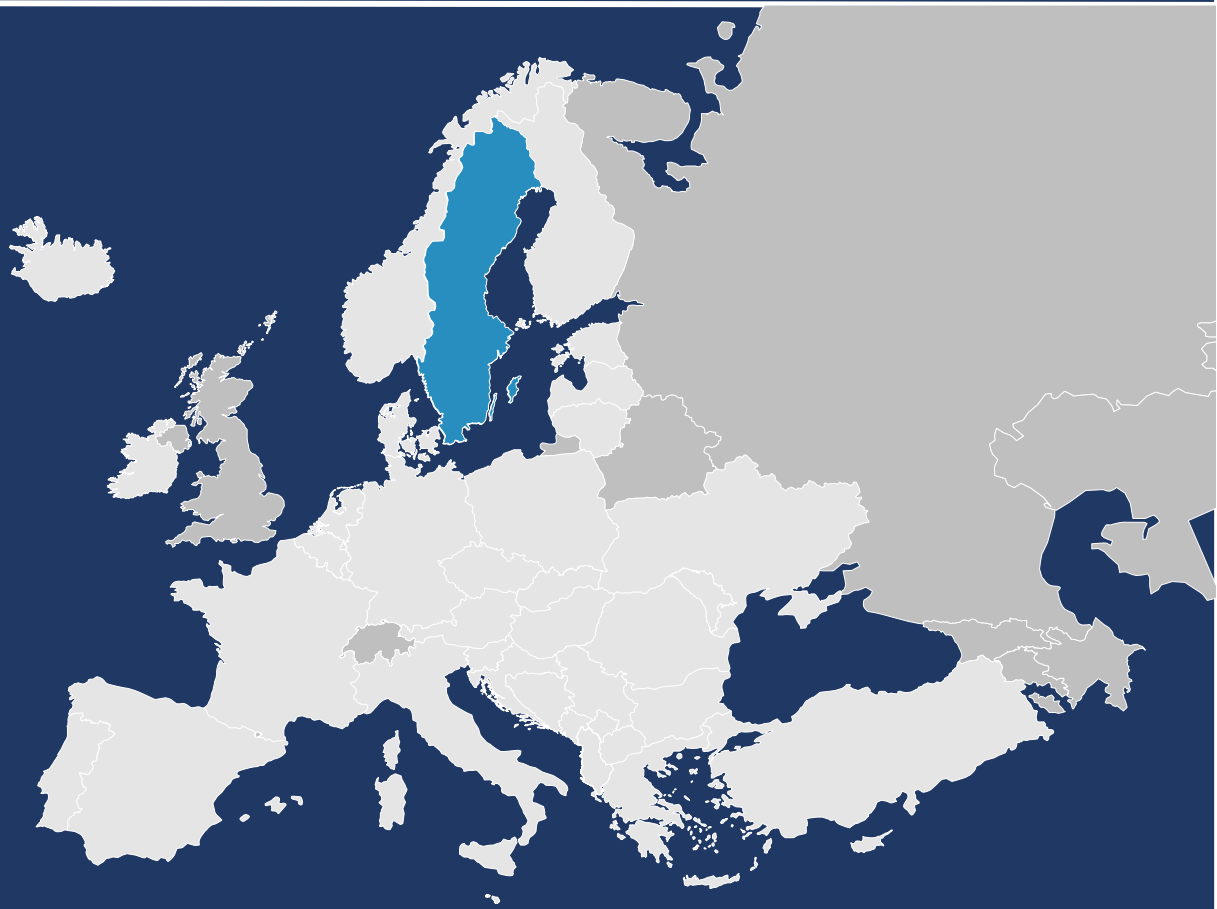# SWEDEN

## 2024 Digital Public Administration Factsheet

Supporting document

Main developments in digital public administrations and interoperability

JULY 2024

# Table of Contents

| Icons Glossary | | |
|---|---|---|
| *Political Communication* | *Legislation* | *Infrastructure* |

**2030 DIGITAL DECADE**

The **Digital Decade policy programme 2030** sets out digital ambitions for the next decade in the form of clear, concrete targets. The main goals can be summarised in 4 points:

1) a digitally skilled population and highly skilled digital professionals;
2) secure and sustainable digital infrastructures;
3) digital transformation of businesses;
4) digitalisation of public services.

**Skills**
20 million employed **ICT specialists**, more graduates + gender balance
80% of adults can **use tech** for everyday tasks

**Government**
**Key Public Services** – 100% online
Everyone can **access health records online**
Everyone can use **eID**

**Infrastructure**
**Gigabit connectivity** for everyone, **high-speed mobile coverage** (at least 5G) everywhere
EU produces 20% of world's **semiconductors**
10 000 **cloud edge nodes** = fast data access
EU **quantum computing** by 2025

**Business**
75% of companies using **Cloud, AI or Big Data**
Double the number of **unicorn startups**
90% of **SMEs taking up tech**

The production of the **Digital Public Administration factsheets and their supportive documents** support the objectives and targets of the Digital Decade programme. By referencing national initiatives on the digital transformation of public administrations and public services, as well as interoperability, they complement existing data and indicators included in the Digital Decade reports and related resources. They also highlight and promote key initiatives put in place or planned by EU countries to reach the Digital Decade's targets.

# 1. Interoperability State-of-Play

In 2017, the European Commission published the European Interoperability Framework (EIF) to give specific guidance on how to set up interoperable digital public services through a set of 47 recommendations divided in three pillars. The EIF Monitoring Mechanism (MM) was built on these pillars to evaluate the level of implementation of the framework within the Member States. The mechanism is based on a set of 91 Key Performance Indicators (KPIs) clustered within the three scoreboards (Principles, Layers, Conceptual model and Cross-border interoperability), outlined below.

