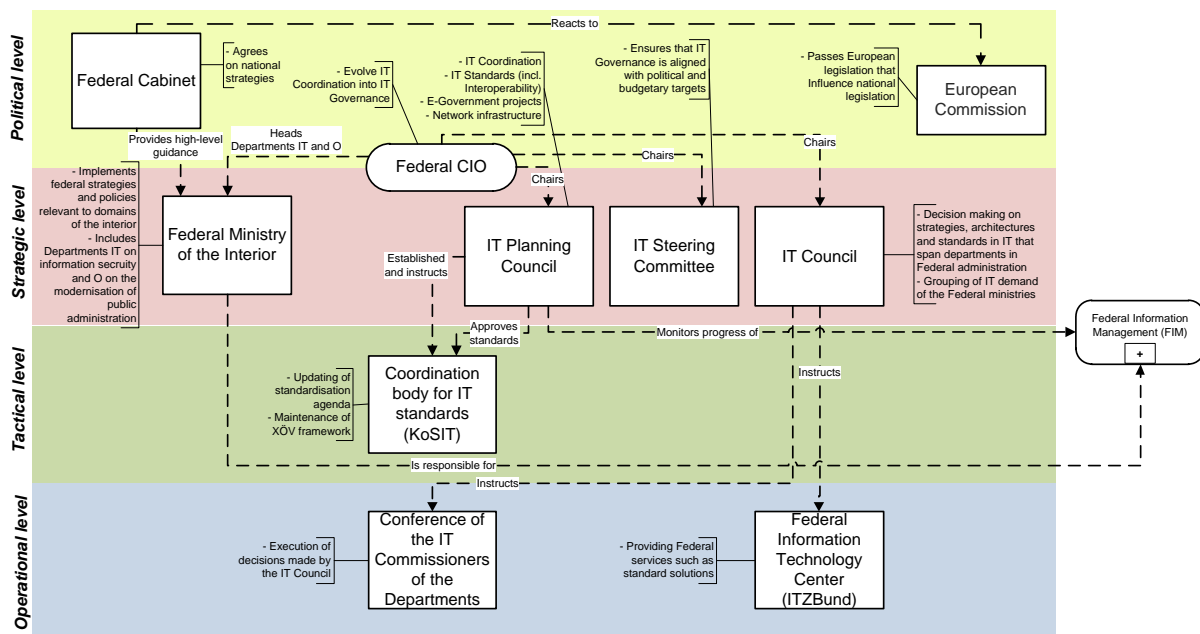
Although its statutes changed in 2017, the National Digital Council remained. This seems to be also the case for the ICT Council.

Regarding artefacts, the new government introduced a new programme dedicated to the public transformation “Public Action 2022” which, among others, relies on the digital transformation principle.

3.6 Germany

The model for ICT policy governance for Germany is depicted in Figure 10. It illustrates and underlines the role of the Federal CIO as well as the cascading of information and decisions from the political down to the operational level with each actor in-between having a clearly defined scope.

Figure 10 Governance model of Germany



Artefacts scoping this governance model

- Digital Agenda 2014-2017
- National E-Government Strategy and Extension of the National E-Government Strategy
- Federal IT Governance
- Federal IT Consolidation Programme
- IT interstate treaty

3.6.1 Political level

The Federal Cabinet

The German Federal Cabinet includes the Federal Chancellor, the Head of the Federal Chancellery and Federal Minister for Special Tasks, all Ministers of the thirteen Ministries and the Federal Foreign Office. The cabinet meets weekly and agrees on their standing on topics of federal relevance and impact with majority rule. As such, long-term strategies such as the *Digital Agenda 2014-2017* and *Digital Administration 2020*

are articulated and endorsed by this body. These strategies guide subsequent actions regarding the modernisation and the digitalisation of Germany's public administration.

3.6.2 Strategic level

The Federal Ministry of the Interior

Within the government, questions related to the modernisation of the public sector, and e-government in particular, are assigned to the Federal Ministry of the Interior. It plays a political, managerial and monitoring role in that it attempts to develop and to provide strategic orientation on e-government, including IT infrastructure, open data, and IT Security.

The Federal CIO

Within the Ministry, the Federal CIO plays a central role in a political and managerial way. He chairs the IT Planning Council every second year, chairs the IT Council and the IT Steering Committee, and he chairs the Conference of the IT Commissioners of the Departments. As such, the Federal CIO directly contributes and is responsible for the development of IT coordination into IT governance. This strategic role oversees the development of strategies for e-government, Federal IT and IT security. By extension, the Federal CIO can also influence the development of architectures, standards and methods for Federal IT as well as central IT infrastructure governance.

IT Planning Council

The three bodies that are subject to the Federal CIO's oversight have complementing objectives. The IT Planning Council comprises:

- the Federal CIO,
- responsible CIO, e-government Commissioner or State Secretary for each one of the 16 State governments, as well as
- four Advisory Members including:
 - the Federal Commissioner for Data Protection and Freedom of Information;
 - one representative of the German Association of Towns and Municipalities;
 - one representative of the German Association of Cities and Towns; and
 - one representative of the German County Association.

This extensive and comprehensive setup ensures a reflection of the complex German Federal systems, in which tasks and responsibilities are assigned to distinct political and administrative actors. Hence, the main focus of the IT Planning Council's work is to co-ordinate between the Federal and State level governments in regard to a coordinated implementation of e-government strategies based on the *National e-government Strategy* and the Federal cooperation in IT. Its scope includes⁴²:

- IT coordination regarding the collaboration between the Federal state and the 16 states;

⁴² http://www.it-planungsrat.de/DE/ITPlanungsrat/Aufgabenspektrum/aufgabenspektrum_node.html;jsessionid=8D8B73A8AE8E51705E31E62C2494B5CA.2_cid321

- Bringing forward generic and cross-domain IT standards (regarding interoperability and security standards);
- Coordination and monitoring of e-government projects (as defined and agreed to be supervised by the IT Planning Council); and
- Establishment and coordination to implement a countrywide government network infrastructure as defined in the Art 91c GG, paragraph 4, implementing the IT NetzG.

These activities are supported and endorsed by the IT Council and the IT Steering Committee.

IT Council

The IT Council comprises:

- the Federal CIO as the chair;
- the IT responsible State Secretary of each Federal Ministry;
- the IT responsible Head of Department in the Federal Chancellery;
- the Commissioner of the Federal Government for Culture and the Media; and
- the Commissioner of the Federal Press Office.

Its focus is on the Federal administration including strategies, architectures and standards in IT that span all Federal administration departments, strategic governance of the cross-departmental project of Federal IT consolidation, and grouping of IT procurement of the Federal Ministries and coordination of the Federal IT service portfolio.

IT Steering Committee

The IT Steering Committee, in contrast, comprises:

- the Federal CIO,
- the State Secretary for Budgeting of the Federal Ministry of Finance,
- the Director of the Central Department of the Federal Chancellery, and
- the State Secretary for IT of the Federal Ministry of Economic Affairs and Energy.

Its task is to ensure that IT governance is aligned with political and budgetary targets, and that political and managerial influence is followed in IT large scale projects.

3.6.3 Tactical level

The work of the Federal Ministry of the Interior and the IT Planning Council are supported by the Coordination body IT Standards (hereafter referred to as KoSIT – Koordinierungsstelle für IT-Standards).

Coordination body IT Standards (KoSIT)

The Coordination body IT Standards (KoSIT) comprises an Advisory Board with members including representatives from Federal, state, communal level and from the BSI. It was established by the IT Planning Council and it provides business capabilities for specifying enabling standards and artefacts in regards to organisational, semantic (XML-based and called XOEV) and technical interoperability. Its scope includes:

- Provision and maintenance of the XOEV standardisation framework;
- Coordination and promotion activities related to interoperability;
- Development and maintenance of interoperability specifications;

- Consulting policy level on strategic issues of interoperability;
- Maintenance of a repository of standards (supporting measures); and
- Cooperation with European and national standardisation bodies like the European Committee for Standardization (CEN), the European Telecommunication Standards Institute (ETSI), the European Committee for Electrotechnical Standardisation (CENELEC), the German Institute for Standardization (DIN), and the DKE German Commission for Electrical, Electronic & Information Technologies of DIN and VDE (DKE (VDE)).

3.6.4 Operational level

Conference of the IT Commissioners of the Departments

The Conference of the IT Commissioners of the Departments is chaired by the Federal CIO and includes the IT commissioners of all Federal departments, the Commissioner for the economic effectiveness of public administration, the Commissioner of the Federal Court of Auditors, and the Commissioner for Data Protection and Freedom of Information. This body is instructed by the IT Council and, thus, operationally executes the decisions made by the IT Council.

Federal Information Technology Centre

The Federal Information Technology Centre (ITZBund) operationally develops, implements, provides, maintains, and supports technical solutions for various customers from different political and administrative levels. Its portfolio includes the development of software used by public authorities for the facilitation of ICT supported procedures, the maintenance of and support for software including hosting of solutions, advisory services and coordination of the infrastructures on a Federal level.

3.6.5 Artefacts scoping the governance models

Besides the legal background of the IT Interstate Treaty which establishes the IT Planning Council, there are four policy documents that frame the development of e-government and the governance of interoperability in Germany (with Table 8 listing two additional strategic documents).

The Federal Ministry of the Interior approved the Federal Information Management (FIM) in 2012. Its purpose is to develop editorial and technical standards that enable an information management. This allows for a seamless communication and exchange of information between public administrations (for administrative processes, cutting across Federal and State level as well as municipalities) and with citizens (for administrative services). This implies a translation of legal terms into actionable and relevant process terms as well as reducing efforts regarding forthcoming editorial works. It is envisaged to develop three building blocks that ensure semantic interoperability:

- A description of work and services which are collected in a services catalogue ("Leistungskatalog" (LeiKa));
- A classification and collection of set forms ("FIM Formularsystem"); and
- A classification of similar processes establishing a national process library ("Nationale Prozessbibliothek" (NPB)).

The *Digital Agenda 2014-2017* was approved by the Federal Government in 2014. Its purpose is to set out the guidelines of the Federal Government's digital policy and concentrates its actions on seven fields of actions:

1. Digital infrastructure;
2. The digital economy and digital workplace;
3. Innovative public administration;
4. Shaping digital environments in society;
5. Education, science, research, culture and media;
6. Building security, protection and trust within society and the economy;
7. European and international dimensions of the Digital Agenda.

The Agenda is supporting uniform standards and championing greater interoperability, as the agenda wants to merge the government's ICT networks and computing centres and create the necessary legal framework for this purpose.

The *Extension of the National e-government Strategy (NEGS)* was approved by the IT Planning Council in 2015. Its purpose is to set out the essential objectives and action fields to fulfil the legal mandate of the IT Planning Council.

The strategy provides a framework for the joint strategic alignment of Federal, state and local authorities in the development of e-government to secure interoperability and cost-effectiveness.

The *IT Consolidation Programme of the Federal Government* was approved by the Federal Government in 2015. Its purpose is to develop a concept for how ICT infrastructure and procurement can be bundled on a Federal level and how data centres can be consolidated and run efficiently, which was requested by the Budgeting Committee of the German parliament.

The IT Consolidation Programme provides the foundation for the Federal Information and Technology Centre (ITZBund), which is assigned with the centralisation of operational tasks, services and procurement which are (indirectly) linked to interoperability.

Additional crucial strategic documents are summarised in Table 8.

Table 8 Additional strategic documents scoping Germany's governance model

Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
<u>Digital Strategy 2025</u>	Strategy	To show what steps have been taken in the past and what steps are to be taken in the future to develop a strong economy that makes proper use of digitalisation.	The aspired developments in terms of digitalising and connecting businesses and administration are likely to require interoperable solutions eventually. Without addressing interoperability in particular, the

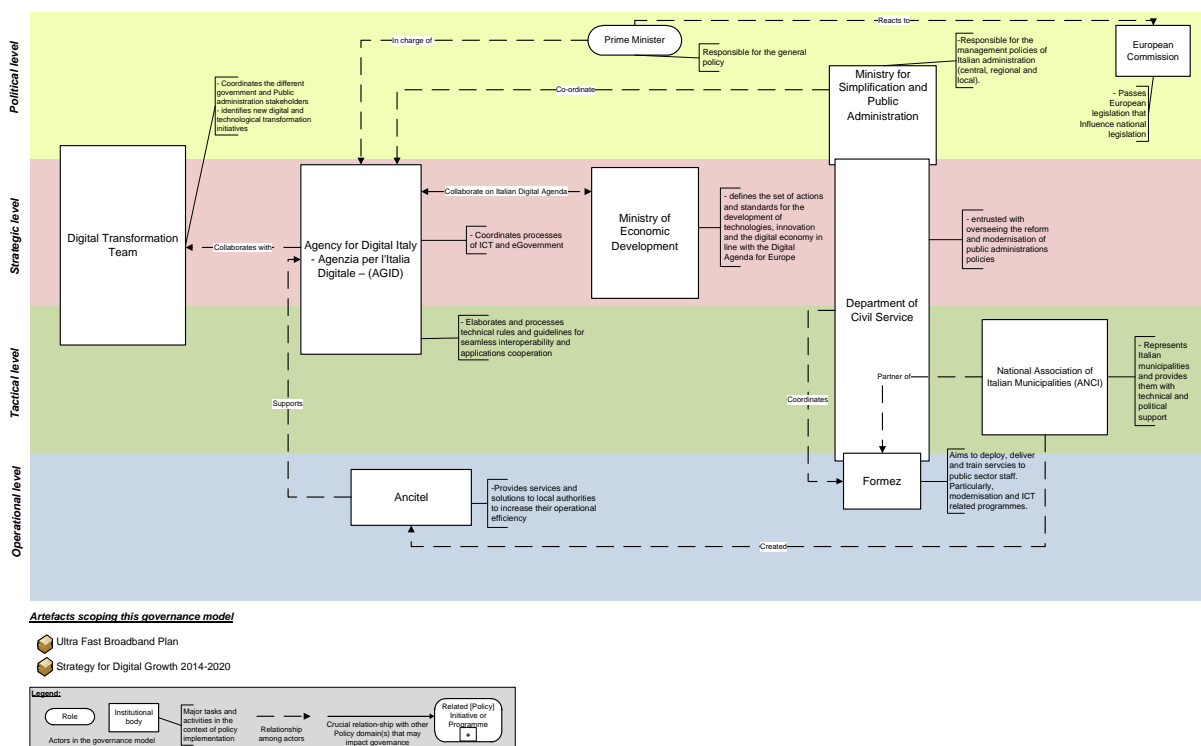
Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
			vision of a “Digitalisation Agency” is expressed.
<u>Digital Administration 2020</u>	Strategy	To provide the foundation for a changing public sector in light of digitalisation. It surveys different fields of activities, takes reference to (back then still to be developed) state e-government laws and the fact that this change process requires top level leadership.	The strategy includes several projects referring explicitly to interoperability and standardisation.



3.7 Italy

Figure 11 depicts the model for ICT governance in Italy. It illustrates and underlines the central role of the Prime Minister's Office, the Agency of Digital Italy, and the Ministry for Simplification and Public Administration through its e-government Directorate as drivers of ICT governance.

Figure 11 Governance model of Italy



3.7.1 Political level

Prime Minister

The Prime Minister chairs the Presidency of the Council of Ministers. He or she takes into account, in particular, the need to ensure, through functional liaison with the other administrations concerned, the political and administrative unit of the government, pursuant to Article 95 of the Constitution.

The Prime Minister's main functions related to e-government are:

- The Government relations nationally and with the European institutions;

- The design of general policies and general policy decisions;
- The coordination of government administrative activity and the functionality of internal control systems;
- The promotion and verification of innovation in the public sector and coordination in the field of public work;
- The monitoring of the state of implementation of the government programs and sectoral policies.

Ministry of Simplification and Public Administration

The Ministry of Simplification and Public Administration is responsible for the management of policies for the public administration. The Department of Civil Service, which is part of the Ministry, is the one responsible for e-government and ICT policy.

3.7.2 Strategic level

The Department of Civil Service

The Department of Civil Service is entrusted with overseeing the reform and modernisation of public administration's policies. The Department is composed of seven offices. In particular, the Office for Innovation and Digitisation has a number of relevant tasks on strategic level:

- promotes and coordinates policies and innovative interventions to support the digital transition of public administrations;
- controls the implementation of the priority initiatives of the Agency for the Digital Italy;

Agency for Digital Italy (Agenzia per l'Italia Digitale) - AgID

The Agency for Digital Italy (Agenzia per l'Italia Digitale - AgID) coordinates actions in the field of information and communication technologies to promote innovation in support of public administration, ensuring the achievement of the objectives of the Italian Digital Agenda in line with the Digital Agenda for Europe. The Agency for Digital Italy share the responsibility for the Italian Digital Agenda together with the Ministry of Economic Development.

The Agency carries out design and coordination of strategic initiatives for more effective delivery of network services by the public administrations to citizens and businesses. The Agency is also the hub to boost the Italian participation in the European and national programmes for the development of the Digital Agenda.

The Ministry of Economic Development

Through its responsibilities in the field of Communication, the Ministry of Economic Development is co-responsible for the Italian Digital Agenda. In addition to the Agency for Digital Italy's work, the Ministry defines the set of actions and standards for the development of technologies, innovation and the digital economy in line with the Digital Agenda for Europe.

Digital Transformation Team

The Digital Transformation Team depends on the Presidency of the Council of Ministers and is involved in the definition of the country's strategy on digitisation of public administration. Under the leadership of a Commissioner for digital transformation, the team identifies new digital and technological transformation initiatives. On the strategic level, its functions include:

- 1 Coordinating the different government and public administration stakeholders to manage existing and future digital programs in an integrated manner with an agile methodology and an open data approach;
- 2 Identification of new digital and technology transformation initiatives.

3.7.3 Tactical level

The Department of Civil Service

On tactical level, the Department of Civil Service provides support to the Minister for Simplification and Public Administration in carrying out tasks delegated by the President of the Council of Ministers. Its tasks include:

- To promote the adoption of tools and models to give practical effect to the digital citizenship principles and the open government;
- To provide technical support legislation activities in the field of Digital Agenda

Agency for Digital Italy - AgID

The Agency for Digital Italy elaborates and processes the technical rules and guidelines for seamless interoperability and cooperation between governmental information systems and those of the European Union. AgID ensures technical uniformity of public information systems designed to deliver services to citizens and businesses, while providing consistent levels of quality and usability throughout the country, as well as their full integration at European level.

National Association of Italian Municipalities (ANCI)

ANCI represents Italian municipalities and provides them with technical and political support. In 1987, ANCI created the company Ancitel, dedicated to bring innovation and modernisation to the Italian municipalities and local authorities. Ancitel has become the main service provider of ANCI, supporting and promoting the introduction of new information and communication technologies in municipalities.

ANCI provides consultancy, training and information, technical and organisational assistance. It further offers ICT support, studies and research programmes. Moreover, it is partner in FORMEZ, which is a state-owned company for public-sector training (see description in next subsection).

Digital Transformation Team

On the tactical level, the Digital Transformation Team caters for the following governance tasks:

- 1 Act as authoritative centre of digital and innovation competence for the different government and public administration stakeholders in order to share guidelines, directives and opinions
- 2 Create and maintain a community of developers and designers who can contribute to the development of Application Programming Interfaces (APIs) and digital services, report and solve technological challenges, provide information and training on digital innovation principles and create a shared wealth of tools and services
- 3 Lay a foundation for an evolving architecture that will grow over time and will stay on top of emerging technological trends.

3.7.4 Operational level

Ancitel

The National Association of Italian Municipalities (ANCI) established the company Ancitel, which is dedicated to bring innovation and modernisation to the Italian municipalities and local authorities. Ancitel has become the main service provider of ANCI, supporting and promoting the introduction of new information and communication technologies in municipalities.

FORMEZ

FORMEZ is an internal department of the Department of Civil Service of the Ministry of Simplification and Public Administration with the aim of developing and delivering training services to public sector staff, in particular, training related to modernisation and ICT-related programmes in order to support the modernisation, competitiveness and efficiency of public administrations locally, regionally and nationally. In this context, the agency has its own training platform.

3.7.5 Artefacts scoping the governance models

The ICT governance in Italy is scoped by the Italian Digital Agenda, which includes the Strategy for Digital Growth 2014-2020 and the Ultra-fast-Broadband Plan.

In addition to legislative measures for general profiles and strategy in the field of Digital Agenda, the Council of Ministers has approved the Strategy for Digital Growth 2014-2020 and the Ultra-fast Broadband Plan on 3 March 2015. The Agency for Digital Italy and the Ministry of Economic Development under the coordination of the Prime Minister have defined both plans.

Ultra-fast Broadband Plan

The new national plan for Ultra-fast broadband proposes a virtuous mix of public and private investments. Where individuals invest in equal measure to the public, the goal that can be reached is higher than the European minimum. The objective of the Strategy for the Italian Ultra-fast Broadband is to remedy this infrastructure gap and market, creating favourable conditions for the integrated development of fixed and mobile telecommunications infrastructure, with actions such as:

- Incentives aimed to reduce the costs of implementation, simplify and reduce administrative burdens;
- Coordination in the management of the subsurface through the establishment of a cadastre of below and above ground to ensure the monitoring of operations and the best use of existing infrastructure;
- Adaptation to other European countries in the field of electromagnetism limits;
- Tax incentives and credit at subsidised rates in the most profitable areas to promote the "quantum leap";
- Public incentives to invest in marginal areas;
- Direct realisation of public infrastructure in the areas of market failure.

The Ultra-fast Broadband Plan recognises standardisation of rules and complying with the limits of the other European countries in the field of electromagnetism to have immediate benefits in terms of spread of ultra-fast broadband and wireless connectivity service.

The national plan for Ultra-fast broadband is tied to the Strategy for Digital Growth 2014-2020.

Strategy for Digital Growth 2014-2020

The strategy has a dynamic character in order to be able to adapt gradually to the scenarios in the reference period 2014-2020. It is a strategy aimed to enable digitally literate citizens and businesses with the help of public levers. The strategy provides a roadmap for digitisation of the country, which would be able to:

- a) progressively make available user-centric digital public services, also by coordinating and systematising the various actions initiated by all public administrations;
- b) ensure economic and social growth, through the development of skills in enterprises and digital culture spread among the citizens to create a new demand that can generate innovative and qualified offer;
- c) streamline the country's system, coordinating unified planning and investment in digital innovation and ICT.

A centrepiece of the strategy is the Login Italia project. With the Login Italia project, the Government intends to provide citizens and businesses with a single platform for accessing all Public administration services. The system is designed as an open structure, where the various actors of the Public Administration contribute to their area of expertise, with their specific data and the services they can make available to businesses and citizens. Every citizen with their digital identity can access all the information and services concerning himself/herself through the single platform. The platform provides a "home" on the Internet with a single-sign-on for all services of the public administrations, where the citizens can receive alerts and notifications on deadlines, as well as make and receive payments.

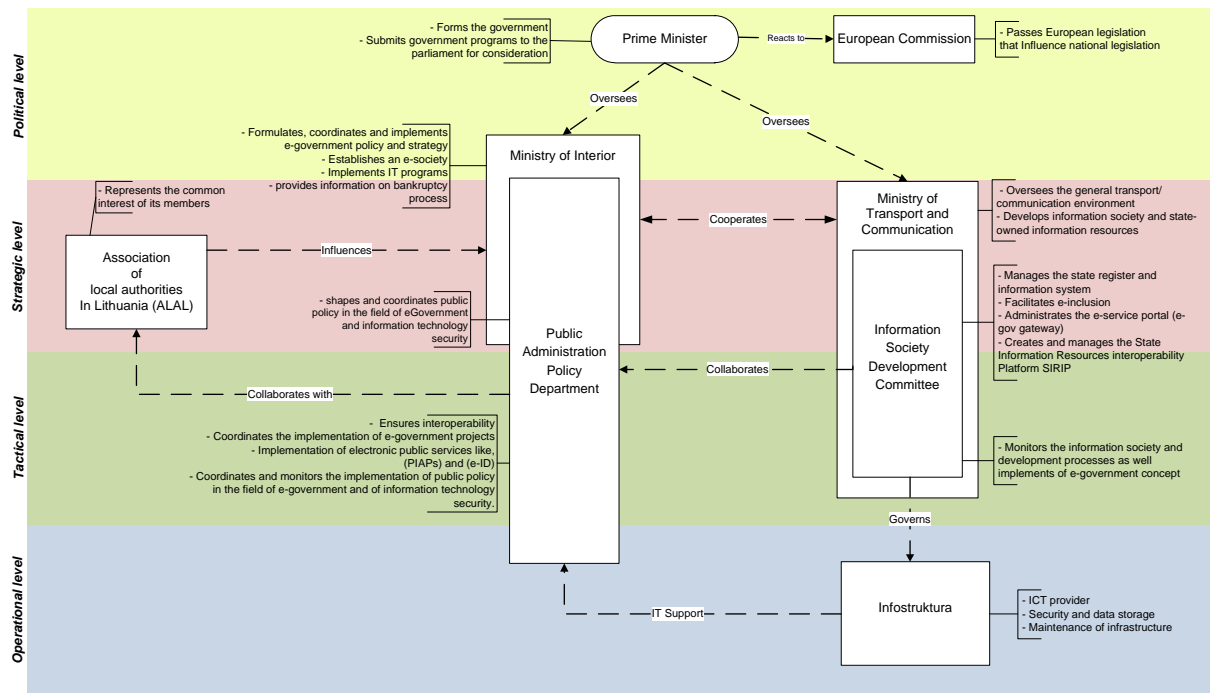
One of the focuses of the strategy is to have a digital architectural approach based on open standards, as it will ensure accessibility and maximum interoperability of data and services.



3.8 Lithuania

Figure 12 depicts the model for ICT governance in Lithuania. It illustrates the role of the Prime Minister who oversees also the two key Ministries for e-government developments and coordination: the Ministry of Interior and the Ministry of Transport and Communication. It further depicts the role of the multi-level cooperation of stakeholders from the political level down to the operational level.

Figure 12 Governance model of Lithuania



Artefacts scoping this governance model

Digital Agenda for Lithuania 2014 – 2020



3.8.1 Political level

Prime Minister

The Prime Minister is head of the Council of Ministers, which is the highest executive authority in Lithuania. The Prime Minister is appointed by the President and is approved by the Parliament. Upon the nomination of the Prime Minister, the President appoints ministers. Lithuania's Prime Minister also submits the Government Programme to the Seimas (Parliament) for its consideration. Furthermore, he holds the authority to negotiate and sign international agreements in the name of the Republic of Lithuania.

Ministry of Interior

The Ministry of the Interior is heavily involved in the information society policy development. More specifically, the Ministry's priority is to form a state policy in the field of public administration, including e-government, which is seen as means to synchronise and modernise the administration. It is part of the Ministry's responsibilities to prepare draft laws and other legal acts on the system of public administration subject to promote administrative regulations and to render administrative services.

3.8.2 Strategic level

Ministry of Interior

Besides developing a state policy in the field of public administration, the Ministry of Interior and its various administrations are responsible for the coordination and implementation of relevant policies. The Ministry

oversees the Public Administration Policy Department, the electronic government and security policy division, as well as the ICT department.

The Ministry of Interior further focuses on:

- e-government policy and strategy formation;
- Promotion of administrative regulation and rendering of administrative services;
- Establishment of e-society;
- Implementation of ICT programs.

Public Administration Policy Department

The Department and its Public Administration Policy Division operating under the Ministry of Interior took the role of the former e-government Policy Division in July 2015. It is authorised to shape public policy in the field of e-government and information technology security. Furthermore, it is responsible for developing relevant legislation in the field of e-government. The department has coordinated the information society policy field since November 2009. Its main responsibilities regarding e-government are to ensure interoperability and to coordinate the implementation of e-government projects and the provision of electronic public services. Its Public Administration Policy Division also assumed functions of the former e-government Policy Division in July 2015. As well as shaping the e-government strategy and the relevant legislation, the Department is now also responsible for coordinating and monitoring the implementation of public policy in the field of e-government and of information technology security. Furthermore, it coordinates the participation of Lithuania in the ISA² programme.

Ministry of Transport and Communication

The digital vision of the Ministry of Transport and Communication is to ensure an integral, secure and innovative transport and communications system for society, while the principal operational goals of the Ministry are to shape public policy. The Ministry organises, coordinates and oversees the vision's implementation in areas such as (amongst others):

- The development of information society and state-owned information resources;
- Electronic communications and post.

Information Society Development Committee

The Information Society Development Committee is a body under the Ministry of Transport and Communication of the government of Lithuania, which coordinates processes related to the development of information society in the country. The Committee is also the state institution responsible for the supervision of electronic signature. It oversees the use of electronic signature and electronic documents in state institutions, and administers the provision of certification services to these institutions. Other functions include:

- E-inclusion facilitation;
- Administration of e-service portal (e-gov gateway);
- Creation and management of State Information Resources Interoperability Platform (SIRIP).

Association of Local Authorities in Lithuania (ALAL)

The Association of Local Authorities in Lithuania is a non-profit organisation, which represents the common interests of its members (local authorities, authorities of the state, foreign and international organisations of

local authorities). Its mission is to implement the essential rights of local self-government and to foster its development by influencing decisions taken by national authorities and international institutions. Its objective is to implement the provisions of the European Charter of Local Self-Government in Lithuania. It further organises and coordinates activities of its members in the different areas of their interest (e.g. investment attraction, development of municipal economies). ALAL has limited power to coordinate e-government initiatives in all Lithuanian municipalities.

Information Technology and Communication Department

The Department under the Ministry of the Interior was established in 1994, reorganising and merging the Information Office, the Office of Communications and the Communications Unit. On the strategic level, the Department is responsible for coordinating communication activities in the telecommunications network (VRTT), which covers the whole territory of Lithuania.

3.8.3 Tactical level

Information Society Development Committee

Activities of the Information Society Development Committee extends to the tactical level as it is involved in the monitoring of information society development processes as well as the implementation of e-government concept. The Committee is further responsible for the management and development of central digital government enablers, ensuring the management of cross-sectorial ICT services.

3.8.4 Operational level

Public Administration Policy Department

The Public Administration Policy Department, under the Ministry of the Interior, is responsible for the implementation of strategic ICT projects, such as the establishment of the Public Internet Access Points (PIAPs) and the eID infrastructure. Prior to November 2009, these and other similar projects were the responsibility of the now obsolete 'Information Policy Department' of the Ministry.

Infostruktūra

Infostruktūra is a State-owned company established in 1992, which provides ICT infrastructure and services to central and local government. Infostruktūra is largely responsible for the creation and maintenance of the computer network of State institutions (VIKT). Its activities began under the auspices of the Lithuanian Ministry of Communications and Informatics. From 2001 until 2015, the entity was under governance of the Ministry of Interior of the Republic of Lithuania. Since April 2015, the Ministry of Transport and Communications governs it. It works to develop a secure network and ICT service infrastructure that is designed for interaction between Lithuanian national institutions and their communication with counterparts in other EU Member States⁴³.

⁴³ State Enterprise <http://www.is.lt/en/about-us.html>

3.8.5 Artefacts scoping the governance models

The Information Society Development Programme 2014 – 2020: Digital Agenda for Lithuania scopes the ICT governance in Lithuania.

The Information Society Development Programme 2014 – 2020 Digital Agenda for Lithuania, which is aligned with the Europe 2020 Initiative Digital Agenda for Europe, replaced the Lithuanian Information Society Development Programme 2011 – 2019 in March 2014 and was amended in September 2015. The purpose of the programme is to define the priorities, objectives and tasks of information society development in order to maximise the advantages provided by information and communication technologies, primarily the internet as crucial instrument for economic, cultural and social activities (e.g. to provide or receive progressive e-services, work, access entertainment, communicate and freely express opinions).

The strategic objective of the Programme is to improve the quality of life for the Lithuanian residents as well as the business environment for companies. This can be achieved by using the opportunities created by the ICTs and by increasing the percentage of internet users in Lithuania to at least 85 per cent among residents and of the high-speed internet users to 95 per cent among enterprises by the year 2020. The information society must be developed based on the following priorities:

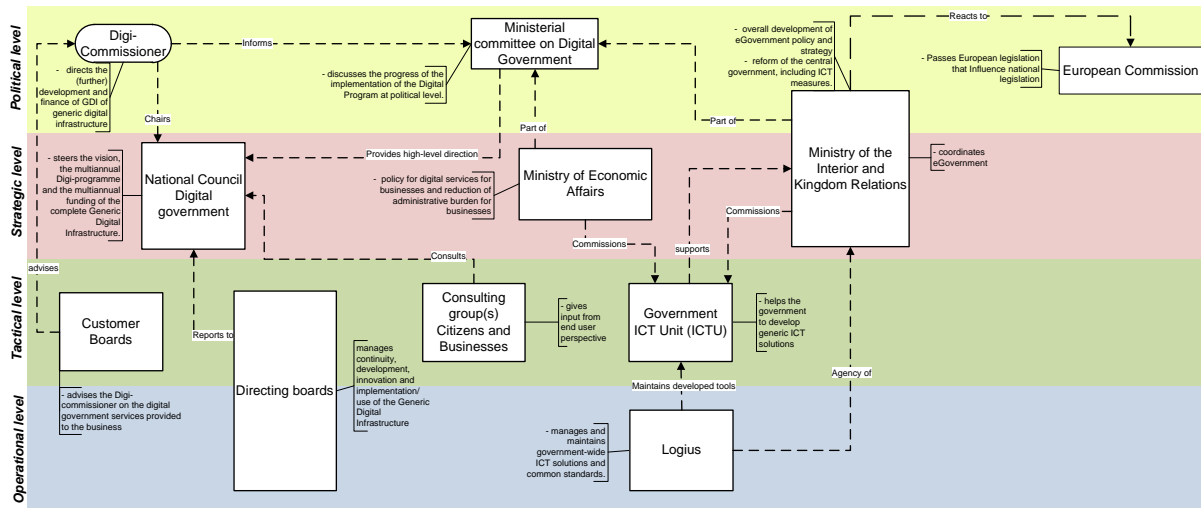
- Enhancement of the Lithuanian residents' ability to use the ICTs
- Development of the electronic content and services and promotion of use thereof
- Promotion of the Lithuanian culture and Lithuanian language by ICT measures
- Encourage businesses to use ICT
- Development of the ICT infrastructure
- Ensure the development of safe, reliable and interactive ICT infrastructure

The programme includes several projects referring explicitly to interoperability and standardisation.

3.9 The Netherlands

This section describes the governance structure of the Netherlands, as illustrated in Figure 13. Subsequently, the key actors are outlined along the levels of governance.

Figure 13 Governance model of the Netherlands



Artefacts scoping this governance model

Government wide implementation agenda for digital services in 2017



3.9.1 Political level

The political level in the Netherlands has multiple parties involving Ministries and a dedicated commissioner.

The National Commissioner for Digital Government (Digi-Commissioner)

The National Commissioner for Digital Government (Digi-Commissioner) was appointed in 2014 by the government for a four years term. He is the Government-wide director directing the (further) development of generic digital infrastructure. His main responsibilities are to:

- boost policy development;
- promote the creation of generic provisions for the digital government; and
- secure the management of essential services;

His main task are to:

- inform the Ministerial Commission on the long-term developments of the Generic Digital Infrastructure and the interdependency with the other policies of the Cabinet. After approval of the Ministerial Commission the Digi-commissioner reports to the Parliament.
- make proposals for decision to the Ministerial Commission. He can do this independent or on behalf of a National Council for Digital Government he chairs.
- propose the Generic Digital Infrastructure (GDI)'s joint governance and financial arrangements.
- strengthen the coordination of the Generic Digital Infrastructure, as foundation for the digital government.

- define rights and duties of citizens and businesses in their (digital) relation with government, including regulating consequences when things did not proceed as regulated (e.g. someone delivers through channel that is not anymore allowed).
- regulate on a central level some aspects like rules about data collection, data transport and data processing, including the aspect of privacy.
- for 'Key registers': definitions, range of application, principles et cetera."
- respond to a Ministerial Commission, consisting of the Prime-Minister, the Vice-Premier, the Minister of Internal Affairs and Kingdom Relations, the Minister of Economic Affairs, The Minister for Housing and the Central Government Sector and the Minister of Finance, a representative of the local governments and a representative of the major execution-organisations.

Bas Eenhoorn started as Digi Commissioner on August 1, 2014. He was appointed by the government for four years. He is supported by team of 15 people⁴⁴.

Minister for Housing and the Central Government Sector (part of the Ministry of the Interior and Kingdom Relations)

The Minister for Housing and the Central Government Sector is in charge of all matters in the field of:

- housing and building;
- the state's real estate;
- the civil service;
- the general administrative department;
- review of independent administrative bodies and reducing regulatory burdens citizens.

The Minister for Housing and the Central Government Sector is also responsible for the reform of the central government, including ICT measures. He has no portfolio, as he does not lead a Ministry. He is part of the Ministry of the Interior and Kingdom Relations. Thus, to avoid confusion, only the Ministries are present in Figure 13.

Ministry of the Interior and Kingdom Relations

The Ministry of the Interior and Kingdom Relations is responsible for the overall development and coordination of e-government policy and strategy. It deals with the following issues:

- democracy and the rule of law
- public administration
- quality of personnel and management within central government
- Dutch constitution and the system of constitutional government
- partnership with Curaçao, St Maarten and Aruba
- public housing and government buildings.