Starting from the 2022 edition, an additional scoreboard, Scoreboard 4, focusing on cross-border interoperability, has been incorporated. This scoreboard assesses the adherence to 35 Recommendations outlined in the EIF framework. Specifically, it encompasses Interoperability Principles 2, and 4 through 11 from Scoreboard 1, all recommendations pertaining to Interoperability Layers from Scoreboard 2, as well as Conceptual Model recommendations 36 to 43 and 46 to 47 from Scoreboard 3.



| Scoreboard 1 Interoperability Principles | Recommendation(s) n° |
|---|---|
| Principle 1 - Subsidiarity and Proportionality | 1 |
| Principle 2 - Openness | 2-4 |
| Principle 3 - Transparency | 5 |
| Principle 4 - Reusability | 6-7 |
| Principle 5 - Technological neutrality and data portability | 8-9 |
| Principle 6 - User-centricity | 10-13 |
| Principle 7 - Inclusion and accessibility | 14 |
| Principle 8 - Security and privacy | 15 |
| Principle 9 - Multilingualism | 16 |
| Principle 10 - Administrative simplification | 17 |
| Principle 11 - Preservation of information | 18 |
| Principle 12 - Assessment of Effectiveness and Efficiency | 19 |

| Scoreboard 2 Interoperability Layers | Recommendation(s) n° |
|---|---|
| Interoperability Governance | 20-24 |
| Integrated Public Service Governance | 25-26 |
| Legal Interoperability | 27 |
| Organisational Interoperability | 28-29 |
| Semantic Interoperability | 30-32 |
| Technical Interoperability | 33 |

| Scoreboard 3 Conceptual Model | Recommendation(s) n° |
|---|---|
| Conceptual Model | 34-35 |
| Internal information sources and services | 36 |
| Basic Registries | 37-40 |
| Open Data | 41-43 |
| Catalogues | 44 |
| External information sources and services | 45 |
| Security and Privacy | 46-47 |

Scoreboard 4 **Cross-border Interoperability**

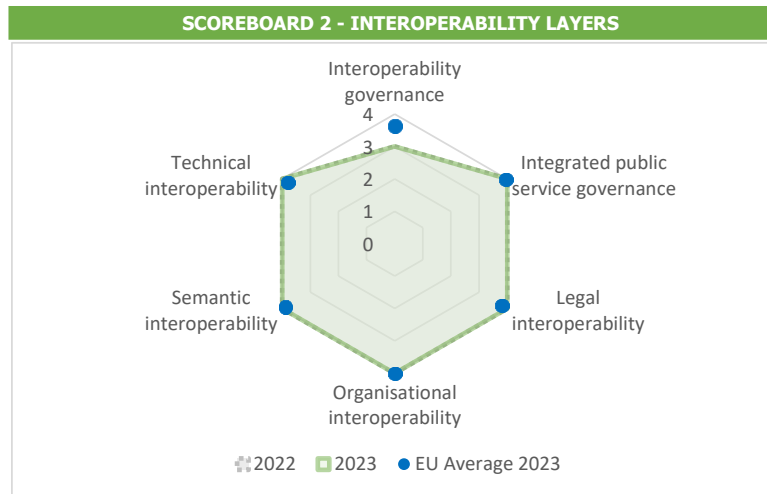Source: European Interoperability Framework Monitoring Mechanism 2023

Each scoreboard breaks down the results into thematic areas (i.e. principles). The thematic areas are evaluated on a scale from one to four, where one means a lower level of implementation and four means a higher level of implementation. The graphs below show the result of the EIF MM data collection exercise for Sweden in 2023, comparing it with the EU average as well as the performance of the country in 2022.
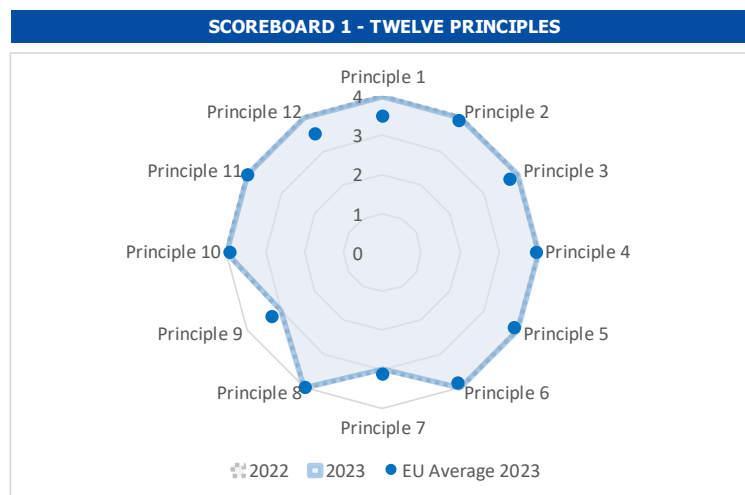


SCOREBOARD 1 - TWELVE PRINCIPLES

— 2022   — 2023   ● EU Average 2023

Source: European Interoperability Framework Monitoring Mechanism 2023

The Swedish results in Scoreboard 1 stand for an overall good implementation of the EIF Principles. Sweden maintains its good results from 2022, obtaining the maximum score of four in ten Principles. The two Principles for which the country has room for improvement are Principle 7 (Inclusion and Accessibility) and 9 (Multilingualism), for which the score is of three. To bring these scores to the maximum level, Sweden should seek to ensure that all European public services are

accessible to all citizens (Recommendation 14 – Principle 7), and to use information systems and technical architectures that cater for multilingualism when establishing a European public service (Recommendation 16 – Principle10).
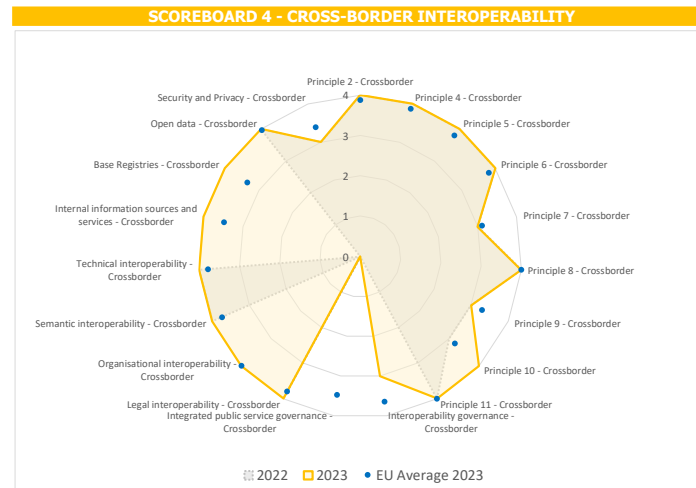