The Core members of the Ministry include:

- Minister of the Interior and Kingdom Relations

⁴⁴ <https://www.digicommissaris.nl/page/362/medewerkers>

- Minister for Housing and the Central Government Sector
- Secretary general
- Directorate-General for Administration & Living
- Directorate General Government organisation
- Directorate-General for Public Service
- Directorate General Property and Business Empire
- Directorate-General for General Intelligence and Security Service

Ministerial Committee on Digital Government

The Ministerial Committee on Digital Government discusses the progress of the implementation of the Digital Programme at political level and gathers twice per year. Complicated and more technical issues are not directly addressed in the Cabinet. These issues are first treated in a sub council by Ministers who are directly involved, and some specific topics, such as the Digital Programme have their dedicated ministerial committee, such as the Ministerial Committee on Digital Government.

The ministerial committees are temporary and for the duration of the term of office. They are formed for a specific theme or topic. The Prime Minister is the chairman.

Other permanent members are:

- the Deputy Prime Minister
- the Minister of the Interior and Kingdom Relations
- the Minister of Economic Affairs
- the Minister of Finance
- the Minister of Housing and National Service
- the Digi Commissioner
- director on behalf of all the implementing organisations and
- representative director on behalf of the local authorities.

3.9.2 Strategic level

The strategic level of the schema for the Netherlands is presented by the following actor.

National Council for Digital Government

National Council for Digital Government steers the vision, the multiannual Digi-programme and the multiannual funding of the complete Generic Digital Infrastructure and is responsible for it as a whole. The Council has taken over the functions of the Standardisation Board and Forum from 2015. The Council activities include:

- mandating the role of commissioning authority for separate elements to appropriate parties;
- discussing the development of e-government at the administrative, strategic level;
- determining the direction and plans for the coming years. These plans are recorded in the Digital Programme.

The Digi Commissioner is the Chairman of the National council. It further consists of:

- Director-Generals of the departments (each responsible for its domain)

- Directors of the associations of Municipalities, Provinces and Water Boards,
- Directors of major executive organisations

Ministry of Economic Affairs

The Ministry of Economic Affairs promotes:

- competitive business climate, by abolishing unnecessary regulation and creating business-friendly fiscal policy;
- specific policy for innovation and enterprise to support businesses in areas where it is really necessary which makes the Ministry of Economic Affairs the central access point for government information and services in the area of innovation, export and financing.

The Ministry is further responsible for the policies for digital services for businesses and for reduction of administrative burden for businesses.

It is managed by an executive board. It consists of the Minister, the Minister for Agriculture, Secretary-General, Deputy Secretary-General, Directorate-General for Agro and Nature, Directorate-General for Energy, Telecommunications and Competition, Directorate-General for Enterprise and Innovation, Inspectorate General Food and Consumer Product Safety Authority, and by the Managing Director Internal Organisation, as well as additional divisions.

3.9.3 Tactical level

The following bodies represent the tactical level:

Customer Boards

Customer Board main responsibility is to advise the Digi-commissioner on the digital government services provided to the business. The Customer Boards are chaired by the chosen commissioning authority. It includes the responsible for the Generic Digital Infrastructure key areas, as well as customers/users. It can also include businesses as suppliers or users on specific subjects if appropriate.

Directing Boards

Directing Boards manage continuity, development, innovation and implementation/use of the Generic Digital Infrastructure. They are under the National Council for Digital Government.

Directing Boards main functionalities are divided between the different boards as followed:

Data management

- focuses on the exchange of information within the government;
- directs the further development of a system of government data and the role that the various registers and system facilities play. Directing Boards are chaired by the director of the Digital commissioner's office.

The director of the Digital commissioner's office chairs the Directing Board. It has 23 members from different Ministries and public organisations.

Interconnectivity

The facilities covered by this board form the basis for the digital government. Without physical networks, standards, architecture and information exchange there would be no e-government. The Directing Board Interconnectivity discusses and agrees on the common agenda, objectives, themes and associated prioritisation.

The facilities covered by the Directing Board Interconnectivity are:

- Standards ('comply or explain' list);
- Digipoort (Overheidstransactiepoort (OTP) & Process Infrastructure (PI));
- Digital Network;
- Dutch Government Reference Architecture (NORA).

The director of the Digital commissioner's office chairs the Directing Board. It has 20 members from different Ministries and public organisations.

Service Provisioning

The Directing Board Service Provisioning focuses on features that contribute to the provision and exchange of messages and information between the government, citizens and businesses, supporting and implementing public services. These are:

- Portals
 - Overheid.nl⁴⁵
 - Digital Ondernemersplein⁴⁶
 - Answers for Business⁴⁷
 - Catalogue Collaboration⁴⁸
- Personalised services:
 - My Government (*MijnOverheid*)⁴⁹: personal information, current affairs, message box civilians
 - Message box (*Berichtenbox*) for Businesses⁵⁰
 - Company Dossier
- Services to businesses
 - Standard Business Reporting⁵¹
 - eInvoicing⁵²

⁴⁵ <https://www.overheid.nl/>

⁴⁶ <http://www.ondernemersplein.nl/>

⁴⁷ <http://www.antwoordvoorbedrijven.nl/>

⁴⁸ <https://www.logius.nl/diensten/samenwerkende-catalogi/>

⁴⁹ <https://mijn.overheid.nl/>

⁵⁰ <https://mijn.overheid.nl/berichtenbox>

⁵¹ <http://www.sbr-nl.nl/english-site/>

⁵² <https://www.logius.nl/diensten/e-factureren/>

The Directing Board Service Provisioning harmonises these platforms, the broadband connection and ensures the sound financial basis for planned activities. The director of the Digital commissioner's office chairs the Directing Board. It has 18 members from different Ministries and public organisations.

Authentication & Identification

The Directing Board Authentication & Identification discusses, coordinates and ensures the secure access for citizens and businesses to the digital government services. This is of crucial importance for the major and minor administrative organisations, local governments and state departments.

The following facilities are subject to the Directing Boards Authentication & Identification:

- Idensys (formerly eID scheme)
- DigiD (including DigiD abroad)
- DigiD Authorize
- (Appointments System) eHerkenning
- PKI Government.

The director of the Digital commissioner's office chairs the Directing Board. It has 16 members from different Ministries and public organisations.

Consulting group “Citizens and Businesses”

The activities that are in the in the scope of the Consulting group “Citizens and Businesses” (*Klankbordgroep Bedrijven*) are:

- Follow the development of government digital services and provide constructive feedback to ensure the user perspective is taken into account;
- evaluate topics for safety, reliability and simplicity.

The Consulting group has a public-private nature and is chaired by the Digital Commissioner. The Consulting group “Citizens and Businesses” meets four times a year.

Its Members are:

- industry associations (Horeca Netherlands, Transport and Logistics Netherlands, Building Netherlands and Netherlands ICT),
- umbrella organisations (Confederation of Netherlands Industry and Employers (VNO-NCW) /Royal Netherlands Association for Small and Medium-Sized Enterprises (MKB-NL) and Self-employed organisation (ZZP-NL)
- number of government organisations. (Employee Insurance Agency (UWV), Tax Administration, Chamber of Commerce, Ministry of Economic Affairs, Ministry of the Interior, International Cooperation Agency of the Association of Netherlands Municipalities (VNG) and Provincial Authorities (IPO))

Government ICT Unit (ICTU)

The Government ICT Unit (ICTU) is a non-profit organisation, commissioned by the central government to execute different programmes. It plays an important role for the governance of the Netherlands and is responsible for the following:

- helps the government to develop generic ICT solutions;

- manages NORA, the Dutch Government Reference Architecture, and can help for the establishment or assessment of a Project Start Architecture;
- helps governments with practical, administrable advice when designing projects or managing external parties;
- develops registers and data standards;
- develops solutions for the exchange of information between organisations and applications for digital interaction with end users;
- manages complex programmes and projects;
- implements working solutions across organisational boundaries;
- develops tools, which are later maintained by Logius.

Governance roles in term of institutional roles can be described by stating that ICTU supports the government with the development, introduction and implementation of innovative ICT applications (mainly government wide solutions).

It is Chaired by the Ministry of Education, Culture and Science, and has the following members:

- Ministry of Social Affairs and Employment - treasurer
- National Police
- Association of Water Boards/Schieland and Krimpenerwaard
- Employee Insurance Agency (UWV)
- Statistics Netherlands (CBS)
- Association of Dutch municipalities/ Municipality of Almere
- Association of provincial authorities / Province of Overijssel

Management is conducted by:

- General Director
- Director Consultancy
- Director Projects
- Director of Operations

3.9.4 Operational level

Logius and Directing Boards are the bodies on operational level.

Government Shared Services for ICT (Logius)

Logius offers a cohesive ICT infrastructure to public service providers so that citizens and businesses can reliably, quickly and easily conduct electronic business with them.

Logius:

- manages government-wide ICT solutions and common standards;
- supplies products relating to access, data exchange, standardisation and information security;
- takes control of, maintains and further develops products, as well as promotes their use;
- offers a cohesive ICT infrastructure to public service providers so that citizens and businesses can reliably, quickly and easily conduct electronic business with them.

Logius is a digital government service agency of the Ministry of the Interior and Kingdom Relations. Logius also comprises the Secretariat of the Standardisation Forum. It receives advice from the Programme Council, an advisory body which represents the customers of Logius

Initially the institution was called Joint Management Organisation Government (Gemeenschappelijke Beheerorganisatie Overheid (GBO.overheid)), and was renamed to Logius in 2010"

The governance bodies are represented by:

- Managing Director
- Head of Organisation Staff, Deputy Director department
- Head of Infrastructure & Service department
- Head of Access Services department
- Head of Portal Services department
- Head of Information network Services department

3.9.5 Artefacts scoping the governance models

The Netherlands's governance is scoped by the Government-wide implementation agenda for digital services in 2017. The agenda aims to contribute to better (digital) services for citizens and businesses. It outlines what needs to be done achieve an accessible digital government in 2017 and the means and ways to achieve it collaboratively, and to satisfy the coalition agreement of 2012 stipulating that citizens and businesses should be able to deal digitally with the government by 2017⁵³.

The implementation agenda combines the ambitions and agendas of the different government agencies. It highlights the milestones of what government organisations should achieve in the coming years, both in joint projects, such as legislation, and separately by the different organisations. The agenda positions the Ministry of the Interior and Kingdom Relation as its main managing body for the implementation.

The agenda discusses three types of implementation activities, which can differ per government level:

- activities, aimed at providing digital services from the perspective of citizens, businesses and other organisations and their use (Service agenda);
- activities, aimed at advance and improve the (consistency of) the generic digital infrastructure to make possible the provision of digital services (Building block agenda);
- activities, directed at connecting government organisations through the generic digital infrastructure building blocks (Connectivity agenda).

The agenda outlines the different activities for the different administration levels, also referred as government family (overheidsfamilie) (provinces, municipalities, water boards, policy departments, big and small implementing organisations). The suggested activities have indicated year of completion. It further discusses the activities under each of the three agendas – Service, Building block and Connectivity.

⁵³ "The provision of services by public authorities must be improved. By 2017 at the latest, businesses and the public must be able to conduct their business with local authorities – such as applications for permits – online. Entrepreneurs who use the Ondernemingsdossier, a scheme to ease the regulatory burden for business, will only have to provide their business details once, which will then be shared with the relevant authorities." Read more on <https://www.government.nl/government/documents/reports/2012/10/29/coalition-agreement>

The agenda refers to the need of interoperability and the need of establishing standards which have been agreed and implemented.

Additional documents scoping the Netherlands' governance model are presented in Table 9.

Table 9 Documents scoping the Netherlands' governance model

Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
<u>Dutch Code of Good public administration</u>	Guidelines	The document gives guidance on good public administration	While the document does not relate explicitly to interoperability, it is a general code for governance on governmental level, and this makes it a relevant document in this context with regards to governance.
<u>The Netherlands - National Commissioner for Digital Government (Digi-commissioner)</u>	Factsheet	Describes the function of the digital commissioner	The position of Digital commissioner related closely to IOP
<u>Governance, management and development of NORA</u>	Guidelines	The document outlines the governance structure of management and development of the Dutch Government Reference Architecture (NORA)	The NORA is the NIF in the Netherlands, and thus it is relevant to IOP

2017 Update

This section of the report was in the scope of SC288 D04.02 Report *Interoperability collaboration governance models* completed in 2016. Although it is not within the scope of this year report to reopen the data collection, the research team would like to highlight a few changes that took place since the close of the data collection in August 2016.

The Dutch general elections took place in March 2017. A new cabinet was appointed on 26 October 2017, which saw the creation of the following new portfolios:

- Within the Ministry of Interior and Kingdom Relations, the function of the Minister for Housing and Central Government Sector disappeared and the Minister of Interior and Kingdom Relations together with the State Secretary of the Interior and Kingdom Relations took over its responsibilities: respectively in the area of open government and open data for the Minister and information society and government for the State Secretary
- The Ministry of Economic Affairs became the Ministry of Economic Affairs and Climate.

The changes highlighted can be seen as minor and rather aesthetic, as they do not impact the structure of the governance model.

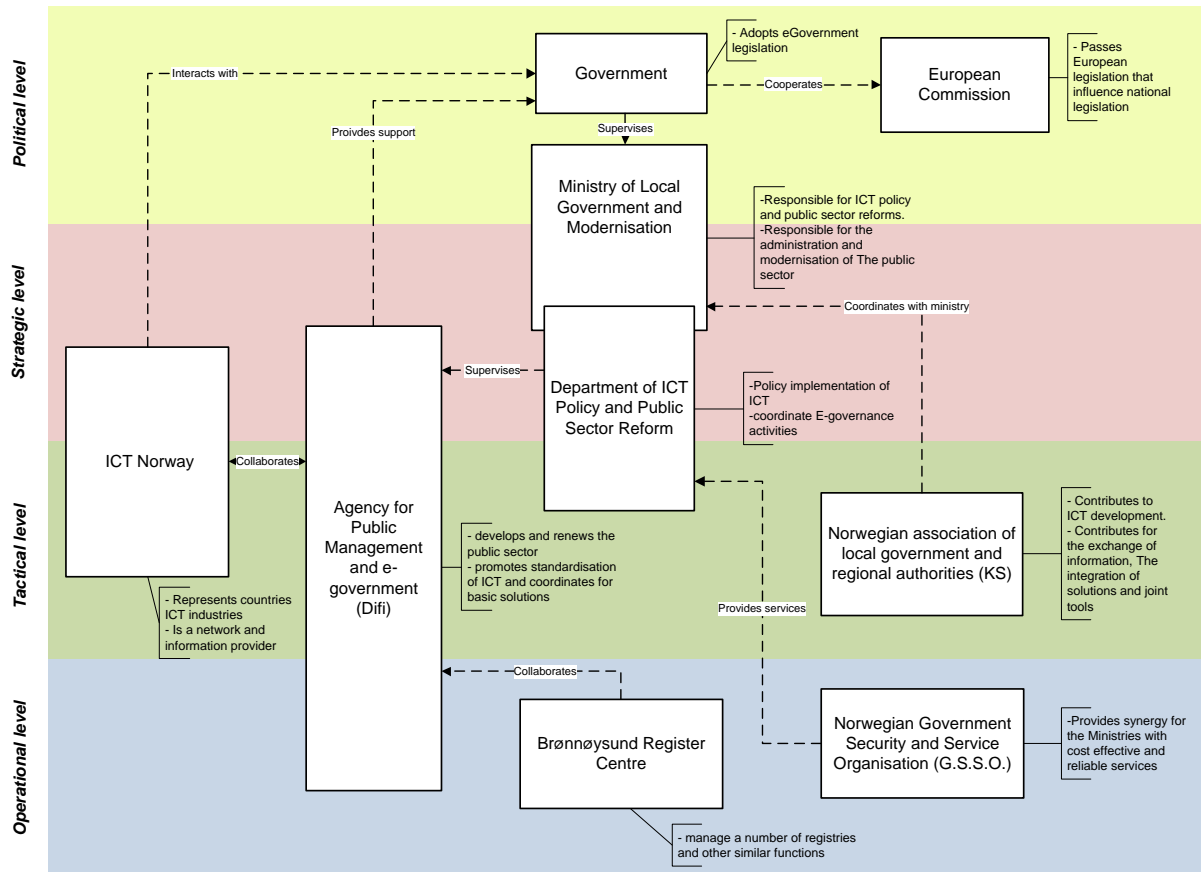
As for the artefacts, in December 2016, the Council of Ministers adopted a new "DigiProgramme 2017", adding one relevant artefact to the Dutch governance model.



3.10 Norway

This section describes the governance structure of Norway, as illustrated in Figure 14. Subsequently, the key actors are outlined along the levels of governance.

Figure 14 Governance model of Norway



Artefacts scoping this governance model

- Digital Agenda for Norway (2017-2020)
- Digitising Public Sector Services- Norwegian e-government Programme



3.10.1 Political level

The Government

Norway's government (Council of Ministers) cooperates closely with the EU and the EU Member States. One of the Norwegian government's top priorities is that Norway participates in the Digital Single Market. In addition, the EU's Digital Single Market Strategy provided an important basis for the Digital

Agenda for Norway. Norway follows the EU's work in this area closely, and plays an active role, presenting proposals and points of view to promote Norway's interests⁵⁴.

Ministry of local Government and Modernisation

The Ministry of Local Government & Modernisation is responsible for the ICT Policy and Public Sector Reform. In particular, it is responsible for the administration and modernisation of the public sector.

The department of ICT Policy and Public Sector Reform fulfils the Ministry's responsibility for national policies and strategies regarding Information Society and the government's administration policy in general, and the national ICT policy in specific. It also supervises the Agency for Public Management and e-government (Difi).

3.10.2 Strategic level

Ministry of local Government and Modernisation, Department of ICT Policy and Public Sector Reform

On the strategic level, the department of ICT Policy and Public Sector Reform is responsible for:

- the coordination of the government's efforts to reform and recondition the public sector;
- the formulation of the strategy for the use of ICT in society including, amongst other things, government use of organisational structures and other supervision instruments; and
- the oversight of the Agency for Public Management and e-government (Difi).

Agency for Public Management and e-government (Difi)

The Agency for Public Management and e-government (Difi) was established in January 2008, following a merger of the previous public agencies Statskonsult, Norway.no and the Norwegian e-procurement Secretariat. The Ministry of Local Government and Modernisation oversees the agency. Its main roles are to strengthen the coordination in order to help develop and renew the public sector. It seeks to ensure that ICT development becomes more standardised and coordinated, and based on reuse and common solutions. Difi also gives advice to other bodies of the Norwegian central government by giving institutional building assistance.

ICT Norway

ICT-Norway is an association representing the country's ICT industry. Its overall strategy is to create good business and development opportunities for its members, to promote their interests and to provide effective, value-added services. To achieve this strategy it interacts with the Norwegian government as well as regional and local authorities. ICT Norway is also member of different national committees, such as the UK-Nordic Fintech Regulatory Working Group or the Electricity Safety Committee.

⁵⁴ https://www.regjeringen.no/en/dokumenter/work_programme_2017/id2536921/

3.10.3 Tactical level

Ministry of Local Government and Modernisation, Department of ICT Policy and Public Sector Reform

On tactical level, the Department of ICT Policy and Public Sector Reform is responsible for the work associated with policy implications concerning the prevalence of ICT in the public sector. It has an active, horizontal presence in the implementation process, as it is the main body responsible for initiating and administering policies related to ICT and e-government.

Agency for Public Management and e-government (Difi)

On tactical level, the Agency for Public Management and e-government (Difi) inspects public and private organisations to ensure that their web-based solutions and self-service machines fulfil universal design requirements. Additionally, the agency provides public sector managers with advice and assistance with official reports and evaluations.

ICT Norway

On tactical level, the ICT-Norway acts as a problem solver and a network, information, contacts and resource provider. It also organises different events for its members and represents them during events in other countries.

Norwegian Association of Local government and Regional authorities

Norwegian Association of Local government and Regional authorities (KS) is an association of municipalities aiming, in cooperation with its members, to contribute to ICT development by:

- protecting the municipal sector's interests with respect to central authorities, suppliers and other interest groups;
- contributing to the development of standards and requirement specifications for the exchange of information, integration of solutions and joint tools, ideally in cooperation with central authorities;
- inspiring and contributing to competence development in the municipal sector through proposals and recommendations, benchmarking, development of guidelines and establishing experience exchange networks.

KS holds regular meetings with the Ministry of Local Government & Modernisation, at political and administrative levels. It also participates in several boards, committees and working committees in other Ministries and various government departments that deal with ICT issues.

3.10.4 Operational level

Agency for Public Management and e-government (Difi)

On operational level, Difi implements a variety of projects and activities in areas such as: the analysis of various instruments used in public administration management and providing assistance with reorganisation processes in the public sector; the development of human resources in state administration and ICT development in the public sector; and communication facilitation for citizens.

Norwegian Government Security and Service Organisation (G.S.S.O.)

G.S.S.O. was established in 1979 and is a government agency aimed at providing synergies for the Ministries with cost-effective and reliable shared services, including the running of computer systems. It reports directly to the Ministry of Local Government & Modernisation for improving the way the national government functions.

Brønnøysund Register Centre

The Brønnøysund Register Centre is a government agency subject to the Ministry of Trade and Industry. It administers several registers for public administrations, offering solution in e-government and e-administration. They further develop and operate digital services that streamline, coordinate and simplify dialogue with public bodies for private individuals and organisations. The Brønnøysund Register Centre operates many of the country's most important registers and have responsibility for the administration of Altinn. The Altinn platform is a digital infrastructure that maintains the digital communication of both private individuals and business with the public sector.

3.10.5 Artefacts scoping the governance models

Several strategic documents design the ICT Governance model of Norway, among which the Digital Agenda for Norway, the Digitising Public Sector Services- Norwegian e-government Programme, the Difi Strategy 2017-2020 and the Cloud Computing strategy for Norway are most relevant.

Digital Agenda for Norway

The Norwegian Government adopted an ICT Strategy for the period 2015-2016: the Digital Agenda for Norway. It has two key objectives: to ensure a user-centric and efficient public administration and to achieve value creation and inclusion by using digital services. The Strategy has five key priorities:

1. User centric focus;
2. ICT should constitute a significant input factor for innovation and productivity;
3. Strengthened digital competence and inclusion;
4. Effective digitalisation of the public sector;
5. Sound data protection and information security.

Under its third priority, 'Strengthened digital competence and inclusion', the digital agenda explicitly states that *"Interoperability with European solutions shall be facilitated"*.

Digitising Public Sector Services: Norwegian e-government Programme

A strong and efficient public sector is needed to ensure a good development of the Norwegian society. The ambition of the Government is that Norway shall be at the forefront internationally in terms of development of a digital public sector. Digitisation will generate noticeable improvements across the public sub-sectors during the coming years. Digitisation will result in both more positive and faster interaction with the public sector for citizens and businesses alike as well as in more efficient use of public sector resources.

The objectives of the Government include:

- The public sector should be accessible online to the greatest extent possible;

- Web-based services should be the general rule for the public sector's communication with citizens and businesses;
- A digital public sector should result in improved services

The Digitising Public Sector Services Norwegian e-government Programme refers to different ICT standards, such as for information security, for a common digitisation platform, eInvoicing and others. It further mentions interoperability as an architectural principle for the State's ICT solutions.

Table 10 presents further documents scoping the Norway governance model.

Table 10 Additional documents scoping Norway's governance model

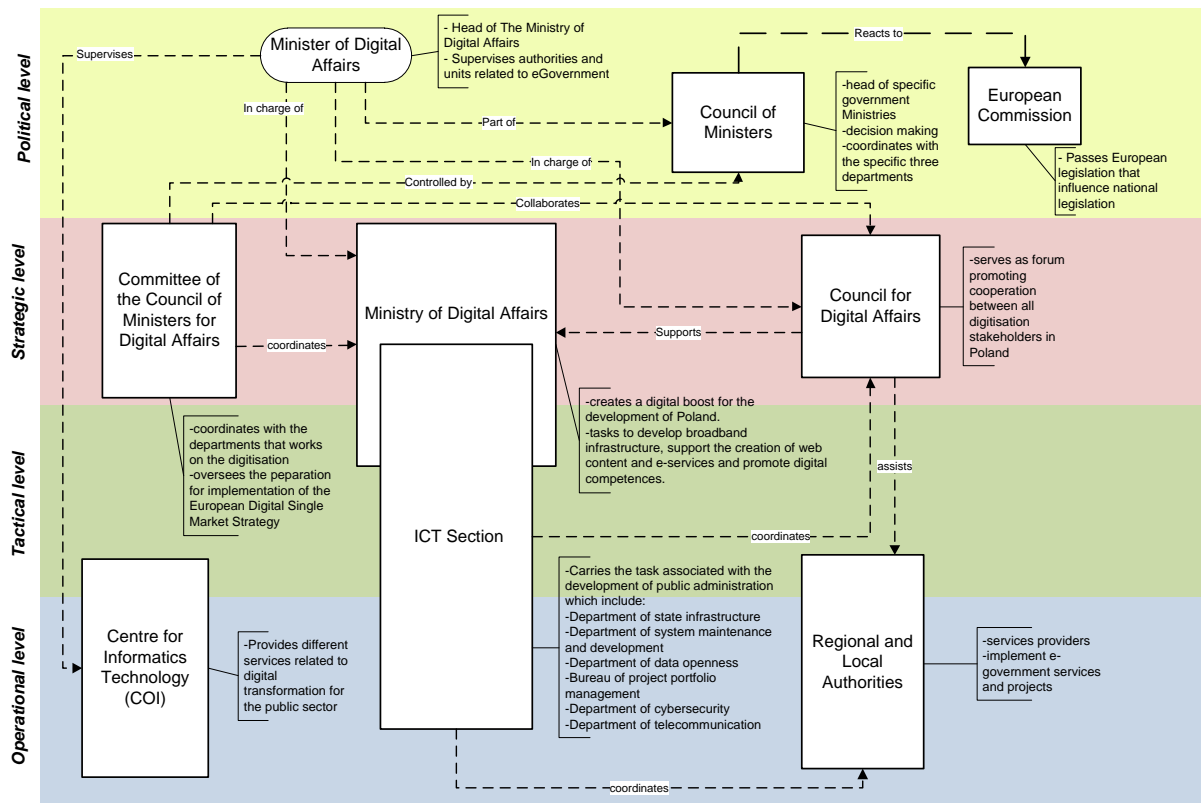
Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
Difi Strategy 2017-2020	Strategic	Explains the goals that are to be achieved in the field of public administration by digitalisation.	Difi being one of the main acting bodies in Norway's ICT governance has direct effect on interoperability in the state.
Cloud Computing strategy for Norway	Strategic	The strategy promotes the use of cloud computing in the public service provisioning and public sector digitisation wherever cloud services promise the best result and most cost-effective solutions	The use of cloud computing requires the thorough implementation of interoperable services in order to leverage cost-efficiency and effectiveness of modernisation. The strategy is promoted by the Ministry of Local Government and Modernisation



3.11 Poland

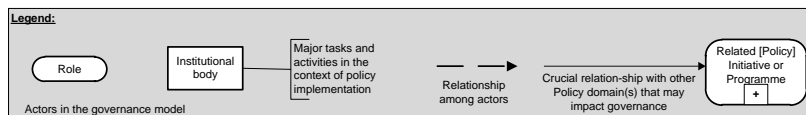
This section describes the governance structure of Poland as illustrated in Figure 15. Descriptions of the core actors of each of the four levels subsequently follow.

Figure 15 Governance model of Poland



Artefacts scoping this governance model

- Digital Poland 2020
- Programme of Integrated Information Technology for the State 2020 (PZIP)
- Programme of Integrated Information Technology for the State 2020 (PZIP)- Action Plan of the Ministers of Digital Affairs



3.11.1 Political level

Minister of Digital Affairs

The Minister of Digital Affairs is the head of the Ministry of Digital Affairs. She is responsible for the following entities relevant to e-government:

- Authorities supervised by the Minister of Digital Affairs:
 - Electronic Communication Office, who is the national regulatory authority for the market of telecommunications and postal services.
- Units supervised by the Minister of Digital Affairs:
 - Centre for Informatics Technology, a digital organisation established by the Ministry of Digital Affairs
 - Institute of Innovative Technologies EMAG, which aims, *inter alia*, to improve existing devices, technologies and systems that contribute to better efficiency of industrial processes, better work safety and life quality, and to develop innovative solutions.

- Research and Academic Computer Network is a national research institute subordinate under the auspices of the Ministry of Digital Affairs. Its key activities concern ensuring the security of Internet.
- Units subordinate to the Minister of Digital Affairs:
 - Digital Poland Projects Centre and intermediate body, responsible for the implementation of different European Programmes.

Council of Ministers

The Council of Ministers is the executive of the Polish government. The Prime Minister heads the Council of Ministers. The Council of Ministers discusses and approves legislation and initiatives related to digitisation. The Minister of Digital Affairs is a member of the Council of Ministers.

3.11.2 Strategic level

Ministry of Digital Affairs

The Ministry of Digital Affairs was established on 16 November 2015 and replaced the Ministry of Administration and Digitisation founded in November 2011. With the new Government from November 2015, the Ministry focuses on computerisation and telecommunications changing the scope and name into 'Ministry of Digital Affairs'. The mission of the Ministry is to create a digital boost for the development of Poland. The main tasks of the Ministry are to develop broadband infrastructure, support the creation of web content and e-services and also to promote digital competences among citizens.

Digitisation is also key to modern administration in Poland. Effective digitisation is based on three pillars: providing internet access, developing web content and services, and promoting digital competences. Within the Ministry of Digital Affairs, the **ICT Section** carries out tasks associated with the development of electronic public administration in Poland, which are mostly on tactical and operational level.

Several Departments of the Ministry have relevance on this strategic level. These are as follows:

- The Department of Data Openness and Digital Services Development: drafts legislative proposals that help create information society in Poland. This department participates in EU- and other international organisations related works.
- The Department of Telecommunication, which develops opinions on draft legal acts and strategic plans and programmes, as well as cooperates with the EU bodies and international organisations in the field of telecommunications.
- The Digital Champion's Team, which supports digital activity and building digital awareness. It further advises public and non-public institutions, which share citizen-oriented information and services in electronic form. The Digital Champion's Team creates and supports digital-oriented campaigns, initiatives and partnerships. It promotes and implements the DSM Strategy, as well as supports the Minister of Digital Affairs and its affiliated departments/organisations in that area. Finally, it advises in the planning of activities of the Broad Alliance for Digital Skills in Poland.
- The Department of Telecommunication is responsible for matters related to legal regulations in the field of telecommunications, development of telecommunications networks and services, including broadband networks, the execution and implementation of the National Broadband Plan.

- The Department of Cyber Security takes care of cyber security risks, for instance development and implementation of strategic documents and legal acts in the field of cybersecurity. These include national and international cooperation and others; development of guidelines and standards for the appropriate measures of the ICT systems' protection; preparation of analyses on cybersecurity and its risks to the security of state; as well as development of the central training plans, exercises and tests. Within its tasks, the department cooperates with universities, institutes, non-governmental organisations and the private sector. It also carries out tasks related to the Ministry's supervision of the Scientific and Academic Computer Network (NASK)⁵⁵.

Committee of the Council of Ministers for Digital Affairs

Committee of the Council of Ministers for Digital Affairs⁵⁶ is a subsidiary body of the Council of Ministers and the Prime Minister. One of its primary roles is to coordinate the departments that work on the digitisation of the country across whole Government. Participants from all Polish Ministries form it. The purpose of the Committee's work is to achieve synergy through digitisation, coordination, cooperation and creativity. Finally, the Committee will also oversee the preparations for the implementation of the EU's Digital Single Market Strategy and the implementation of the National Integrated Informatisation Programme.

Council for Digital Affairs

The Council for Digital Affairs⁵⁷ is a think-tank whose members lend their knowledge and experience to the Ministry of Digital Affairs and the Committee of the Council of Ministers for Digital Affairs by providing their opinion to the latter. More specifically, the Council gives its opinion on the strategic documents and other documents related to digitisation, connectivity and development of the information society. It works for example in areas such as digital inclusion, protection of privacy on the network, removal of barriers to the development of the electronic economy, the reform of intellectual property rights on the network.

3.11.3 Tactical and operational level

ICT Section of the Ministry of Digital affairs⁵⁸

The Ministry of Digital Affairs consists of many departments, which particularly act on tactical and operational levels to implement the Digital Poland 2020 Strategy, as follows:

- The Department of Systems Maintenance and Development develops and maintains registers, records and systems as well as makes available register data. Among the registers kept are: PESEL, ID Register, Register Office Record, Central Record of Issued and Invalidated Passports, Central Record of Drivers, Central Record of Vehicles, Central Record of Parking Card Holders, or e-PUAP.

⁵⁵ NASK is a national research institute under supervision of the Ministry of Digital Affairs. It researches topics such as internet security, network systems, biometric authentication methods etc.

⁵⁶ When writing this document the Committee was discussed under this link <https://mc.gov.pl/en/the-areas-of-our-activity>. However, since then there have been some changes in the Polish platform and information is missing, probably due to reorganisation. Therefore, the links have been removed.

⁵⁷ Same situation as the link before.

⁵⁸ This formulation follows the eGovernment factsheets (available here: https://joinup.ec.europa.eu/sites/default/files/inline-files/eGovernment_in_Poland_April_2017_v4_00.pdf), which were approved by a representative from each Member States.

The Department runs projects such as pl.ID, CEPIK 2.0 and it takes measures for better quality of data in the registers the department maintains.

- The Department of Data Openness and Digital Services Development enables access to public sector information.
- The Department of State Infrastructure develops of the Common ICT Infrastructure, which is to serve as an integration platform to use effectively all of the infrastructure resources that are available. The department also coordinates the implementation of the Programme of Integrated Information Technology for the State 2020 (PZIP).
- The Department of Digital Competences aims to raise general awareness over how technology can be used and how it can help solve problems of everyday life. Their tasks include creating both technical and organisational conditions for the use of digital services, as well as the promotion of related competences among the society.
- The Department of Data Management ensures cooperation between public administration entities and entrepreneurs to develop data-driven management methods and to enhance the efficiency of administration.
- The Department of Public Information Management facilitates citizens' access to information on public administration and services provided to citizens in Poland. It integrates ministerial websites to create one information portal of the Government as the primary source of information on governmental administration in Poland and on the way, citizens deal with official matters. The department will ensure that websites are accessible to everyone, including people with disabilities.

Centre for Informatics Technology

The Centre for Informatics Technology (COI) is a public institution established by the Ministry of Digital Affairs. COI is a think tank and a centre of digital skills. COI includes not only ICT experts, but also service and user experience designers, professional trainers, communication specialists, project managers and public procurement experts. They deliver key digital projects for the government institutions, such as the eDok electronic management system, which also has a version for employees: eDok Pracownik and one for archiving and sharing information: eDoc Archiwum.

Regional and Local Authorities

Regional and local authorities implement e-government services and projects falling within their respective jurisdiction. They are in charge of conceiving and designing regional strategies regarding the development of e-government services in accordance with the national strategy.

3.11.4 Artefacts scoping the governance models

The Digital Poland 2020, the Programme of Integrated Information Technology for the State 2020 (PZIP) and the related Action Plan of the Minister of Digital Affairs (SIP) scope Poland's governance structure.

Digital Poland 2020

The aim of the programme is to strengthen the foundations for the development of a digital country, including broad access to high-speed Internet, efficient and user-friendly public e-services and the ever-increasing level of digital literacy in society.

The main directions of support will be to develop broadband networks and to improve the quality and efficiency of public services through their digitisation. The method of implementing e-services will include mechanisms to prevent the phenomenon of 'digitisation bureaucracy', forcing the positive impact of projects on administrative processes, and to train as many people as possible in the use of ICT to improve the quality of their life, social life and increase the competitiveness of the labour market.

This Strategy refers to needs of interoperability and the need of establishing standards, which has been agreed and implemented.

Programme of Integrated Information Technology for the State 2020 (PZIP)

A new approach to computerisation of the state will enable the integrated computerisation of the State by building a state model, called optimum 2.0. This will facilitate the development of public services at the national and local levels of government, which will be monitored and improved through the dynamic development of digital technologies and the development of digital resources and content. The aim of the programme is to promote computerisation among citizens and businesses, but also to the administration by providing access to useful tools that are safe, simple to use, universally accessible and technologically neutral. From the point of view of the citizen, this programme will support official businesses in a convenient electronic way, saving time, without having to visit the authorities physically. This programme will have four pillars:

- Logical and efficient flow of information to help citizens perform their duties to the state and support them in the realisation of their aspirations;
- Focus on processes in public administration and the services it provides;
- Transparency and efficiency in public spending, all selected and implemented solutions must ensure the lowest possible costs;
- Technological neutrality, ensuring that access to services and supplies for the administration are not limited to and arise only from functional needs.

The selection of solutions provides the ability to change the solutions' provider, if the cooperation with the current one does not guarantee the fulfilment of the expectations of the public site. Detailed information on actions implemented within PZIP are updated periodically.

The Programme sees the need for interoperability as an enabler for the co-operation between existing and new ICT systems of public administration, while eliminating any duplicating functionality.