Source: European Interoperability Framework Monitoring Mechanism 2023

Sweden's scores in Scoreboard 2 illustrate an overall good performance of the country with five interoperability layers attaining the maximum score of four. Areas of improvement to strengthen the country's implementation of the recommendations under Scoreboard 2 concerns interoperability governance. To match the European average on this layer, Sweden could focus on ensuring an holistic governance of interoperability activities across administrative levels and sectors (Recommendation 20), and could concentrate its efforts on using a structured, transparent, objective and common approach to assessing and selecting standards and specifications (Recommendation 22).
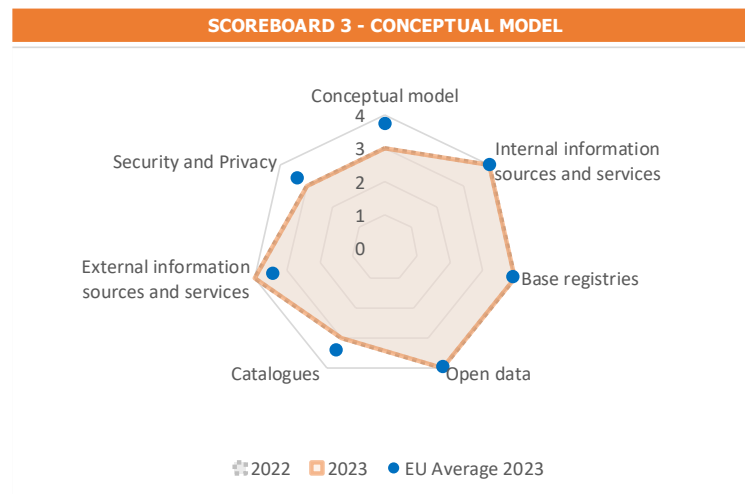


Source: European Interoperability Framework Monitoring Mechanism 2023

The Swedish results in relation to the Conceptual Model in Scoreboard 3 show a good performance of the country. Sweden has a high performance in external information sources and services, performing better than the EU average in this area. The country also has the highest score of four for the internal information sources and services, base registries, and open data. The country has room for improvement in the conceptual model, catalogues, and security and privacy. To attain the maximum score on these areas, the country could focus on deciding on a common scheme for interconnecting loosely coupled service components and put in place the necessary infrastructure for the provision of European public services (Recommendation 35 – Conceptual model), and use trust services according to the Regulation on eID and Trust Services as mechanisms that ensure secure and protected data exchange in public services (Recommendation 47 – Security and privacy).

Source: European Interoperability Framework Monitoring Mechanism 2023

The results for Sweden on Cross-Border Interoperability in Scoreboard 4 show an overall good performance of the country. The country obtained the maximum score of four in almost all areas. The performance of Sweden has still room for improvement. For instance, Sweden could concentrate its efforts in ensuring that all European public services are accessible to all citizens, including persons with disabilities, the elderly and other disadvantaged groups (Recommendation 14 – Inclusion and accessibility – Crossborder). In addition, the country could focus on the use of trust services according to the Regulation on eID and Trust Services as mechanisms that ensure secure and protected data exchange in public services (Recommendation 47 – Security and Privacy – Crossborder).

Additional information on Sweden's results on the EIF Monitoring Mechanism is available online through interactive dashboards.

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**Curious about the state-of-play on digital public administrations in this country?**

Please find here some relevant indicators and resources on this topic:
- Eurostat Information Society Indicators
- Digital Economy and Society Index (DESI)
- eGovernment Benchmark
- Repository of good practices on the EIF implementation

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# 2. Digital Transformation of Public Administrations

## Main Digital Strategies, Action Plans and Legislations

### Swedish Roadmap for the Digital Decade

The Swedish Roadmap for the Digital Decade contains an account of what Sweden is doing to contribute to achieving the EU's digitisation goals in accordance with the Digital Compass, and with respect to the EU's digital rights and principles. The report contains development curves for Sweden for each target until the year 2030. It is based on the Agency for Digital Government (Digg)'s prior report including proposals for national strategic reporting for the Digital Decade.

### Berlin Declaration on Digital Society and Value-Based Digital Government

In December 2020, the Swedish government signed the Berlin Declaration on Digital Society and Value-Based Digital Government, thus re-affirming its commitment – together with other EU Member States – to foster digital transformation in order to allow citizens and businesses to harness the benefits and opportunities offered by modern digital technologies. The Declaration aims to contribute to a value-based digital transformation by addressing and strengthening digital participation and digital inclusion in European societies.

### A Sustainable Digitalised Sweden – A Digital Strategy

In May 2017, the Swedish government presented the strategy 'A Sustainable Digitalised Sweden - A Digital Strategy'. By setting the focus on the government's digitalisation policy, the strategy explains how the digitalisation policy contributes to competitiveness, full employment, and economically, socially and environmentally sustainable development in the society.
To achieve the overall objective of Sweden of becoming a world leader in harnessing the opportunities of digital transformation, the strategy contains five goals:
- Digital skills: enhancing citizens' digital skills, so as to enable them to actively participate in the digital transformation;
- Digital security: increasing digital security, and thus citizens' trust and confidence in using digital services;
- Digital innovation: fostering digital innovation by creating the competitive conditions for the development and spread of new or improved products and services of value to people and businesses;
- Digital leadership: improving digital leadership, which entails better governance, but also measurement and follow-up activities; and
- Digital infrastructure: reinforcing the digital infrastructure, such as broadband, which is crucial for transmitting data.

### Putting the Citizen at the Centre - A Digital Services Strategy

The Swedish government strategy for collaborative digital services in government administration, 'Putting the Citizen at the Centre', was launched in December 2012. This strategy describes how the Swedish government plans to further strengthen the ability of government agencies to work together in delivering digital services.
The most common digital services in the daily lives of both citizens and businesses have been further simplified. These digital services shall be developed in a user-centric way: simple, secure to use and easily accessible to everyone. Innovation has been enhanced by making it easier to find and use reusable public information and digital services with interfaces that can be operated by other systems. The publication of public sector information on the internet and the use of social media have promoted both transparency and citizen involvement. Quality and efficiency in government administration have been increased through standardised information management, better information security and digitalised processes. Such internal efficiency in developing digital services must always be conditional on the protection of personal privacy and the need for confidentiality.
The above-mentioned objectives have formed the basis of the Swedish government's coordinated and overriding development of inter-agency cross-sectorial projects.

## Development for the Digital Age - A New Strategy for Local and Regional Governments

In 2019, the Swedish Association of Local Authorities and Regions (SALAR) adopted a new strategy for digital government, aiming to align efforts related to digital development in SALAR, i.e. the Swedish municipalities and regions, as well as in the SALAR groups Adda (formerly named SKL Kommentus) and Inera AB. The strategy is aligned with the Swedish framework for digital collaboration and the European Interoperability Framework (EIF).