Programme of Integrated Information Technology for the State 2020 (PZIP) – Action Plan of the Minister of Digital Affairs (SIP)

The Ministry of Digital Affairs has collated some crucial guiding principles as a reference point for any e-government actions. These are part of the Action Plan of the Minister for Digital Affairs for the PZIP and are as follows:

- The state should serve the citizen. With the help of digital technology, the state should connect dispersed institutions and change complex procedures into consistent and simple services;
- Access to the public network and services must be safe for our data and all types of transactions conducted in the network;

- In order to pursue e-administration targets, and above all, to achieve social and economic goals, it is necessary to accelerate the development of modern telecommunications infrastructure;
- The development of the desired innovative economy needs permanent and easy access to data gathered by public services;
- The need to improve the level of citizens' digital competences constantly, regardless of their age, to effectively benefit from digitisation and competition on the global market.

This paper aims to outline a list of priorities, which will be taken up by the Minister of Digital Affairs as part of the government's agenda.

As the list of priorities focuses on the digitalisation of the public services and providing one portal of information and services of government administrations, this implies the need for interoperability and connectivity between all government sites and the services offered by them.

Table 11 presents additional documents scoping Poland's governance model.

Table 11 Documents scoping Poland's governance model

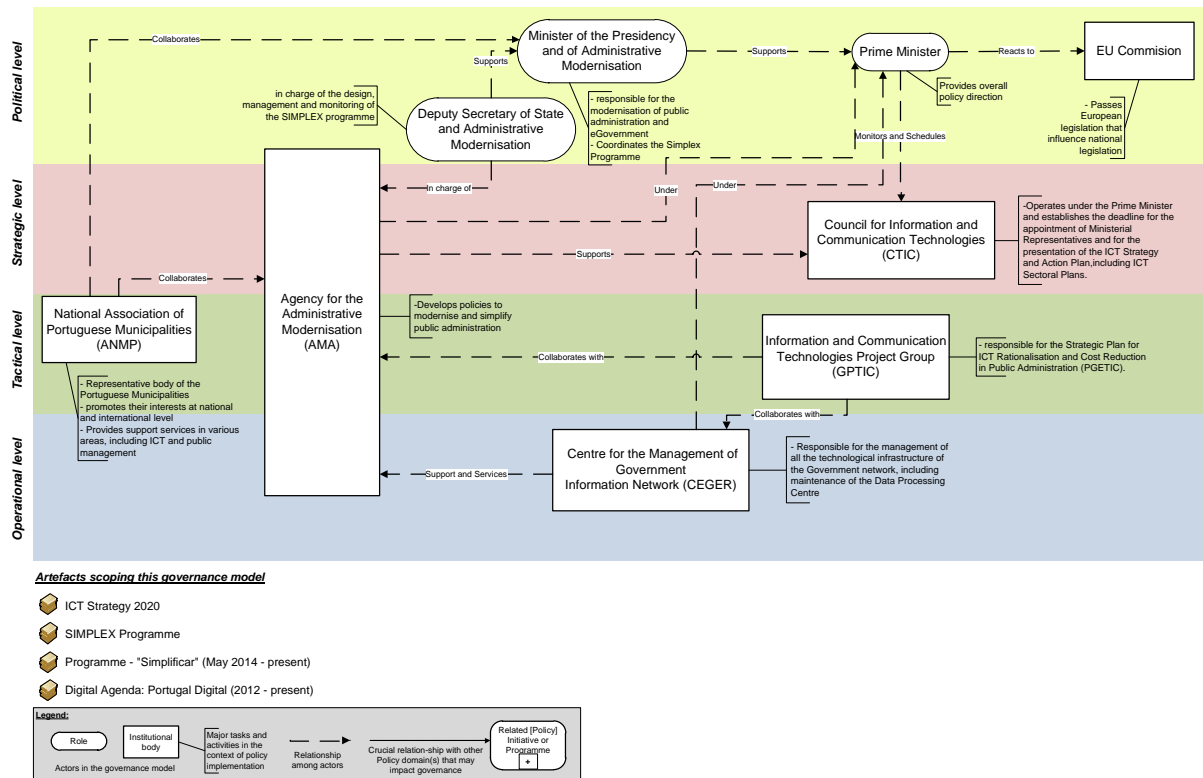
Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
<u>Programme for Opening Public Data (2016)</u>	Programme	The main aim of the programme is the improvement of quality and quantity of available data via single website (danepubliczne.gov.pl). It will also increase transparency of public administration and facilitation of citizens' participation in governance, analysis and public data re-use.	It has an objective to improve interoperability and encouraging better usage of standards
<u>Paperless and Cashless Poland programme</u>	Programme	Paperless&Cashless Poland is the governmental programme aimed at digitising services, processes and transactions. Its main objectives are to: <ul style="list-style-type: none"> • Improve the functioning and utilisation of public infrastructure • Stimulate more effective fulfilment of responsibilities by the state • Create appropriate conditions for the development of innovative and competitive economy 	As the programme aims to digitalise services, it needs to have interoperability in mind to ensure this smooth transition and collaboration between different digital platforms for instance. It also mentions the "Developing interoperable intelligent transport systems and cargo flows e-services in supply chains" as one of its 13 streams focus on limiting paper documentation and manual processes in administration and increasing cashless circulation



3.12 Portugal

This section describes the governance structure of Portugal as illustrated in Figure 16. Subsequently, the key actors are outlined along the levels of governance.

Figure 16 Governance model of Portugal



3.12.1 Political level

Prime Minister

The President appoints the Prime Minister (the head of the leading party), who appoints the other members of Government (Ministers and State Secretaries). He is head of the Council of Ministers, which is the highest executive authority approving legal and strategic documents related to e-government.

Minister of the Presidency and of Administrative Modernisation

The Minister of the Presidency and of Administrative Modernisation is responsible for the modernisation of public administration and e-government. Furthermore, her role involves the overall coordination of the Simplex Programme, together with the Prime Minister.

Deputy Secretary of State and Administrative Modernisation

The Deputy Secretary of State and Administrative Modernisation is responsible for the modernisation of public administration and e-government. She is in charge of the Agency for Administrative Modernisation (AMA). She is further in charge of the design, management and monitoring of the SIMPLEX programme with the technical support provided by the Agency for Administrative Modernisation.

Agency for Administrative Modernisation (AMA)

The Agency for Administrative Modernisation (AMA) exercises the powers of the Prime Minister's Office in the fields of administrative modernisation, simplification and digital administration, under the supervision and tutelage of the Deputy Secretary of State for Administrative Modernisation.

3.12.2 Strategic level**Agency for the Administrative Modernisation (AMA)**

Created in 2007 within the Presidency of the Council of Ministers, the AMA is the Portuguese public body in charge of the modernisation of public services and administrative and regulatory simplification. The promotion of e-government and the improvement of public services delivery are some of its main competences. AMA also coordinates measures, programmes and projects aimed to modernise and simplify the public administration, the electronic administration and the distribution of public services. On the strategic level, AMA:

- Helps to define the strategic objectives and general policies concerning digital administration, administrative simplification and the distribution of public services, including interoperability in Public Administration;
- Ensures the external representation and establishes cooperation relationships within its assignments with other foreign entities, namely within the European Union and Lusophone countries;
- Issues a preliminary opinion and follows-up on projects concerning public investment (*Programa de Investimento e Despesas de Desenvolvimento da Administração Central - PIDDAC*) and issues a preliminary opinion about the allocation of European funding, in the context of administrative modernisation and simplification and digital administration;
- Boosts and coordinates the inter-ministerial network of modernisation and administrative simplification agents;
- Promotes studies, statistical reviews and forecasts and stimulates activities of research, technological development and divulgation of good practices in the areas of administrative and regulatory simplification and digital administration;
- Proposes the creation and direction of project teams to carry out, develop, and assess actions of modernisation and administrative and regulatory simplification, by assessing administrative costs of the legislation, for purposes of corrective simplification.

The AMA is responsible for the realisation of the SIMPLEX programme.

Council for Information and Communication Technologies in Public Administration (CTIC)

CTIC, the 'Council for Information and Communication Technologies in Public Administration', is the coordination structure responsible for operationalising the strategy and the global action plan for ICT in the Public Administration. It was established by Ministers Council Resolution no. 33/2016, of June 2016, with the respective attribution of competences. It is intended to effectively articulate with the SIMPLEX Programme in order to recover measures that take advantage of the transformative potential of ICTs and to implement new measures that will improve the quality of citizen's life and reduce the costs for companies. CTIC brings a new

governance model for ICT in the Public Administration, open to society and adjusted to the Government's objectives, thereby enabling the effective development of a global ICT strategy.

CTIC aims to:

- Promote the study of ICT in the public administration, including the analysis of information systems and organisational structures;
- Study and elaborate the strategy and the plan of action for the ICT in the public administration, the ICT Strategy;
- Implement the measures contained in the ICT strategy that it can perform directly;
- Monitor the implementation of measures taken by other entities, including the measures contained in sectoral ICT plans, and monitor the integration and alignment of sectoral action plans within the ICT strategy;
- Propose the annual goals and objectives for the execution of the initiatives and governmental measures, in line with the proposed Law of the State Budget, as well as the medium and long term goals.

3.12.3 Tactical level

Agency for the Administrative Modernisation (AMA)

On the tactical level, the AMA implements initiatives to modernise and to simplify public and electronic administration. It further develops, coordinates, and evaluates measures, programmes, and projects in the areas of modernisation and administrative simplification and regulation, of electronic administration and distribution of public services. It also manages and develops networks of shops for citizens and companies, in a system of multiservice helpdesks, integrated and specialised, articulating with voice and network assistance systems. It promotes central, regional, and local policies in the field of information society, through the management of Internet spaces and other similar spaces that it administers, consulting with further entities with assignments in information society, whenever justified. Finally, it supports the preparation and implementation of e-learning platforms and solutions

National Association of Portuguese Municipalities (ANMP)

The National Association of Portuguese Municipalities (ANMP) is the representative body of the Portuguese Municipalities. It represents, promotes, and protects the interests of the municipalities and parishes before the organs of sovereignty. It further represents its members before national or international organisations. It further provides support services in various areas, including ICT and public management. It carries out of studies and projects on relevant subjects for their members. It further develops information actions for local elected representatives and provides training for local government personnel. It finally fosters the exchange of experiences and information of a technical-administrative nature among its members.

Information and Communication Technologies Project Group (GPTIC)

The GPTIC aims to study and analyse the ICT structures in Public Administration and to study and elaborate a global strategic plan for rationalisation and cost reduction of ICT in Public Administration. The group is responsible for the Strategic Plan for ICT Rationalisation and Cost Reduction in Public Administration (PGETIC). It further implements the measures contained in PGETIC, monitors and ensures its correct and timely implementation. The Prime Minister nominates a representative to chair it. GPTIC further includes a

representative appointed by the member of the Government responsible for the area of administrative modernisation; a representative appointed by the member of the Government responsible for Public Administration; by the AMA, by CEGER and by the Institute of Informatics.

3.12.4 Operational level

Agency for the Administrative Modernisation (AMA)

The AMA coordinates and plays an active part in the implementation of several initiatives such as licensing (Zero Licensing and Industrial Licensing) and public services' delivery; Citizen Shops and Citizen Spots (One-Stop-Shops with a stronger role of municipalities). The AMA also maintains the Common Knowledge Network (RCC) electronic platform, which works as an enabler for furthering information society. It is a knowledge-sharing network connecting the public, central, and local organisations, private entities and citizens who wish to participate in it.

Centre for the Management of Government Information Network (CEGER)

CEGER, under the Prime Minister, provides support to government bodies in the field of ICT. It is responsible for the management of all the technological infrastructure of the Government's network, including maintenance of the Data Processing Centre, technological equipment, systems, and the electronic communication network. In addition, CEGER focuses on electronic security and on advanced systems in support of Government decision-making. It also acts as the certification manager for the Electronic Certification System of the State - management of Public Keys (SCEE). It is the responsible entity for registration of GOV.PT Internet sub-domains.

3.12.5 Artefacts scoping the governance models

The main artefact scoping Portugal's ICT governance are the ICT Strategy 2020, the SIMPLEX Programme, the Programme Simplificar and the Digital Agenda: Portugal Digital.

ICT Strategy 2020 – Strategy for the digital transformation of the public administration

Portugal's new ICT strategy, published on 26 July 2017, focuses on government modernisation. The strategy makes technology “an instrument of transformation”. The goal is to reduce public sector costs, to improve public services, and to create new and prototype e-government services. One of the ways to achieve this is by sharing and reusing ICT resources.

The ICT Strategy 2020 aims “first and foremost, to ensure that digital services are simpler, more accessible, more inclusive, and accessible to all citizens”, as stated in the Executive Summary.

The Strategy is divided into three main axes:

1. Integration and interoperability
2. Innovation and competitiveness
3. Sharing of resources

The ICT plan details ten measures that emphasise interoperability as an essential best practice. Examples include an ICT reference architecture (measure 4), new eID functionalities (measure 5), a new ICT

competence centre to help increase ICT skills in public administrations (measure 9), and the creation of a government cloud and rationalisation of government data centres (measure 10).

SIMPLEX Programme

The Simplex Programme was launched in 2006 with the aim of making the everyday life of citizens and businesses easier by cutting red tape, reducing compliance costs and using ICT to deliver better public services. In 2008, a Simplex Programme for local authorities was launched. Since then each year, public bodies suggest simplification initiatives. Under the motto 'A strong, intelligent and modern state', the new Simplex Programme promotes a better relationship between citizens and public administration, as well as the reduction of costs for companies. The programme generates a number of measures to be implemented per year, e.g. the Portuguese government had to implement 255 measures by end of 2017.

The Simplex Programme brings, among many other measures, the sharing of services and resources and the improvement of management tools for public directors. This programme contains new one-stop shops where citizens can address a number of issues of daily life, organised according to the needs of citizens, such as a one-stop shop for vehicles-related matters, or the Employment One-Stop Shop.

SIMPLEX's objective underpins the whole legislative and administrative simplification process. The 2017 programme contains 110 measures for citizens, 88 measures for companies, 61 measures addressing both citizens and companies, 13 measures towards NGOs and 43 measures in the public administration.

The programme also includes initiatives such as the Participatory Budgeting Portugal and the Experimentation Laboratory of the Public Administration (LABx). The Participatory Budgeting Portugal allows civil society to decide on public investments in different governmental areas. The Experimentation Laboratory of the Public Administration (LABx) aims to design and test, along with all the interested parties involved, new services and administrative procedures, more adequate to the needs of citizens, businesses and public services.

The programme (indirectly) relies on interoperability, as the administrative simplification implies for instance sharing of standardised information, which different administrations can reuse.

Programme - "Simplificar" (May 2014 - present)

The Simplificar Programme defines an ambitious agenda for Portugal on administrative modernisation including reduction of bureaucracy and administrative simplification aiming to make life easier for citizens and businesses. It aims to create new service delivery models, simplification principles and strengthen interoperability measures. The 'one in, one out principle', the 'SME Test' and the involvement of the citizens through crowdsourcing mechanisms are just some of the highlights of the simplify programme. The programme is driven by three main principles forming the main strategic objectives:

- Only Once Principle
- Digital by default
- One-in, One-out

The programme also implies a permanent involvement of citizens, businesses and the public administration itself to identify administrative burdens. The Inter-Ministerial Network for Public Services Reform (RIMA) coordinates it.

The programme indirectly touches upon interoperability, as its strategic objectives, such as one only principle which relate to interoperability.

Digital Agenda: Portugal Digital (2012 - present)

The Portugal Digital Agenda, along with the Strategic Plan of ICT Rationalisation and Cost Reduction, approved by the Council of Ministers Resolution No. 12/2012, will make an important contribution to the achievement of the national objectives in the fields of administrative modernisation. The Council of Ministers approved it on 20 December 2012. It aims to contribute to the development of the Digital Economy and knowledge-based society, preparing the country for a new model of economic activity centred on innovation, knowledge and a new industrial policy, as a basis for the provision of new products and higher value-added services and targeted to international markets.

Its main goals are to:

- develop an adequate broadband infrastructure so that by 2020, all citizens will have access to broadband with a speed equal or faster than 30 Mbps and also, that 50% of households have access to broadband equal or faster than 100Mbps.
- increase by up to 50%, in comparison to 2011, the number of companies using e-commerce.
- ensure that 50% of the population is using e-government services by 2016.
- increase by 20%, from the 2011 figure, the value of exports of Portuguese ICT services.

The Digital Agenda is more relevant to the technical interoperability and infrastructure, as it concerns the increase the use of ICT services provided there is better ICT infrastructure.

Table 12 presents additional documents scoping Portugal's governance model.

Table 12 Documents scoping the Portugal's governance model

Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
<u>Decree-Law no. 73/2014 Of May 13</u>	Decision	Sets the necessary rules for the establishment, the management and the functioning of the general principles of action to which the services and public administration agencies in their work have to face the citizen, and brought together in a systematic way.	In the context of administrative modernisation, it has been given a decisive step towards consolidating Modernisation of Public Administration and, in particular, of its public service.

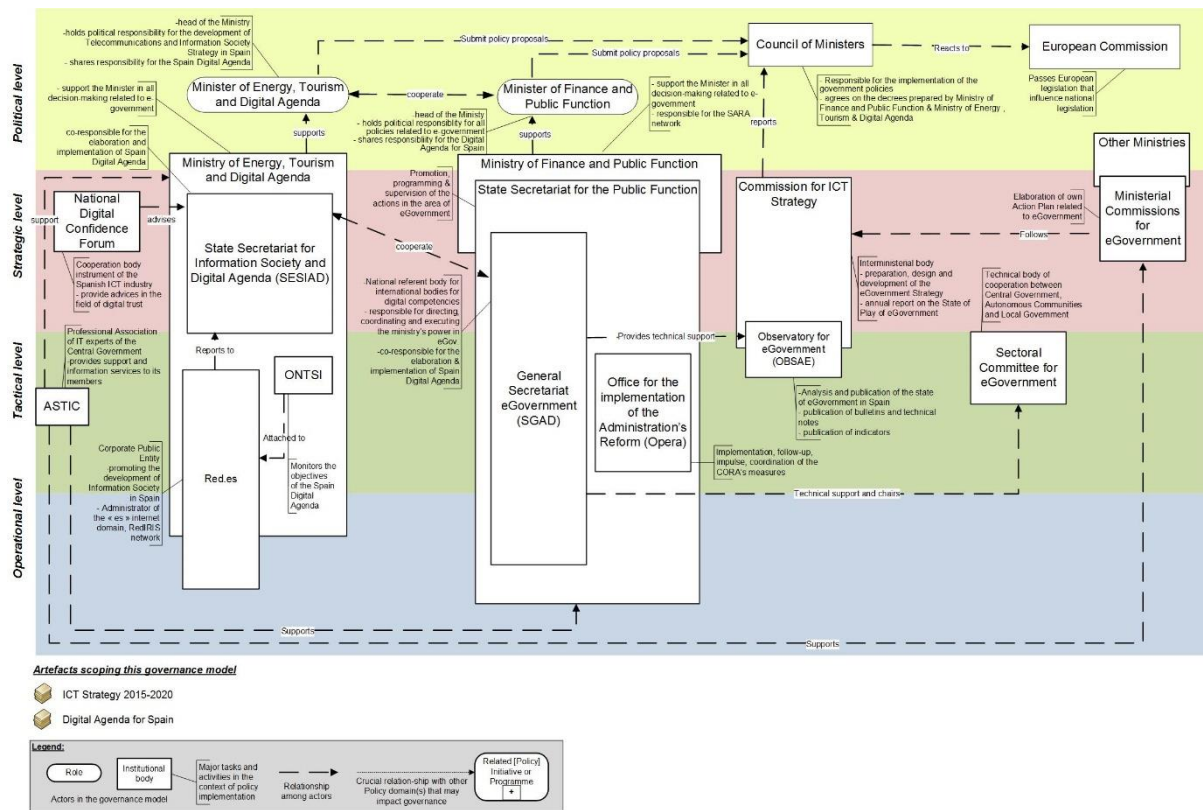


3.13 Spain

Spain is a constitutional monarchy. Legislative power is held by a bicameral Parliament (Cortes Generales) comprising a Lower House (Congress of Deputies) and an Upper House (Senate). Under the 1978 Constitution, Spain adopted a highly decentralised system with 17 autonomous regions (Autonomous Communities) enjoying self-government rights with regard to local affairs, in addition to two 'Autonomous Cities'. These communities elect their own parliaments, which, in turn, nominate Local Governments.

The overall ICT governance is presented in Figure 17.

Figure 17 Governance model of Spain



3.13.1 Political level

Council of Ministers

The Council of Ministers is the highest executive institution of the State and is composed of the Prime Minister, the Deputy Prime Minister, and all the other ministers. It has both policy-making and administrative functions and it is responsible for the implementation of government policy. In this sense, it is the political body in charge of approving the decrees prepared by the Ministry of Finance and Public Function and the Ministry of Energy, Tourism and Digital Agenda regarding e-government and the Digital Agenda for Spain. In addition, the Council of Ministers oversees the administration of the various Ministries.⁵⁹

Minister of Finance and Public Function

The Minister of Finance and Public Function is the head of the corresponding ministerial department. As head of the Ministry of Finance and Public Function, he holds the political responsibility for all e-government

⁵⁹ <http://countrystudies.us/spain/76.htm>

policies and supervises the work of his department. He also shares the political responsibility together with Minister of Energy, Tourism and Digital Agenda to conduct the Digital Agenda for Spain⁶⁰.

Minister of Energy, Tourism and Digital Agenda

The Minister of Energy, Tourism and Digital Agenda is responsible for the Telecommunications and Information Society Strategy in Spain and shares the political responsibility together with the Minister of Finance and Public Function to conduct the Digital Agenda for Spain.

3.13.2 Strategic level

Ministry of Finance and Public Function⁶¹

The Ministry of Finance and Public Function is in charge and has full responsibility for the e-government strategy. It promotes the full incorporation of information technologies and communications for the provision of public services through simplified procedures and processes to support the realisation of the modernisation of the entire sector⁶².

Within the Ministry of Finance and Public Function, the State Secretariat for the Public Function and under its supervision, the General Secretariat for e-government (SGAD) are the departments specifically responsible for e-government.

Ministry of Energy, Tourism and Digital Agenda

The Ministry of Energy, Tourism and Agenda supports its corresponding Minister in all decision-making related to its competences and more specifically to the decision-making related to the Telecommunication and Information Society. To this end, the Ministry comprises the State Secretariat for Information Society and Digital Agenda (SESIAD)⁶³.

State Secretariat for the Public Function (SEFP)

The State Secretariat for the Public Function is part of the Ministry of Finance and Public Function and works under its supervision. It is responsible for the promotion, programming and supervision of the actions in execution of the Government policy in the area of e-government, especially regarding the rationalisation process of information and communication technologies and the adoption of digital solutions that allow efficient delivery of public services.

⁶⁰ <http://www.agendadigital.gob.es/agenda-digital/Paginas/agenda-digital.aspx>

⁶¹ Previously Ministry of Finance and Public Administration

⁶² Spain eGovernment factsheet 2017, p. 43

⁶³ Spain eGovernment factsheet 2017, p. 43

General Secretariat for e-government (SGAD)⁶⁴

On a strategical level, the General Secretariat is responsible for directing, coordinating and executing the powers attributed to the Department in the area of e-government and the rationalisation of the information and communication technologies for the State General Administration. This implies the elaboration of the e-government Strategy and the Strategy for Digital Public services, which are part of the Digital Agenda for Spain, as well as the elaboration of the decisions and guidelines necessary for its execution⁶⁵.

The General Secretariat for e-government also acts as a national referent body for the European and international bodies and institutions in the area of digital competencies⁶⁶. It also chairs the Sectorial Committee for e-government.

In cooperation with the SESIAD, it was responsible for the elaboration of Digital Agenda for Spain.

State Secretariat for the Information Society and Digital Agenda (SESIAD)

Within the Ministry of Energy, Tourism and Digital Agenda, the SESIAD was the political body in charge of elaborating the Digital Agenda for Spain, together with the General Secretariat for e-government.

Ministerial Commissions for e-government (CMAD)

The Ministerial Commissions for e-government are Commissions within each Ministry⁶⁷, which are responsible for the elaboration of their own action plan, in accordance with the global ICT strategy. Unlike the previous CMAE (Ministerial Commission for Electronic Administration), they are composed by the heads of administrative units and those of the most relevant ICT units in order to be able to comprehensively analyse departmental needs and prioritise them.

Commission for ICT Strategy

The Commission for ICT Strategy is an inter-ministerial body comprised of senior officials representing all Ministries and the Central Administration. It is tasked with the preparation, design and development of the e-government strategy and ICT policy for Spain's Central Administration.

National Digital Confidence Forum

The National Digital Confidence Forum is an instrument of cooperation of the Spanish ICT industry in the field of digital trust, in which the most relevant agents of the private sector collaborate, performing advisory functions to the State Secretariat for the Information Society and the Digital Agenda.

⁶⁴ Since the change of government in 2016, the General Secretariat for e-government replaced the Directorate of Information Technology and Communications and inherited its competences.

⁶⁵ Art. 14 Royal Decree 769/2017 of 28 July, which develops the basic organizational structure of the Ministry of Finance and Public Function and amends Royal Decree 424/2016, dated November 11, establishing the organic structure of the ministerial departments.

⁶⁶ <http://www.boe.es/buscar/act.php?id=BOE-A-2017-9012>

⁶⁷ https://administracionelectronica.gob.es/pae_Home/pae_Documentacion/pae_LegNacional/pae_NORMATIVA_CMADs.html#.WZcYzCqjGUi

3.13.3 Tactical level

State Secretariat for the Public Function (SEFP)

On a tactical level, the State Secretariat for the Public Function is in charge of promoting the cooperation between the public administrations in the field of e-government, as well as promoting the citizen assistance programmes and, in particular, the use of common platforms for the integration of the services of the electronic headquarters of different public administrations⁶⁸.

General Secretariat for e-government (SGAD)

On a tactical level, the General Secretariat for e-government supervises with the support of the Ministerial Commissions for e-government, the implementation of the specific measures established in the Departmental Action Plans for Digital Transformation⁶⁹. In cooperation with the SESIAD, is also responsible for the implementation of all actions resulting from the Digital Agenda for Spain's actions plan.

State Secretariat for the Information Society and Digital Agenda (SESIAD)

On the tactical level, the SESIAD is responsible for the follow-up of the specific Actions Plans and annual actions to realise the Digital Agenda for Spain. It is also in charge of monitoring the implementation of these plans and evaluating their results and their dissemination. The SESIAD shares this competence with the SGAD.

Observatory for e-government (OBSAE)

The OBSAE, as part of the Commission for ICT strategy, is in charge of the analysis and the publication of the state of e-government in Spain. In this sense, the OBSAE publishes indicators for e-government, conducts studies on the development of e-government and publishes bulletin and technical notes on the topic⁷⁰.

Office for the implementation of the Administration's Reform (Opera)

The OPERA, under the State Secretariat for the Public Function, ensures the implementation of the measures from the CORA's report⁷¹, its progress, monitoring, coordination and if appropriate, propose new measures⁷².

⁶⁸ <http://www.boe.es/buscar/act.php?id=BOE-A-2017-9012>

⁶⁹ <http://www.boe.es/buscar/act.php?id=BOE-A-2017-9012>

⁷⁰ http://administracionelectronica.gob.es/pae_Home/pae_OBSAE.html#.WZcVOsJMSDs

⁷¹ The Council of Ministers created in 2012 the Commission for the Reform of Public Administrations (CORA), whose objective was to conduct a study of the Public Administrations to identify areas for improvement and the measures to make them more agile, efficient and close to the citizens. The Commission presented its report to the Council of Ministers in 2013.

⁷² http://www.sefp.minhafp.gob.es/web/areas/reforma_aapp/opera.html

Professional Association of Higher Bodies of Information Systems and Technologies of the Public Administrations (ASTIC)

ASTIC is the professional association of ICT experts and managers of the Central Government. It provides support and information services to its members for the development and implementation of their respective e-government projects.

Red.es

Red.es is a corporate public entity of the Ministry of Energy, Tourism and Digital Agenda, which reports to the State Secretariat for Information Society and Digital Agenda. On a tactical level, Red.es is responsible for promoting the development of Information Society in Spain and deploying technology implementation programmes in the public services of the Administration (especially Health, Justice & Education)⁷³. In addition, it manages the National Observatory for Telecommunication and Information Society (ONTSI) as well as the Centre of Excellence for Open Sources⁷⁴ (CENATIC).

National Observatory for Telecommunications and the Information Society (ONTSI)

The National Observatory for Telecommunications and the Information Society (ONTSI) is an organ attached to the corporate public entity Red.es, whose main objective is the monitoring and analysis of the telecommunications sector and the information society. To this end, it develops, collects, synthesises and systematises indicators, draws up studies, and offers information and current services on Information Society. Regarding more specifically the Digital Agenda for Spain, the ONTSI is responsible for monitoring the objectives of the Digital Agenda for Spain relying on the developed indicators.

Sectoral Committee for e-government

The Sectoral Committee for e-government is a technical body for cooperation between the Central Government, the Autonomous Communities and the Local Governments in the field of e-government. It is responsible for ensuring the interoperability of the applications and systems in use within Public Administrations and for preparing joint actions plans in order to improve the e-government development in Spain.

3.13.4 Operational level

State Secretariat for the Public Function (SEFP)

On an operational level, the SEFP administers and provides the general access point administracion.gob.es, which facilitates the intercommunication of citizens and businesses with Public Administration⁷⁵. The website

⁷³ <http://www.red.es/redes/es/quienes-somos/redes>

⁷⁴ The Centre of Excellence for Open Sources promotes the knowledge and use of free software and open sources in Spanish society.

⁷⁵ The General Access Point is also known under the code "060". The code is still used for the telephonic access to the services provided by the General Access Point.

gives access to government information, the possibility of requesting official documents and the status, at any time, of the processing of their cases.

General Secretariat for e-government (SGAD)

The General Secretariat for e-government administers and provides the e-government Portal ([PAe](#)) that unifies and centralises all available information on the status, development, analysis, news and initiatives around e-government⁷⁶. It also develops the [Catalogue for e-government services](#): a catalogue addressed to the Public Administrations and grouping all common services, infrastructures and other solutions that are available for them to help boost the development of e-government⁷⁷. It also manages and provides the [Transparency Portal](#), under the supervision of the Office for the Transparency and Access to Information⁷⁸. In addition, it provides technical support to the Commission for ICT Strategy and the Sectoral Committee for e-government.

Red.es

On an operational level, [Red.es](#) is the administrator of the internet domain names' registry for the country code ".es", as well as the administrator of the [RedIRIS network](#)⁷⁹.

3.13.5 Artefacts scoping the governance models

The Digital Agenda for Spain and the ICT Strategy 2015-2020 scope Spain's governance structure.

Digital Agenda for Spain

The Council of Ministers adopted the [Digital Agenda for Spain](#) (2013 - 2015) on 15 February 2013. The Agenda was launched at the initiative of the Ministries of Finance and Public Administrations and Industry, Energy and Tourism. It is Spain's strategy to achieve the objectives of the Digital Agenda for Europe; maximise the impact of public policy on Information Technology and Communications in order to improve productivity and competitiveness; and transform and modernise its economy and society through effective and intensive use of technologies by citizens, businesses and administrations.

The Digital Agenda for Spain has been designed following the priorities of the Digital Agenda for Europe through an open, transparent and participatory process involving experts, companies, associations, citizens, parliamentary groups, ministerial departments and other territorial administration bodies.

The Digital Agenda for Spain contains 106 lines of action structured around the following goals:

- Foster the introduction of networks and services to guarantee digital connectivity;

⁷⁶ The e-government portal includes the Centre for Technology Transfer ([CTT](#)) who publishes a directory of applications and solutions that can be re-used by Public Administrations. The CTT is also available on the [GITHUB space](#).

⁷⁷ https://administracionelectronica.gob.es/pae/Home/pae_Estrategias/Racionaliza_y_Comparte/catalogo-servicios-admon-digital.html#.WZqfHSqGUm

⁷⁸ <http://transparencia.gob.es/transparencia/transparencia/Home/Utilidades/Aviso-legal.html>

⁷⁹ RedIRIS is the Spanish academic and research network that provides advanced communication services to the scientific community and national universities. It is funded by the Ministry of Economy, Industry and Competitiveness and is included in the Ministry's map of Special Scientific and Technological Facilities ([ICTS](#)). It is managed by the Public Corporate Entity Red.es, which reports to the Ministry of Energy, Tourism and the Digital Agenda.

- Develop the digital economy for the growth, competitiveness and internationalisation of Spanish companies; Improve e-administration and adopt digital solutions for an efficient rendering of public services;
- Reinforce confidence in the digital ecosystem;
- Boost R&D system in ICT;
- Promote digital inclusion and literacy and the training of new ICT professionals.

Objective 3 of the Digital Agenda for Spain is improving e-government and adopting digital solutions for efficient delivery of public services, which establishes a set of specific lines of action. The challenge ahead is to increase productivity and service to citizens, simultaneously achieving a reduction in public spending. This overall goal is broken down into second level objectives, each with their lines of action:

- Moving towards an integrated society with quality public services to citizens and businesses centred administration;
- Increase the use of online public services by citizens and businesses;
- Streamline and optimise the use of ICT in public administration;
- Promote cooperation and collaboration with organisations, businesses and social actors in e-government;
- Use technology to eliminate the digital divide.

The Digital Agenda for Spain stresses the need for interoperability between systems in multiple occasions, mostly in the field of e-health.

ICT Strategy 2015-2020

The Government adopted the “Digital Transformation Plan for the General Administration (GA) and Public Agencies ([ICT Strategy 2015-2020](#)) in the Council of Ministers of 2 October 2015. It was proposed by the Ministers of the Presidency, of Finance and Public Administration and of Industry, Energy and Tourism on the basis of the work carried out by General Secretariat for e-government (former: Directorate for Information Technology and Communications). This Plan runs from 2015 to 2020; the Commission for ICT Strategy should review and, if necessary, amend its validity on a yearly basis.

This ICT Strategy sets out the global strategic framework to make progress in the transformation of the Administration, set forth the guiding principles, goals and actions required to complete it, as well as the landmarks in the gradual development of Digital Government. These, in turn, will become the basis on which the various Ministries will draft their sectoral action plans for the digital transformation to be carried out in their areas, led by the General Secretariat for e-government, i.e. the body in charge of the development of shared means and services.

The five strategic goals that structure the ICT Strategy for a real transformation of the General Administration and its Public Agencies are:

- **Increasing productivity and efficiency in the internal functioning of the public administrations** as an element of national competitiveness;
- **Deepening the digital transformation of the public administrations**, making the digital channel the preferred choice of citizens and businesses to interact with the Administration, as well as an apt

means for public servants to perform their tasks, thus improving the quality of the services provided and enhancing the transparency of internal functioning;

- **Achieving greater efficiency in the provision of common ICT services in the public administrations**, building synergies in the use of shared means and services so that more resources can be allocated to innovation and service expansion;
- **Implementing the smart corporate management of knowledge, data and information** in order to capitalise on this asset and improve the efficiency of the public administration to the benefit of citizens, while ensuring the protection of their digital identity; and
- **Developing a corporate security and usability strategy for public e-services** in order to increase confidence in them and promote their use.

The ICT strategy explicitly indicates the need for promotion of standards to promote interoperability for different government systems and fields (e.g. health, education) as actions.

Table 13 Documents scoping the Spanish governance model

Document title	Document type	Purpose of the document	Relation to interoperability and/or governance
Royal Decree 806/2014 of 19 th September 2014 on the organisation and operational instruments of ICT in the General State Administration and its Public Organisms	Decision	The royal decree provides the legal basis for establishing a number of institutions to bring forward digital transformation in the Spanish public administration of the General State.	This decree provides the governance basis for the different actors responsible for digital transformation in Spain. For example, Art. 3 – 6 regulate the ICT Strategy commission Art. 7 regulates the CMAD Art. 8 regulates the Steering Committee for ICT Art. 9 gives a regulatory basis to the ICT Strategy and the role of the ICT Strategy Commission Art. 13 fosters intergovernmental cooperation, and in particular addresses interoperability and standards to improve effectiveness and efficiency in the delivery of public services Art. 14 provides the legal basis for the departmental action plans for digital transformation

4 Lessons learned

This chapter discusses the main lessons and recommendations that can be drawn from the analysed Member States and EC cases.⁸⁰ The lessons learned from the aforementioned governance models are separated into those from the EC institutions and those from the Member States because analysing them jointly would not be as efficient. The individual reflections on the governance models are based on the following aspects:

- Summary of governance structure
- Stakeholder involvement (if and how)
- Governance of the transition from strategic objectives to operational implementation: is it tackled at all? What methods or instruments are used? Is there a full cycle that transcends from strategic to operational level (and feeds back through evaluation mechanisms)?

4.1 Lessons from the European Commission governance structures

The ISA² programme

The aim of the ISA² programme is also to facilitate efficient and effective electronic cross-border interaction between European public administrations on the one hand, and between European public administrations and businesses and citizens on the other. The achievement of the aforementioned goals occurs through the programmes activities, which follow below:

- Support for the identification, development, creation and operation of interoperable digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services and the implementation of Union policies and activities;
- facilitate of the reuse of interoperability solutions by European public administrations.