## Digitalisation of Internal Processes

### Administrative Procedure Act

The Administrative Procedure Act, which came into effect in 2018, governs the processing of administrative matters in authorities and courts. It establishes the principles of legality, objectivity, proportionality, service, availability and collaboration for good administration. The act also outlines the procedures for initiating, preparing, deciding, appealing and executing matters. One of the key objectives of the new act was to modernise and simplify the administrative procedure, with a particular focus on facilitating the use of digital tools and communication. To that end, it introduced provisions for oral and electronic processing of matters, marking a significant step towards digitalisation. In addition, it contains provisions on interpretation, translation, documentation, correction and modification of decisions. This emphasis on digitalisation reflects the growing trend of leveraging technology to enhance administrative efficiency and public service delivery.

## Digitalisation Supporting the EU Green Deal

No particular initiatives in this field have been reported to date.

# 3. Interoperability and Data

## Interoperability Framework

### National Standardisation Strategy

The National Standardisation Strategy *(Regeringens strategi för standardisering)* was adopted in July 2018. It identifies a number of Swedish strategic priorities from a national, European and international perspective, and describes how they should be addressed through an active Swedish standardisation policy. In addition, sector-specific priorities are also described. These priorities were identified through a mapping activity and standardisation analysis of the government and other relevant authorities.

### Interoperable Data Exchange

During the last years, the Swedish government has increasingly focused on interoperability and standardisation, as demonstrated by the different government initiatives for standardised and interoperable information and data exchange.

More specifically, two government initiatives were launched in May 2018, focusing on establishing the foundation for a more standardised and interoperable national approach to base registries and information exchange. Several key stakeholders were involved in the initiatives, including some of the larger government agencies and Digg, which had the responsibility to coordinate work.

The final reports for the initiatives were submitted in 2019. In line with the proposals in the reports, two new government initiatives were started at the end of 2019 with a view to establishing a national framework for basic data in public administration and a digital infrastructure for information exchange (Ena). The establishment of both was part of Sweden's National Recovery and Resilience Plan within the Recovery and Resilience Facility (RRF) of the European Union (EU). A final report on the RRF investment was submitted in February 2024.

Work then continued with a new government initiative launched in January 2023, when Digg presented a long-term plan for the development of the Ena infrastructure, together with details concerning its funding. All information can be found in the final report published in the same month.

### Swedish Framework for Digital Collaboration

The Swedish Framework for Digital Collaboration is a set of principles and recommendations to support public organisations in their digitalisation work, and enable them to interact effectively with each other and with other actors, for the benefit of individuals, businesses and society. The framework aims to create a common direction for the public sector's digitalisation efforts, facilitate innovation and promote a single digital market. It is based on the EIF, adapted to the Swedish context and conditions.

### Set-up of Standards and Specifications for the Health and Social Care System

To improve interoperability within the healthcare and social service system, the Swedish eHealth Agency (*E-hälsomyndigheten*) is working with an online catalogue of eHealth specifications. The catalogue furthers the vision to eliminate ambiguity when systems, professionals and organisations exchange information. Harmonised and reusable specifications – and a shared commitment to ensure their widespread adoption – are fundamental to achieve interoperability.

In addition, the National Board of Health and Welfare has been investigating how and to what extent different types of artificial intelligence (AI) solutions are being applied within the healthcare system.

### Governmental Investigations on Interoperability

Two governmental investigations were launched during 2022 regarding enhanced interoperability: (i) developed regulation and control of interoperability when sharing data within the public administration and from the public administration to external actors (2022:118); and (ii) health data as a national interest – legislation for interoperability (2022:98).

In this context, a report titled 'SOU 2023:96' was published in 2023. It aims to analyse and propose improvements for interoperability in data sharing within the public administration and with external actors. The report emphasises the need for a unified regulatory framework to realise the benefits of data sharing and meet EU standards. It also highlights the progress made by neighbouring Nordic countries in this area.

Furthermore, a directive (2022:98) aiming to strengthen healthcare through more efficient and secure access to health data for primary and secondary use is expected to be published on 30 April 2024. It proposes measures for better and safer health data supply, enhanced patient safety, patient-centred care and reduced administrative work.

## Data Access, Management and Reuse

### National Strategy for Data

In October 2021, the government adopted a National Strategy for Data aiming to increase the amount of data that can be used for the development of, for example, AI by facilitating data sharing. As data is a strategic resource for the future, Sweden actively contributes to the implementation of the European Data Strategy and to the OECD Recommendation on Increased Data Sharing.

### References to the Once-Only Principle

Although the Once-Only principle (OOP) is not legally mandatory in Sweden, the Swedish national budget proposal for 2017 clearly referred to it and provided for cases where it should be applied. From a Swedish perspective, the OOP means that an amount of data reported to an authority must, if possible, be reused before it is requested again. Managed by Digg, the OOP is also part of the Swedish Framework for Digital Collaboration. Additionally, a Swedish government committee has been in charge of developing further proposals and recommendations for the application of the OOP in Sweden as to the companies' interactions with the public sector. It mainly proposed how coordination with regard to the OOP can be organised, and how a good and consistent description of the data requirement can be maintained.

Furthermore, a number of Swedish authorities, mainly the Swedish Companies Registration Office (*Bolagsverket*), the Swedish Tax Agency (*Skatteverket*) and the Stockholm University, participated in the European large-scale pilot projects Once-Only Principle (OOP) and Digital Europe For All (DE4A), both exploring the OOP prior to the introduction of the Single Digital Gateway Regulation.

The Nordic Council of Ministers is the official body for inter-governmental cooperation in the Nordic region. Under its leadership, together with other countries, Sweden is working with a proof of concept (POC) to test the development of the Once-Only technical system (OOTS). Sweden also participates in the Single Digital Gateway coordination group and the six subgroups that are organised by the European Commission to implement regulations regarding the OOTS. Finally, Sweden and the Netherlands are working together to learn from each other's Single Digital Gateway solutions in general and to test technical solutions between the two countries' OOTS systems.

### Act on the Reuse of Public Administration Documents

The EU Open Data Directive (2019/1024) was implemented in Sweden through the Act (2022:818) on the Public Sector Making Data Available. The overarching purpose of the directive is to promote the use of open data, and stimulate innovation in products and services. In this context, both pieces of legislation aim to encourage the public sector to make data available for reuse, in particular in the form of open data.

### Secure Data Communication

The infrastructure for secure digital communication is operated by Digg, and owned jointly by municipalities, regions and State agencies. The solution uses the CEF eDelivery building block, i.e. the architecture for safe transport of information between entities that is also provided by Digg. Since March 2022 it has been possible to connect to the infrastructure, which enables a safe exchange of information between authorities.