The ISA² Committee elaborates the programme's objectives. The ISA² Committee charges working groups at the operational level to realise the programme's objectives. The ISA² Coordination group ensures the smooth coordination and collaboration between the working groups. In turn, the working groups report to the ISA² Committee. In this way, the full cycle that runs from the strategic to operational levels and back is clearly present.

Therefore, the ISA² governance structure could be successfully implemented when coordinating the other programmes. The principle of delegating deliverables to the working groups, consisting of representatives from all Member States, allows for the division of the workload into manageable pieces. It also is a forum for Member States' representatives to share experiences of undertaking similar government activities, implementing regulations and coordinating stakeholders to achieve this.

⁸⁰ While updates were provided in each of the cases, researched in 2016, this has not affected the text here, as no changes were applied to the governance structures.

E-Procurement DSI

The e-procurement governance structure emphasises stakeholder engagement from the European Commission, the Member States and expert communities. The European Commission has jurisdiction over this policy domain and is responsible for the Building Blocks that enable service provisioning. The Member States further transpose regulations and organisational structures as required. The role of the expert groups is to monitor and assess actual implementations as well as to provide feedback and support changes proposed by the Operational Management Boards. Stakeholders, therefore, are on a level playing field and fulfil a role that effectively influences technical solutions.

The link between strategic objectives and operational implementation is decentralised and is ensured in two ways:

1. The dynamic governance structure allows issues to be spotted quickly and to permanently assess the implementation.
2. The involved bodies engage in mutual exchange of information across the different governance levels.

This governance structure can, and is, emulated in other European settings as it is based on the *Non-Paper on Governance of the CEF Building Block Digital Service Infrastructures (DSIs)*.

eHealth Digital Service Infrastructure

The eHealth Digital Service Infrastructure governance structure involves stakeholders through the eHealth Member State Expert Group, the Joint Action to Support the eHealth Network and the National Contact Points for eHealth. The active involvement of experts asks them to contribute on strategic, tactical and operational levels. Their influence ranges from elaborating input that is delivered to the eHealth Network for decision making purposes, up to implementing and running the Cross Border eHealth Information Services and peer auditing National Contact Points for eHealth.

Stakeholder engagement in the eHealth domain, thus, is indispensable for the eHealth Network to stipulate a shared vision, to make decisions and to drive forward the eHealth Digital Service Infrastructure. The governance is both centralised, in terms of making decisions that affect and shape the eHealth Digital Service Infrastructure as whole, and decentralised, in terms of national implementation and peer-to-peer evaluation.

This governance structure allows stakeholders to make an impact and can be copied by Member States. It may, however, be difficult to activate the same stakeholders on a European and national level.

4.2 Lessons from the Member States' governance structures

Austria

The Austrian governance structure is characterised by a comprehensive stakeholder engagement through the [Platform Digital Austria](#). All political tiers from the federal to the municipal level contribute in working groups or the decision making bodies, such as the [ICT Council](#) and [Federal-state-city-municipality Cooperation \(BLSG\)](#). This participation strengthens political commitment and adoption of solutions by public authorities in their respective regions.

The role of the [Federal CIO](#) is primarily the one of a chairman and coordinator of the Platform Digital Austria, and political advisor to the [Federal Chancellery](#), which provides technical solutions and drives the agenda for digitalisation. Because representatives of municipalities, cities, states and the federal level are involved in the decision making process, they are able to swiftly ensure adoption within their jurisdictions. The experience of this process of implementation is, vice versa, quickly relay into tactical discussions. The governance approach is decentralised as individual working groups elaborate and draft standards, which are agreed upon in the respective body ICT Council or BLSG, and the resulting ICT infrastructures are administered by the Federal Chancellery.

The Austrian governance structure is characterised by preparatory work that is conducted in the working groups and the inclusive stakeholder engagement of all political tiers. It is worth underlining that Austria managed to establish a functioning governance structure as a federal republic. At the same time, Austria is a medium sized country, which means that stakeholder inclusion and agreements are presumably easier facilitated compared to larger countries, in which many individual interests need to be considered.



Belgium

In Belgium, the main body in charge of promoting e-government policies and providing support is the [Federal Public Service \(FPS\) Policy and Support \(BOSA\)](#), specifically the [DG Digital Transformation \(DT\)](#). It operates on all governance levels and collaborates with all bodies on federal and regional levels. It advises and fulfils the objectives set by the [Deputy Prime Minister and Minister for Development Cooperation, Digital Agenda, Post and Telecom](#). Furthermore, it closely collaborates with the [Agency for administrative simplification](#) and the [Crossroads Bank for Social Security](#). Third party stakeholder involvement is not that evident in the Belgian case, as most of its operating bodies are government organisations. In addition, as Belgium is a federal state it is possible that stakeholders are more involved on regional level than on federal level, which is the focus of this analysis.

As the FPS BOSA DT operates on all governance layers, it is the main responsible body for the transition from strategic objectives to operational implementation. From the collected data, it is unclear what the evaluation mechanisms for feeding information from operational level to political level are, which could probably be more evident on regional level rather than federal.

Bulgaria

In Bulgaria, the [Ministry of Transport, Information Technology and Communications](#) is the main responsible body for the interoperability governance on country level. The [e-government Directorate](#) is in charge of the ICT policy governance. It is responsible for coordinating the transition from strategic objectives to operational implementation and managing the [Executive Agency for Electronic Communications Networks and Information Systems \(ECNIS\)](#). It is supported by two Councils – the [Council for e-government](#) on political level and the [Council for administrative reform](#) on strategic level. Part of the Council for e-government is the Business council, which includes stakeholders from the ICT industry.

In Bulgaria, similar to other analysed countries from EU13 (Lithuania and Poland), there are very few actors responsible for ICT implementation and their roles are quite well defined. Having much less involved bodies could make coordination easier. This is also a sign of a recently developed ICT governance system. It can be evidenced by the different dates of the establishment of the two supervisory Councils; the Council for e-

government in 2011⁸¹ and the Council for administrative reform in 2009⁸². Therefore, there is not much legacy system in the governance of Bulgaria and possible best practices from other government systems were likely used to establish this type of governance. Medium to smaller countries could implement such a model to limit the bureaucracy in governance.



Denmark

In Denmark, the main governance body behind interoperability governance is the [Ministry of Finance](#), which implements the [Prime Minister's](#) agenda on a strategic level and is represented on tactical and operational levels by the [Agency of Digitisation](#) and the [Agency for governmental ICT services](#). Furthermore, the Ministry of Finance collaborates with the [Ministry of Industry, Business and Financial affairs](#) and the [Steering committee for joint-government cooperation \(STS\)](#) on strategic level. The STS further represents stakeholders from different administrations; it also coordinates with the Municipalities and regions to obtain feedback.

The Agency of Digitisation, the Ministry of Industry, Business and Financial affairs and the Steering Committee ensure the transition of strategic objectives into operational implementation. The [Local Government Denmark](#) further consults and supports local administrations in delivering local services and developing local communities. As part of the Steering Committee, it also represents its stakeholders' opinions. Furthermore, while the decision-making in Denmark is centralised, advisory bodies, with the support of the Local Government Denmark and Municipalities and the Regions, prepare content in advance. This aids the successful implementation and contributes to greater coherence and standardisation in the rollout of digital services and solutions.

France

In France, the decision making power on policies lies with the [Prime Minister](#). He or she receives advice from the [ICT Council](#) and the [National Digital Council](#) as well as from the [Secretariat-General for Government Modernisation](#). Stakeholder engagement, thus, is limited to the National Digital Council as the only advisory body that contributes outside perspectives from the private sector and the civil society. The ICT Council and the Secretariat-General for Government Modernisation, in contrast, aggregate the demands and perspective of the various departments in the federal administration without representation of the regions or cities in France. The Prime Minister and the [Minister of State for State Reform and Simplification](#) are the actors with decisive influence on policy making and implementation in the domain of interoperability governance.

Nevertheless, transition of strategic objectives to operational implementation is ensured through Secretariat-General for Government Modernisation and its supervised bodies, the [Inter-ministerial Directorate for Information and Communication Systems](#) and the [Inter-ministerial Directorate for Accompanying Public Transformations](#), which consult and support local administrations in implementing technical solutions based on the Common Strategic Framework. This allows the Secretariat-General for Government Modernisation to be in direct contact with the developments and issues faced in an operational environment, while formulating

⁸¹ Decree № 268 of 26 September 2011 on the establishment of the Council for Electronic governance, Sofia. Can be retrieved at: http://www.saveti.government.bg/c/document_library/get_file?p_id=74807&folderId=74813&name=DLFE-5559.pdf

⁸² Decree № 192 of the Council of Ministers of 5.08.2009 on the establishment of a Council for Administrative Reform, Sofia. Can be retrieved at: http://www.saveti.government.bg/c/document_library/get_file?p_id=14242&folderId=14248&name=DLFE-5497.pdf

policy recommendations based on these insights. The governance approach in France, thus, is centralised at the hands of the Prime Minister.

While this decision making is centralised, content is prepared in advance by advisory bodies within the Secretariat General for Government Modernisation. In addition, the central government maintains two national agencies: Inter-ministerial Directorate for Information and Communication Systems and the Inter-ministerial Directorate for Accompanying Public Transformations, whose role it is to guide and support local administrations. This aids the successful implementation and contributes to greater coherence and standardisation in the roll-out of technical solutions. Establishing such a hands-on support agency is possible in other Member States. Nevertheless, national political culture and regulations regarding regional autonomy may affect this.



Germany

The German governance structure emphasises the [IT Planning Council](#) as the main body that brings together the federal and all sixteen state levels on e-government and standardisation related topics. Cities, counties and municipalities have an observer role and are present with one representative each. Activities of the IT Planning Council tend to come either in the form of pilot projects in a defined jurisdiction or a work request for standardisation delegated to the [Coordination body for IT standards \(KoSIT\)](#). In order for a decision of the IT Planning Council to be binding, the federal level and at least eleven members need to be present and vote unanimously for it. These states at the same time need to account for two thirds of related funding. Recommendations, in contrast, require only a majority vote. As such, stakeholder engagement is limited and includes the federal and state levels, respectively, whereby administrative services tend to be provided by the local level. Thus, there is a potential gap between those who make decisions and those who have to take care of its operational implementation at local level, while at the same time respecting the autonomy of each layer in the federal system.

As a consequence, the strategic objectives on digitisation and interoperability in public service provisioning tend to be rather generic and intangible. There is no direct link to their operational implementation in cases where the interoperability enabler or artefact is to be deployed on local government level. Support to the municipal level is, however, provided by the [KGSt](#)⁸³ which is an actor outside of the federal administration. Due to the potential gap between decision makers at federal level and implementers at local level, monitoring of successful implementation of strategic interoperability objectives is difficult and would be a tremendous effort. As a consequence, broad ranging implementation efforts and feedback loops are also scarce.

Germany's governance structure emphasises horizontal coordination and is beneficial for aggregating demands of the federal administration as well as efficiently procuring solutions. The [IT Steering Committee](#) is a financial oversight body with relevance to the activities of the IT Planning Council and it is empowered to put a hold on projects if they go against budgetary targets. The inclusion of such financial oversight in other European governance structures is conceivable and may provide managerial guidance to strategic decision making.

Italy

⁸³ <http://www.kgst.de>

In Italy, the [Ministry for Simplification and Public Administration](#) and the [Agency for Digital Italy](#) are the main bodies responsible for the interoperability governance on country level. They are responsible for the management of policies of public administration and coordinate actions in the field of information and communication technologies. The [Department for Civil Service supports the Ministry of Simplification and Public Administration on all governance levels](#). [FORMEZ](#) is responsible for developing ICT related training for the public sector staff.

The [National Association of Italian Municipalities \(ANCI\)](#) represents the stakeholders, i.e. Italian municipalities, and provides them with technical and political support. ANCI further supports them through their own service provider [Ancitel](#). Furthermore, the Digital transformation team represents the different government and public administrations stakeholders.

The interoperability governance of Italy seems to be structured in a harmonious way, as there are multiple bodies on each governance levels, having defined activities, which are not part of a single Ministry. In addition, as the different agencies and departments have associated actors on operational level, they are likely to receive feedback, which serves as input to the strategy re-development cycle.



Lithuania

As a parliamentary republic, the [Prime Minister](#) is in charge of the interoperability governance in Lithuania on the political level. In the digitisation of the public sector, several bodies support the Prime Minister: the [Ministry of Interior](#) and its [Public Administration Policy Department](#) are responsible for e-government and e-services provision; the [Ministry of Transport and Communication](#) and its [Information society development committee](#) are responsible for coordination of e-government projects and supervision. On an operational level, these actors are supported by the ICT provider [Infostruktura](#). The [Association of Local authorities in Lithuania](#) represents the interests of stakeholders, such as local authorities, and authorities of the state, foreign and international organisations. It collaborates with the Public Administration Policy Department.

In Lithuania, two Ministries share the e-government portfolio, which need to collaborate and have equal standing. While one is involved on all four governance levels through the Public Administration Policy Department, the other Ministry ([Ministry of Transport and Communication](#)) is mostly involved on the strategic and tactical levels and has a separate organisation, responsible for the ICT. The role of [Information society development committee](#) is to strengthen political commitment and adoption of solutions by public authorities. These roles primarily involve administration of the e-service portal (e-gov gateway) and facilitation of e-inclusion as well as management of state registers and information systems.

With the Ministries being closely involved in all four governance layers, they have direct contact with stakeholders and are aware about how different initiatives are being implemented in practice. This way they can collect feedback from the practical side and use it into the strategic process. The only concern could be the lack of more stakeholder groups involved in e-government.

Netherlands

The ICT governance in Netherlands has multiple collaborating actors. On one side, there are the [Ministry of the Interior and Kingdom Relations](#), including the [Minister for Housing and the Central Government Sector](#) and the [Ministry of Economic Affairs](#). They collaborate with the [Digi-Commissioner](#), who is responsible for implementing the generic digital infrastructure (GDI), the corner stone of the Digital Basic services. He chairs the [National Council Digital government](#), which manages the GDI Programme and implementation. The National Council further oversees the [four Directing boards \(Data management, Interconnectivity, Service](#)

[Provisioning, Authentication & Identification](#)), which work on strategic, tactical and operational levels. Finally, two bodies, [Government ICT Unit \(ICTU\)](#) on tactical level and the [Logius](#) on operational level help the government in developing and maintaining ICT tools and implement the strategic objectives of the government.

In the Netherlands, stakeholders are represented by the consulting group “[Citizens and Businesses](#)”. Different end user industry representatives are involved in this group. The main purpose is to keep in touch with the end users and to evaluate topics for security, reliability and simplicity.

Similar to Austria, the Netherlands governance structure builds on strong collaboration ties among responsible centralised government actors and involvement of regional and local level actors as well as citizen and business groups. While being a medium sized country, the governance structure is not a simple top-down structure.. Through the involvement of stakeholders representing the end user perspectives, the evaluation and feedback loop is an asset that could serve as a best practice for other Member States with similar structures.



Norway

The governance of Norway is quite inclusive, as multiple bodies are responsible and participate in the interoperability governance. The [Ministry of Local Government and Modernisation](#), and especially its [Department of ICT Policy and Public Sector Reform](#), is the only Ministry responsible for the ICT policy and public sector reforms on political and strategic levels. Yet, the [Agency for public management and E-Governance \(Difi\)](#) is also of major importance. Difi is very active on almost all governance layers as its main roles are to strengthen coordination in order to help develop and to renew the public sector. In addition, stakeholders are well represented through [ICT Norway](#) (strategic and tactical level) and the [Norwegian Association of Local Government and Regional Authorities](#) (strategic level), which represent a wide variety of stakeholders ranging from public administration to industry organisations.

Given the wide involvement of different stakeholder groups throughout the different governance levels in Norway, one could assume that the full cycle that transcends from strategic to operational levels and back is functioning and regular feedback is received when developing interoperability strategy and offering new digital services.



Poland

Interoperability governance in Poland is the responsibility of the [Ministry of Digital Affairs](#) on the strategic level. The Ministry works together with the [Committee of the Council of Ministers for Digitisation](#) and the [Council for Digitisation](#), which involves various stakeholder groups. The [Minister of Digital Affairs](#) plays an important role in Poland's ICT Governance, as she supervises and coordinates multiple authorities and units related to e-government outside of the Ministry of Digital Affairs. The [ICT Section](#) of the Ministry of Digital Affairs carries the task associated with the development of public administration and spans the tactical and operational levels. On the operational level, the [Centre for Informatics Technology \(COI\)](#) provides different digital services to support public administrations.

While in Poland, the governance seems to be top down with the Minister of Digital Affairs driving the policy objectives related to e-government, the relevant stakeholders can provide their opinions and participate in the strategy setting process through the Council of Digitisation.



Portugal

The interoperability governance structure in Portugal is rather unique compared to other countries, as the main acting governance body is the [Agency for Administrative Modernisation \(AMA\)](#), and not a Ministry as in most countries. The AMA works under the [Deputy Secretary of State and Administrative Modernisation](#) and cooperates with the [National Association of Portuguese Municipalities \(ANMP\)](#) on a strategic level. Furthermore, it supports the [Council for Information and Communication Technologies in Public Administration \(CTIC\)](#) and is supported by the [Centre for the Management of Government Information Network \(CEGER\)](#) on the operational level. The ANMP represents stakeholders of local and other public agencies in Portugal on the strategic level.

The CTIC includes members among others from AMA, CEGER, the [Portuguese Public Administration Shared Services Authority \(ESPAP\)](#) and a Ministerial Representative from each area of Government. The CTIC helps not only for setting up the ICT strategy, but also for monitoring of the implementation taken by other entities. Thus, it helps ensure the full interoperability governance cycle in Portugal.



Spain

The governance model of Spain looks more complex than the other governance structures studied in this report. While on one hand, similar to Lithuania, the e-government responsibility is shared between two Ministries: the [Ministry of Finance and Public Function](#) and the [Ministry of Energy, Tourism and Digital Agenda](#), they both include multiple departments and organisations, with specific roles dedicated to e-government implementation. Additionally, each Ministry has its dedicated [Ministerial Commission for e-government](#). To support the strategy decision, there is a [Commission for ICT strategy](#), an inter-ministerial body responsible for the preparation, design and development of the e-government policy. Part of this Commission is the [Observatory for e-government](#), which analyses and publishes indicators and technical notes on the e-government status in Spain.