### Standard Business Reporting

Standard Business Reporting (SBR) is a methodology for the digital exchange of structured business information whose basis consists of financial information. That way, the SBR, based on open standards to increase the availability of structured business data, creates business value through digitalised financial information.

The SBR is now considered established in Sweden. The Swedish Companies Registration Office opened its digital submission service for annual reports in 2018, and since then, both Statistics Sweden (SCB) and the Swedish Tax Agency have also launched their digital submission services. These three submission services accept XBRL files and are based on common taxonomies for financial reporting. This enables future information exchange of financial data between parties and streamlines companies' reporting processes.

In 2023, the Swedish authorities within the SBR collaboration agreed on a common framework for managing and developing these shared taxonomies, known as TaxSam Företag. The intention is to allow service and system providers in Sweden to use the same taxonomy framework, creating value for the Swedish society. These taxonomies facilitate semantic, legal and organisational interoperability at the national level. Together with the SIE and XBRL formats, they ensure technical interoperability in Sweden.

Additionally, the taxonomy framework is used to create semantic interoperability at the Nordic level through collaboration within the Nordic Smart Government and Business Programme. During 2023 feasibility studies were initiated to achieve the goals outlined in the roadmap of the programme until 2027. In 2024, regulatory and technical prerequisites will be identified to enable a harmonised submission process for Swedish companies, and their providers of system and consulting services. The vision is to have a unified process that can be carried out simultaneously when companies compile their reports for annual financial statements to the Swedish Companies Registration Office, tax reporting to the Swedish Tax Agency and financial information statistics to the SCB.

### Public Procurement Statistics

New legislation on public procurement statistics (*Lag om upphandlingsstatistik*) entered into force in 2020. It aims to ensure public access to procurement data. The National Agency for Public Procurement is responsible for the governance of a national statistical database for public procurement.

## Open Data

### Network Open Source and Data

In the Network Open Source and Data (NOSAD) public entities gather to share best practices and lessons learned through monthly workshops on subjects concerning innovation, open data and open source. In addition, they collaborate on community initiatives, such as a catalogue of open source software used within public services. The purpose is to inspire the public sector as to how to take the next step to promote innovation and maximise the effects of digitalisation using open data and open source. The network is organised by the Swedish Public Employment Service (Jobtech Development), Digg, SALAR and the Swedish Internet Foundation.

## Base Registries

The following table lists the Swedish base registries:

| National |
|---|
| <table><tr><td>Business and Tax</td><td><ul><li>The Act (2001:181) on Tax Registration defines the content and functions of the Tax Registry under the agency of the Ministry of Finance. It also provides details regarding access to data in the Tax Registry.</li><li>The Swedish Companies Registration Office is responsible for the Swedish Business Registry under the agency of the Ministry of Trade and Industry. The Swedish Business Registry is a comprehensive database that contains information about all companies and local units in Sweden. Its primary purpose is to ensure the quality of company information and to provide it, thereby contributing value to society. The registry is chiefly managed by</li></ul></td></tr></table> |

| | |
|---|---|
| | the Swedish Companies Registration Office, which deals with the registration of new companies and of changes for existing companies, receives annual reports, registers corporate mortgages and takes decisions on liquidations. |
| Transportation / vehicles | The Act (2019:370) on Vehicle Registration and Use contains provisions on the registration of motor vehicles and trailers in the Road Traffic Registry. The information that must be registered in the Road Traffic Registry is specified in the Act (2019:369) on Road Traffic Data and the regulations that have been issued in connection with the act. |
| Land | The Real Property Registry was established by the Act (2000:224) on the Real Property Registry. The act includes provisions on the purpose and content of the registry, the agency which enters the information into the registry, the privacy management, the disclosure of records for automatic processing, the fees, etc.<br>The Swedish Mapping, Cadastral and Land Registration Authority publishes the information contained in the registry and makes it available to everyone. The information within the Real Property Registry is open for reuse for certain purposes. Organisations can apply to get access to information from the registry if the purpose for reusing the information is legitimate. The information in the Real Property Registry is available in standardised and interoperable formats, according to the INSPIRE Directive. |
| Population | The Population Registration Act describes when and where a person has to be registered, when a change of address has to be reported and how a population registration decision may be appealed. The act is supplemented by a Population Registration Ordinance, which includes rules prescribing that certain authorities should furnish the Population Registry with information concerning addresses. The Population Registry is the basic registry of the population of Sweden, and contains information about who lives in the country and where they live. Name, identity and family relationships are also registered in the Population Registry. |
| Other | / |
| Sub-national | |
| Base Registries | / |

## Data Platforms and Portals

The following table lists the Swedish data platforms and portals infrastructures:

| | |
|---|---|
| Dataportal.se | Since September 2018, Digg has been responsible for the management and development of the Swedish Open Data Portal, dataportal.se. The portal was formally launched in 2020 after a period in a beta version. At the same time, the older and preceding data portal oppnadata.se was closed. The dataportal.se portal aims to provide easy access not only to data resources from both private and public sector organisations, but also to specifications and terminologies important for making data available in a standardised and structured manner. Data providers can also find support for the process of making data available on the data portal. Furthermore, measures have been introduced to publish open data and conduct open data-driven innovation through knowledge sharing and an online community. All data on dataportal.se are also made available on the European Data Portal. |
| Government Portal | The Swedish government portal is a comprehensive online resource that serves as the official digital gateway to all information and services provided by the Swedish government. It offers a wide range of information, from detailed descriptions of the government's priorities and legislative changes to news updates and press releases. The portal is |