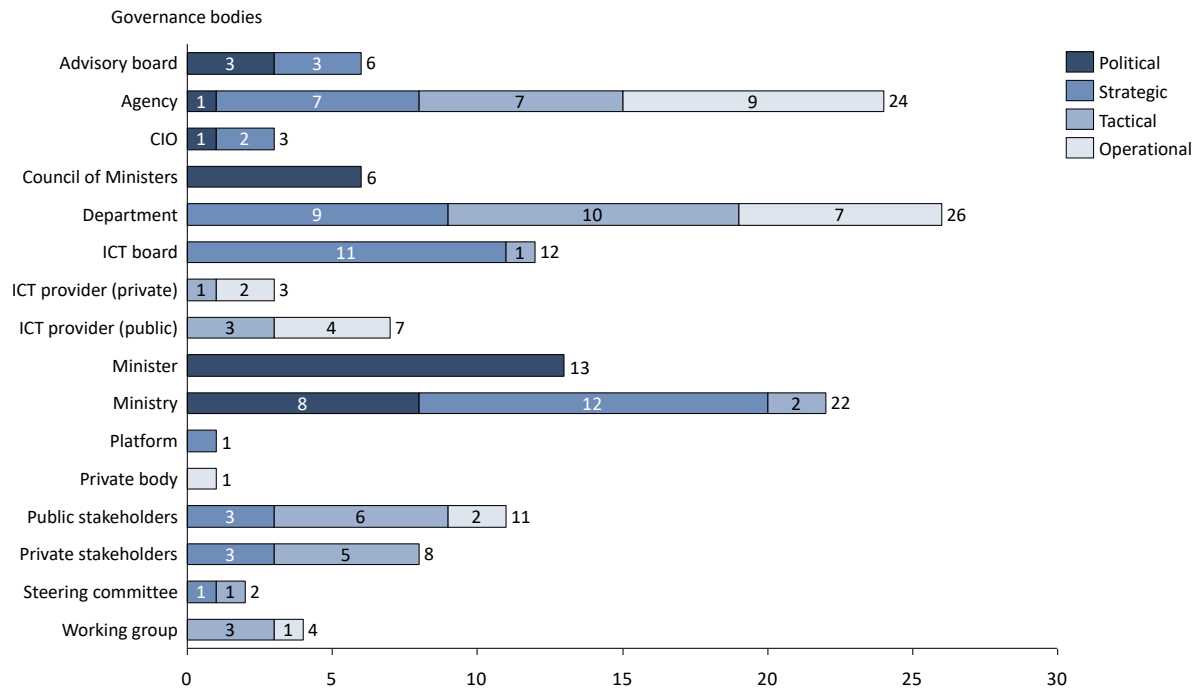
The [National Digital Confidence Forum](#) represents stakeholders in Spain and promotes cooperation within the Spanish ICT industry. The [Professional Association of Higher Bodies of Information Systems and Technologies of the Public Administrations \(ASTIC\)](#) is another professional association of ICT experts, which supports its members through guidance and service provision. Finally, the [Sectoral Committee for e-government](#) is a technical body bringing together representatives from central and regional governments.

The complex governance cycle in Spain involves many coordination bodies and commissions, which provide input for the e-government strategy, and monitor the way it is implemented. In this way, Spain is a model of collaboration between the different institutional levels as all levels are involved in the e-government policy through various committees (sectoral, inter-ministerial etc.). This ensures a certain coherence in the implementation of the policy despite a much-decentralised system. In addition, as the [State Secretariat for the Public Function](#), part of the Ministry of Finance and Public Function, extends to the operational level, it likely has the possibility of collecting data and feedback, which it can then take into account during the policy and strategy cycle.

5 Common elements

This chapter notes common elements, which the analysis of the research identified based on the different types of actors involved in interoperability governance in the 13 aforementioned countries. Figure 18 gives a general overview of the type of governance bodies present in for each of the four levels of governance: political, strategic, tactical and operational⁸⁴.

Figure 18 Governance bodies overview



From the figure above, it is clear that individual Ministers operate only on the political level, while Ministries could be active on political, strategic and tactical levels. Furthermore, ministerial departments ('Departments') can be found on any of the strategic, tactical and operational levels. They are included beside the Ministries to account for country differences. In some countries, the department is clearly indicated although this is not always the case. The position of Chief Information Officer (CIO) can be found in Austria, Germany and the Netherlands. Advisory boards and ICT boards can operate at both political and strategic levels. Examples include the Council for e-Government in Bulgaria on the political level and the Information Society Advisory Board in Austria on the strategic level.

The central/national bodies mentioned above should not be confused with the public stakeholders' groups, which represent and support local and regional bodies on the topic of e-government on strategic, tactical and operational levels. Also, private stakeholders represent ICT industries, business and citizens at strategic and tactical levels. The Council of Ministers, or Cabinet as is the widely used term in English speaking countries, is the highest level of policy decision making body, or executive, in European countries at political level.

⁸⁴ It should be noted that the classification on this figure reflects the judgement and understanding of the project team. Therefore, they would not contest different opinions coming from the countries or organisations.

'Platform' above refers to the Platform Digital Austria (PDA), which, due to its uniqueness, has been left as platform, rather than classified under public stakeholders or any other category. The ICT providers, which are present on both tactical and especially on operational levels, can be public and private bodies that support the public sector in implementing e-government policies. There are also four working groups, three on the tactical level (Italy, the Netherlands and Portugal) and one on the operational level (Austria). They typically support an ICT board or Advisory board. For example, in the Netherlands, the Directing Boards support the National Council for Digital Government.

Finally, the one private body in the figure above refers to the E-government Innovation Centre (EGIZ) in Austria, which is a research centre, supporting the Federal Chancellery in formulating its Federal ICT Strategy.

5.1 Common element n° 1: No leading model for eGovernment

Common element n°1: e-Government has no unique natural "home" in different countries' political structures

The analysis shows that countries have different approaches for the governance of e-government. In fact, **three major different forms of political structures for the governance of e-government exist; unique, shared or hybrid.** For the 13 countries assessed in 2016 and then 2017, the studies found that one ministry holds absolute political responsibility for this in five countries, Bulgaria, Austria, France, Germany and Lithuania. Two Ministries share the responsibility in six countries, Denmark, Belgium, Italy, the Netherlands, Norway and Spain. Portugal has a powerful agency in charge of this whereas Poland has a dedicated Ministry for Digital Affairs.

Furthermore, no one traditional government department emerges as the most likely body to have responsibility for e-government issues at country level. In different countries, e-government and digital affairs can find themselves in various different national departments related to Interior, Finance, Transport, Communication and the Prime Minister. This is indicative of the reality that the area of e-government and digital affairs is a relatively new, and emerging, national political priority that is often an addition to the remit of different established ministries, such as the aforementioned ones. This portfolio is often reassigned to different established ministries after new governments are appointed. As mentioned above, it is also worth noting that three countries, Austria, Germany and the Netherlands, have developed a specific role, CIO or Commissioner, related to ICT policies, something that might be a model for other countries to replicate.

5.2 Common element n° 2: A multiplicity of public actors involved

Common element n°2: The emerging presence of several sub-national actors in interoperability governance models, such as agencies and regional authorities, reflects the findings of the 2016 report

The new eight cases of Member States analysed in 2017, while distinct, follow similar patterns and logic as the cases analysed in 2016. For example, as Figure 18 shows, often the Ministry, responsible for interoperability, is supported by a dedicated agency, which supports and continues its work on the strategic and tactical levels, e.g. the Agency for Digital Italy (AgID) in Italy or the Agency for Public Management and e-government (Difi) in Norway. Furthermore, in some countries the local and regional bodies are represented on tactical level by dedicated organisations, e.g. Local Government Denmark (LDGK) in Denmark or the National Association of Portuguese Municipalities (ANMP) in Portugal.

In fact, **10 out of the 13 countries analysed involve sub-national entities in their interoperability governance models**, the exceptions being France, Bulgaria and Belgium. The case of Belgium is surprising; it is a highly federal state with strong federal entities, which are normally consulted on a wider range of policies in the context of the considerable "regionalisation" of competences that it has undergone over the last 40 years. Their absence from the Belgian interoperability governance model is arguably reflective of the reality for all countries that the area of e-government and digital affairs is a relatively new, and or emerging, national political priority.

5.3 Common element n° 3: The presence of civil society

Commons element n°3: Civil society stakeholders have their role to play

All countries include civil stakeholders from the private sector and other non-commercial civil society organisations in their policymaking. This reflects the reality that the area of e-government and digital affairs is a relatively new and dynamic domain for public administrations and engagement with the private sector is important to ensure operational success of services and achieve policy objectives. It also **demonstrates open, transparent and best practice policy development.** It is clear that the countries with the most mature structures to engage stakeholders are Denmark, Germany and Spain. The private sector is involved in Austria, Belgium, France, the Netherlands, Norway and Spain.

6 Conclusions & next steps

This chapter provides a couple of high-level conclusions and some ideas for next steps to build on this analysis.

6.1 Different models of successful and effective interoperability governance structures exist

As indicated in the previous chapter, there is no one model of interoperability governance that emerges from the analysis. The reviewed cases were different by their magnitude. The example of the ISA² programme shows how decentralisation helps in implementation activities and in the achievement of the project/programme goals. However, limiting the number of governing bodies responsible for e-government and interoperability can ease the coordination between them (see e.g. the Bulgarian or the Portuguese governance structures). In addition, centralising the demands of administrative departments of the same administrative level can further lead to economies of scale and the effective promotion of standardisation (e.g. France). In a similar vein, empowering a dedicated agency (or a partner entity) to be responsible for the digital transformation of public administrations and the ICT governance in the country can simplify the governance in cases where this reduces bureaucracy and allows the agency to be closer to its stakeholders (e.g. Denmark, Portugal or Norway).

Effective interoperability governance needs to cater for a smooth transition of strategic objectives down to operational implementation at different government levels and in distinct state systems. The cases investigated show some valuable structures throughout the levels of governance, such as the feedback loop between bodies in the Netherlands. These should be thoroughly reflected in the revision or establishment of any comprehensive governance structures. On each of the levels, appropriate governance functions should be assigned to responsible roles. For example, a generic governance function on the strategic level is to develop the strategy and the digital standards for the government. This function continues in the tactical level by providing guidance on how to implement and apply this strategy, as well as to support public administrations. **Thus, for effective and sustainable implementation of strategic interoperability objectives, a smooth communication and coordination (top-down and bottom-up) among the governing actors at different levels is of paramount importance regardless of what type of structures exist.**

An aspect not obviously visible in most governance structures is a **systematic and structured monitoring procedure and feedback loop**, such as the feedback loop between bodies in the Netherlands. Once again, this requires appropriate governance functions assigned to existing governance roles, which should be explicitly planned and assigned in a next version of interoperability governance.

Finally, three further bodies are suggested as useful for interoperability governance. These include:

- A **controlling body** with veto power on projects, which can help manage costs and ensure that investments stay within budget allowance (see e.g. Austria, ISA² Programme).
- A **preparatory body** for strategic decision making, which can help speed up the process of addressing new issues and drafting solutions (e.g. eHealth Digital Service Infrastructure).
- A **public service provider** responsible for overseeing and maintaining important government infrastructure and digital services, which works closely with the responsible Ministry (e.g. Belgium, Denmark, Norway) and serves all Ministries and public agencies in the (central or federal) state.

6.2 Stakeholder involvement

The previous chapter identified the common elements in the analysis; these include the presence of several sub-national actors and civil society stakeholders in interoperability governance models in addition to national bodies. From this, it is possible to conclude that a successful interoperability governance will cater for active stakeholder involvement. Different ways of involving stakeholders were identified in the case studies, such as:

- **expert groups**, which impact the design of interoperable solutions and support the decision making process (e.g. eProcurement Digital Service Infrastructure, ISA²).
- **working groups**, which is an effective way to engage stakeholders of all levels and to secure their buy-in (e.g. Austria (Working groups), Italy (Digital Transformation Team), Portugal (Information and Communication Technologies Project Group (GPTIC)) and the Netherlands (the Directing Boards)).
- **consulting groups with end-users**, including representatives from the industry and citizens to monitor and advise on the policy and governance initiatives and implementation. Good examples of these are in Austria (Interest groups), Netherlands (Customer Boards and Consulting group “Citizens and Businesses”), Belgium (Digital Minds for Belgium), Spain (National Digital Confidence Forum and Professional Association of Higher Bodies of Information Systems and Technologies of the Public Administrations (ASTIC)), Norway (ICT Norway)).
- **national associations** representing the interests of regional and/or local administrations in the countries (e.g. Denmark (Local Government Denmark (LDGK)), Italy (National Association of Italian Municipalities (ANCI)), Lithuania (Association of Local Authorities in Lithuania (ALAL)), Norway (Norwegian Association of Local government and Regional authorities) and Portugal (National Association of Portuguese Municipalities (ANMP)).

These exemplary types of stakeholder engagement serve as good practices that can be realised in other Member States or at EC level. What is important, therefore, is that these engagement groups have appropriate influence on decision-making, design and implementation of interoperability solutions within the foreseen scope of their governance role. This governance principle ensures engagement and greater levels of adoption of solutions at the same time.

Another source of guidance is the Non-Paper on IT Governance of the CEF Building Block Digital Service Infrastructures (DSIs), which serves as a good practice blueprint for future governance models, as it evolved together with the CEF governance structure.

6.3 Next steps

In order to evaluate the findings of the 13 national and three European case studies, further research is needed to:

- a) collect more evidence of the success factors and crucial elements of collaborative interoperability governance models, which operate in a given cultural and systemic context of a country,
- b) test and compare against already existing indicators such as NIF alignment and the Digital Economy and Society Index (DESI), and
- c) validate the findings and recommendations with representatives of the Member States and EC services.

In particular, interoperability governance features are currently rather embedded in general digitisation initiatives (and responsibility is with some agencies). Only a few countries put a larger - and publicly visible - effort on interoperability and standardisation as driving principles, such as Denmark, Netherlands, Norway, Portugal or Spain. In order to strengthen interoperability and cross-agency as well as cross-border digital service provisioning, national governance functions and roles need to become more explicit and visible in collaborative governance structures.

Further research could also differentiate and elaborate on the standardisation bodies at the European (e.g. CEN, ETSI) and Member State (e.g. KoSIT in Germany) levels as actors in the interoperability governance of each country given their important role for promoting interoperability.

Glossary

Interoperability Strategy: An Interoperability Strategy is a long term plan addressing strategic objectives of interoperability. Example is the European Interoperability Strategy, which is set up to *"provide guidance and to prioritise the actions needed to improve interaction, exchange and cooperation among European public administrations across borders and across sectors for the delivery of European public services"*⁸⁵.

Interoperability Framework: An Interoperability Framework is a set of interoperability principles, rules, and guidelines put in place to implement interoperability in a given institutional context.⁸⁶ Examples are EIF at European level and National Interoperability Frameworks (NIFs).

Governance: Governance embraces a *"set of processes, customs, policies, laws and institutions affecting the way an organisation is directed, administered or controlled"*⁸⁷, i.e. it creates the right conditions to ensure that design, implementation and service provision teams of interoperable public services can do the right things for their users – in the right way and at the

right time. Furthermore, corporate governance is the environment of trust, transparency and accountability that is required to ensure *"long-term investments, financial stability and business integrity, thereby supporting stronger growth and more inclusive societies"*⁸⁸.

Governance needs to be separated from management: while governance cares about *"what decisions must be made to ensure effective management and use of ICT (decision domains) and who makes the decisions (locus of accountability for decision-making)"*⁸⁹, management *"involves making and implementing decisions"*⁹⁰. While the first treats the organisation as a system that needs to have the right structure and modes of operations in place to provide value (i.e. having a governance structure, governance principles and governance functions defined), the latter caters for the operational execution of those modes of operations⁹¹.

Institutional structures: Institutional structures refer to the network of institutions and responsible roles that are put in place to provide the necessary

⁸⁵ European Commission, Annex 1 to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions 'European Interoperability Strategy (EIS) for European public services', COM(2010) 744, European Commission, Brussels, 2010

⁸⁶ European Commission, Annex 2 to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions 'Towards interoperability for European public services', COM(2010) 744, European Commission, Brussels, 2010

⁸⁷ M. Kooper, R. Maes and E. R. Lindgreen, "On the governance of information: Introducing a new concept of governance to," International Journal of Information Management, vol. 31, pp. 195-200, 2011

⁸⁸ OECD, "OECD principles of corporate governance," Organization for Economic Cooperation and Development, New York, NY, 1999

⁸⁹ P. Weill and J. W. Ross, IT governance: How top performers manage IT decision rights for superior results, Boston, MA: Harvard Business School Press, 2004

⁹⁰ Ibid.

⁹¹ See http://www.ibm.com/developerworks/rational/library/may07/cantor_sanders/ (last access. 12/10/2016)

environment for effectively realising the strategic objectives.

Governance structures: Governance structures refer to particular institutional structures that are responsible to execute the governance functions and procedures in order to realise the strategic objectives. These structures may span from political over organisational and tactical to operational level governance.

Governance functions: Governance functions comprise a series of actions and duties to execute governance at different levels. Governance functions particularly cover processes to perform decision making in an institution or in institutional structures that are in alignment with the underlying strategic objectives. The governance functions are executed by the responsible actors and roles established in the governance structures to achieve the strategic objectives.

Governance principles: According to TOGAF, *"principles are general rules and guidelines, intended to be enduring and seldom amended, that inform and support the way in which an organisation sets about fulfilling its mission"*⁹². Governance principles are elementary assumptions, concepts or propositions, which are fundamental to the course of governance action in order to achieve the overall interoperability objectives. They should be defined and provided in a governance framework. Examples of governance principles are provided e.g. by the OECD for corporate governance (six principles)⁹³. In other contexts, relevant and related principles are defined, such as interoperability principles are put forward in the European Interoperability

Framework⁹⁴; Architecture Principles are put forward in TOGAF⁹⁵

Governance roles: Governance roles refer to roles in the institutional structures that have particular responsibilities or decisive powers in the decision making towards achieving the objectives of interoperability strategies. Examples are CIOs, Directors of governance board, Chair of steering board, etc.

Interoperability Governance: Embarking on the general understanding of governance, interoperability governance refers to providing the functions and support measures to design, implement and use interoperability enablers and artefacts at different layers of interoperability. This includes the provision of enabling frameworks, processes, managerial and steering functions as well as support instruments for decision making - in particular in order to align investments with the overall interoperability objectives at strategic and policy level.

Interoperability governance also strengthens the reuse of existing generic interoperability solutions at operational level and in different policy domains. It caters for change management, up-to-dateness and sustainability of existing and newly required generic interoperability enablers, artefacts and supportive measures.

⁹² The Open Group, TOGAF. The Open Group Architecture Framework. Version 9, Van Haren Publishing, 2009

⁹³ OECD, "OECD principles of corporate governance," Organization for Economic Cooperation and Development, New York, NY, 1999

⁹⁴ European Commission, "Annex 2 to the Communication from the Commission to the European Parliament, the Council, the

European Economic and Social Committee and the Committee of Regions 'Towards interoperability for European public services', European Commission, Brussels, 2010

⁹⁵ The Open Group, TOGAF. The Open Group Architecture Framework. Version 9, Van Haren Publishing, 2009