| | |
|---|---|
| | designed to be user-friendly and is responsive across various devices, ensuring accessibility for all users. It also highlights the government's efforts in various areas, such as strengthening Sweden's security, supporting international development, and promoting policies for a sustainable society. The portal is an essential tool for citizens, providing them with up-to-date information on the government's activities and initiatives. |
| Geodata Portal | The Swedish Geodata Portal (*Geodataportalen*) is a national registry for spatial data services that enables users to search, view and download data. The portal is hosted by the Swedish Mapping, Cadastral and Land Registration Authority (*Lantmäteriet*) in its role as national coordinator for the Swedish spatial data infrastructure. The *Lantmäteriet* also provides information on the national geodata strategy, the Swedish spatial data sharing model and the Geodata Advisory Board, as well as tutorials and other initiatives. |
| Openaid.se | Openaid.se is a website about Swedish development assistance built on open government data from all authorities that handle funds within the Swedish government's Expenditure Area 7 – International Development Cooperation. Data from different sources are collected in one single site with the purpose of making this information accessible for everyone who is interested to find out when, to whom and for what purpose Swedish development assistance funds have been allocated – and what the results have been. The idea is also to open up a debate and dialogue on development assistance and its results. |
| Jobtech Development | JobTech Development is a platform initiated in 2018 bringing together actors operating within or in relation to the Swedish labour market with a view to collaborating on projects related to open data, connected application programming interfaces (APIs) and complementary operational support systems (OSSs). The platform is orchestrated by the Swedish Public Employment Service (*Arbetsförmedlingen*), a Swedish national government agency responsible for enabling the matching between jobseekers and employers on the labour market. Since June 2021, Jobtech has also been coordinating a cross-functional governmental assignment to develop a data infrastructure for skill supply and lifelong learning. |

## Cross-border Infrastructures

The following table lists the European cross-border infrastructures of which Sweden is part of:

| | |
|---|---|
| European Business Registry | Sweden is a member of the European Business Registry, which is part of the Business Registers Interconnection System (BRIS) set up in line with Directive 2012/17/EU and Commission Implementing Regulation (EU) 2015/884. |
| EUCARIS | In terms of cross-border interoperability, Sweden participates in several major activities providing vehicle information at the European level, including the European Car and Driving Licence Information System (EUCARIS). |
| TESTA | The Trans European Services for Telematics between Administrations (TESTA) network is used for a number of cross-border use cases. Sweden is a participant of the network, which has connected several national administrations, departments and services in the country |
| Once-Only Technical System (OOTS) | Sweden has developed the technical infrastructure for the OOTS. The introduction is pending because the legal prerequisites for the exchange of evidence are not yet in place in Swedish law. An investigation of the legal conditions will be carried out in 2024. |

| | |
|---|---|
| EU Digital Wallet | Sweden participates in the large scale pilots for the EU Digital Wallet. As part of these projects it has started the development of EU Digital Wallets for both natural and legal persons. This includes the issuance of wallets, person identification data and attested attributes. During 2024 the EU Digital Wallet will probably only be implemented in test environments. In May 2024 a committee appointed by the government will report on an analysis of the implementation of EU Digital Wallets for production purposes. |
| European Blockchain Services Infrastructure (EBSI) | Sweden has committed to the European Blockchain Partnership by sending experts to most of the user groups and by hosting a European Blockchain Services Infrastructure (EBSI) test node. Sweden is currently chair of the European Blockchain Partnership, together with France and Czechia. Additionally, Sweden is participating in two multi-country projects on European common data infrastructure and services, and the EBSI, both aiming at improving the online provision of digital public services, and making them more user-friendly and seamless. |

## Electronic Exchange of Social Security Information

Sweden makes use of the Electronic Exchange of Social Security Information (EESSI) too. EESSI is an IT system which helps social security bodies across the EU exchange information more rapidly and safely (as required by EU regulations on social security coordination). The goal is to ensure that communication between national bodies on cross-border social security files takes place using structured electronic documents.

# 4. Digital Transformation of Public Services

## Digital Public Services for Citizens

### eInvoicing

#### eInvoicing Legislation

In Sweden, the responsible entity in the field of eInvoicing is the Ministry of Finance. As stated in the applicable legislation (Ordinance for Accounting, 2000; Ordinance for Electronic Information Exchange, 2003), eInvoicing has been mandatory in Sweden since 2008 for central government agencies. According to the accompanying regulations, all central government authorities, as well as sub-central authorities, i.e. regions and municipalities, must be registered in the Peppol infrastructure for receiving eInvoices. Central government authorities must also be able to send eInvoices in Peppol.

All public procurements initiated after 1 April 2019 must be invoiced electronically (Law on Electronic Invoices as a Result of Public Procurement, 2018). The law applies to all public procurements above and below the set thresholds, and includes direct procurements. All suppliers to the public sector must send eInvoices, and buyers must be able to receive and process eInvoices. eInvoices must comply with the European standard, EN 16931, if no other standard is agreed upon. Digg recommends the use of Peppol BIS Billing 3, which is an implementation (CIUS) of the European standard. A supplier which does not send invoices that meet the requirements of the law may be fined.

#### eInvoicing Infrastructure and Standard

The European eInvoicing standard, EN 16931, is mandatory according to the Law on Electronic Invoices as a Result of Public Procurement (2018), but the law permits agreements on the use of other formats. Digg recommends the use of Peppol BIS Billing 3, which is an implementation (CIUS) of EN 16931. According to the Ordinance for Electronic Information Exchange (2003), central government authorities must support Peppol BIS Billing 3, but can also support a few older invoice formats in existing agreements. However all future agreements should be directed towards the Peppol invoice.

Digg also recommends the use of the Peppol infrastructure for sending and receiving invoices as well as other eProcurement messages. Digg is the Peppol authority of Sweden, leading the work on the national Peppol infrastructure and offering support primarily to service providers within Peppol but also to end users, like suppliers from the private sector and buyers in the public sector.

### eHealth and Social Security

#### 1177.se

1177.se is Sweden's largest hub for facts and advice on health and healthcare. All regions collaborate in 1177.se and use it for information on healthcare aimed at residents. The website aims to promote health, increase public knowledge and empower residents in dialogue with healthcare providers. The language on 1177.se should be clear and easy to understand. Articles are often supplemented with illustrations, photos and videos to make the content more accessible. For those who prefer listening to reading, a function is available to have the content read out loud. A selection of articles is also translated into other languages. 1177.se hosts thousands of medical articles on diseases, health, care and treatment, as well as articles on healthcare regulations and patients' rights. 'The Body', a guide in images and text about the body's parts, is also available on the website. All national content on 1177.se follows a specific quality assurance process and is fact-checked by doctors, nurses, dentists and other experts from healthcare. 1177.se has about 350 fact-checkers throughout Sweden who contribute to ensuring the quality of the content. The national editorial team is responsible for ensuring that the content is as understandable as possible for all residents and regularly reviews the texts to ensure they are up

to date. From 1177.se, residents can log in to the eServices at 1177 to handle healthcare matters such as booking appointments or reading their medical records.

## Vision for eHealth 2025

In 2016, the government and SALAR agreed on a common vision for eHealth up to 2025, aiming to provide support to make use of the opportunities of digitalisation in social services and healthcare. In particular, it says that "*[i]n 2025, Sweden will be best in the world at using the opportunities offered by digitalisation and eHealth to make it easier for people to achieve good and equal health and welfare, and to develop and strengthen their own resources for increased independence and participation in the life of society*".

A Strategy for eHealth for the period 2020–2022 complemented the vision. The purpose of the strategy is to determine how the joint work of the government and SALAR should be designed and prioritised. The priorities identified are: (i) people awareness and involvement; (ii) safe and secure information; (iii) knowledge; (iv) digital transformation; and (v) collaboration. The government and SALAR will also work together on the legal framework and the consistent use of terminology and standards.

## *Läkemedelskollen*: the Citizens Portal for Medicine Checks

*Läkemedelskollen* is the portal the Swedish eHealth Agency provides for citizens over 18, who, with an eID, can access the information stored electronically in the registers for which the Agency is responsible. These registers are the National Medication List and the High-Cost Protection Database. An additional register in the portal is the ePrescription for animals, which however is not included in the National Medication List.

## Legislation on the National Medication List

In June 2018 the Swedish Parliament approved a proposal from the government for new legislation on the National Medication List. The National Medication List creates a single source for data on a patient's prescribed medicines and other products while safeguarding the patient's right to privacy. The data may, for example, be used by patients, pharmacies and healthcare providers, under certain circumstances.

The new act (SFS 2018:1212) on the National Medication List entered into force on 1 May 2021, with a transition period of two years. During the transition period, healthcare providers must adapt their systems to the new legislation. Existing information technology (IT) services and systems were to be phased out after the transition period but will continue being in production, in parallel with the new IT services that have been developed for the new list.

Registering data in the National Medication List will be mandatory for pharmacies and prescribers of medicines. Patients can block access to certain information but not opt-out from the registration. Information will be stored for five years.

### Other Key Initiatives

## National Portal for Application to Higher Education

Administered by the Swedish Council for Higher Education (UHR), the national portal antagning.se offers a single point of contact for applying to all higher education courses and programmes at the first and second cycle levels. The portal also contains information about application rules and procedures, important dates, and guidance for understanding how to interpret and handle different grading systems.

The UHR also administers the international portal universityadmissions.se, where international students can apply for admission to courses and programmes offered in English.

## National Portal for Pension Summary

The minpension.se portal is the result of a collaboration between the Swedish government and about 30 pension actors, both private and public, aiming to provide residents in Sweden with a service for keeping control of the different forms of pensions earned throughout their working life. The portal provides support for making a projection and gaining an overview of the pension. Since it is financed by 50% by the Swedish government and for the rest by the connected pension actors, the portal is a neutral and cost-free service for residents.

### Digitalisation of the Judiciary

Digitalisation can contribute to a judicial system which is well-functioning, efficient, based on the rule of law and trusted by the people. Based on the Ordinance (2019:1283) on the Digitalisation of the Judiciary, authorities in the judicial system should accelerate the digital exchange of information and at the same time strengthen their digital government capability. In light of this, judicial authorities have been commissioned to jointly develop methods for managing criminal cases focusing on efficiency and to examine how to offer crime victims a better digital response.

In order to strengthen coordination, the government established a Council for the Digitalisation of the Judiciary, consisting of representatives from the law enforcement agencies. The Council held its first meeting in September 2020.

### eJustice Legislation

In May 2018, amendments were made in the field of eJustice to allow the use of electronic signatures when signing court decisions, and applying for both summary proceedings related to an order to pay and summary proceedings for assistance. Furthermore, electronic signatures may also be used when accepting orders for summary punishment and breach-of-regulations fines, which, among other things, enables a more digital management of fines for traffic violations.

In November 2020, changes to the legislation were passed through the act (2020:918) amending the Swedish Code of Judicial Procedure to further enable and facilitate digital communication in court proceedings. The changes provide, among other things, that as of 2021 Swedish general courts must accept applications for summons and powers of attorney that are signed electronically using an advanced electronic signature. Measures were also taken to reduce the need for paper copies during court proceedings.

### Mina Ombud

Mina Ombud is a Swedish national infrastructure for secure and digital management of powers of attorney currently under development by the Swedish Companies Registration Office, in close cooperation with the Swedish Tax Agency and Digg. The need for a digital management of powers of attorney has increased, leading to separate similar initiatives over the country. So, to save time and budget to the benefit of society, Mina Ombud is the national infrastructure meant to handle digital powers of attorney for the entire country.

The infrastructure provides a national web portal, minaombud.se, which allows companies and people to create, sign, delete and view powers of attorney. The infrastructure also allows external eServices to connect, so that representatives can act in eServices online on behalf of someone else, e.g. filling out eDeclarations or eApplications. The national infrastructure is limited to powers of attorney and does not include other kinds of powers of representation. Those digital powers of attorney will be valid for governmental and municipal agencies, but also with private actors in the long run.

## Digital Public Services for Businesses

### Verksamt.se Portal: the Swedish Business Link to Government

The verksamt.se portal serves as a comprehensive single-entry point for entrepreneurs and enterprises to access relevant and official eServices and information from many public authorities and municipalities. The portal is managed in collaboration between the authorities that provide services to entrepreneurs. The Swedish Companies Registration Office is responsible for the technical operation and the Swedish Agency for Economic and Regional Growth (*Tillväxtverket*) for maintaining the editorial content.

The portal provides guidance and information about starting and running a business, including eServices for the formal registration in the Business Registry and the tax registration. It also includes interactive checklists, general information and inspiration for many lines of businesses. During the pandemic, it was a central point for information about all measures relevant for businesses.

A new platform is being developed and will open opportunities for further development of the verksamt.se portal with more, better and easier information and eServices for entrepreneurs and enterprises.

## Public Procurement

### Guidance from Central Government Authorities

The National Agency for Public Procurement provides guidance on eProcurement, eCommerce, the usage of dynamic purchasing systems and the sustainability analysis. The adopted method allows government agencies to focus their sustainability efforts on high impact categories. Digg is the Swedish Peppol authority, leading the work on the national Peppol infrastructure and offering support primarily to service providers within Peppol but also to end users, like suppliers from the private sector and buyers in the public sector. Digg also provides guidance on eProcurement, the use of the Peppol infrastructure and standards for post-award messages.

### eProcurement Virtual System

The central eProcurement authorities' role consists in monitoring the supplied services and compliance with standards. In general, the Swedish government has not implemented a central electronic public procurement portal, as this is deliberately left up to private operators. Several privately owned and operated portals exist instead, some of which concentrate on public procurement.

### Information on Coordinated Public Sector Framework Agreements

General information on public procurement in Sweden is to be found at the website of the National Agency for Public Procurement. The National Agency for Public Procurement is also involved in the pre-award phase of eTendering in Peppol, while Digg is active in the post-award phase.

Furthermore, the National Procurement Services offer a website, avropa.se, that serves as an information database on the coordinated framework agreements that are procured centrally by the National Procurement Services. The portal contains information on framework agreements available to government agencies/authorities and guidance material on how to use them. In the field of IT and telecom, the framework agreements are also available to Swedish municipalities and regions. An agency can use the information portal to locate the necessary information on a framework agreement, whereas the procurement process is further handled by the agency itself, either by electronic or traditional means.

Adda is involved in framework agreements for regions and municipalities. Owned by SALAR, Adda has more than a 100 different framework agreements supporting the public sector on a subcentral level.

## Digital Inclusion and Digital Skills

### *Digitalhjälpen:* Increasing the Digital Competence among the Elderly

Particularly elderly persons face specific challenges to use the possibilities that digital services and tools offer, a matter that was made significantly acute by the 2020 COVID-19 pandemic. In light of this, the Swedish government assigned the Postal and Telecom Authority (PTS) a mission to conduct efforts to improve the ability of elderly people to use digital services and increase digital participation, thus lessening their social isolation.

As part of these efforts, the website *Digitalhjälpen* ('The digital help') was launched as a means to support the elderly. The site is composed of the following sections: (i) examples of digital services; (ii) support for increasing digital competence; and (iii) guides to use a number of common digital services.

# 5. Trust and Cybersecurity

## eID and Trust Services

### Plan for a National eID

In January 2023, Digg provided an analysis of possibilities and proposals for the production and operation of an eID with level of assurance 'high' provided by a governmental authority. A Committee appointed by the government supported in a report delivered in the same year the main findings and added some extra requirements. In December 2023 the government entrusted Digg with developing an eID according to that plan. The initial report estimated that the development would take at least 24 months. Digg has started the work based on this estimate but hase not yet an analysis of the impact of the added requirements.

The Committee will also analyse and propose how a digital identity wallet can be issued according to the requirements in the upcoming EU Regulation eIDAS II. All EU Digital Wallets should allow users to electronically identify and authenticate online and offline across borders for accessing a wide range of public and private services, such as opening a bank account or declaring taxes in all EU countries. The users shall be in full control of the use of the EU Digital Wallet and of the data contained therein.

### Official eID Card

In 2005, the Swedish government introduced the 'official' eID card containing biometric data. The new 'national identity card' (*nationellt identitetskort*) is not compulsory and does not replace previous paper ID cards. It can be used as proof of identity and citizenship, and as a valid travel document within the Schengen area. The card complies with the International Civil Aviation Organisation (ICAO) standards for biometric travel documents; it is issued by passport offices and manufactured by the same supplier as the biometric passport. In addition to the contactless chip containing a digital picture of the holder, it also has a traditional chip, which may be used to securely access eGovernment services in the future.

Despite the fact that it can be read electronically, the card is not an eID that can be used to authenticate the user remotely. A study proposed to complement it with an eID according to eIDAS level of assurance 'high'. As the changes needed would take long, however, the current work described in the Plan for a National eID doesn't provide for the implementation in the national eID card. Nonetheless, this remains a desired option for the future.

### eIDAS

Sweden has implemented the eIDAS infrastructure and has established communication with all notified countries which are also technically prepared to deliver identity assertions according to their notification. Most of the services, however, require that the eID assertion contains a Swedish identification number, which prevents users to take full advantage of the service. Sweden has notified Freja eID+ and made it available for other Member States, and connection is established with 18 Member States. Moreover, about 460 agencies and municipalities have now integrated cross-border authentication among their eServices or have initiated the process to that end.

### Act on the Systems of Choice for Electronic Identification Services

The Act (2013:311) on the Systems of Choice for Electronic Identification Services was the base for the public sector to procure eIDs from private providers. The act was replaced by the Act (2023:704) on the Authorisation System in respect of Services for Electronic Identification of Individuals and for Digital Mail. The transition will be completed during 2024. Only a minor impact on the way the national eID systems work is expected.

## Cybersecurity

## National Cybersecurity Strategy

The government presented Sweden's first National Cybersecurity Strategy in June 2017. In July 2018 the strategy was then supplemented with an appendix which, among other things, included an overview of ongoing and completed measures initiated by the government in 2017–2018, totalling approximately 50.

At the beginning of March 2019, seven government agencies with responsibilities in the field of cybersecurity also presented a Comprehensive Cybersecurity Action Plan 2019-2020 to implement the strategy at the agency level. The action plan contained 77 of the most important measures that were scheduled to begin implementation in 2019. The Swedish Civil Contingencies Agency (MSB), together with the same seven government agencies, then released updated versions of the action plan annually until 2022. The latest update of the Comprehensive Cybersecurity Action Plan was released and made publicly available on 2 March 2022.The updated versions contained new measures to be initiated as well as an evaluation of the measures introduced starting in 2019. Finally, Sweden also intends to present a new National Cybersecurity Strategy, in line with the NIS2 directive.

## Swedish Government Secure Intranet

The Swedish Government Secure Intranet (SGSI) is an intranet service for secure communication between government agencies, and among EU Member States and EU bodies via TESTA, the EU's own private IP-based network for secure information exchange among the European public administrations. The SGSI has a wider function than that of being a national node to TESTA, as it is also used for secure communication between national users. The network is also expected to become increasingly important for national crisis communication among Swedish government agencies.

The SGSI is an IP service, a virtual private network which has no direct connection with the open internet. According to the security target in force, the SGSI is used by accredited government agencies. Accreditation implies that sensitive information which has been classified according to the EU Council's security regulations as 'Restreint UE' can be transferred to TESTA and to connected agencies.

## Ordinance on the Common Public Sector Infrastructure for Secure Electronic Mail

According to the Ordinance on the Common Public Sector Infrastructure for Secure Electronic Mail (SFS 2018:357), Digg should provide a common public sector infrastructure which makes it possible for public sector bodies to send secure electronic mail to individuals.

## Protective Security Act

The Protective Security Act protects activities of importance for Sweden's national security, also encompassing activities covered by an international binding security commitment for Sweden. It emphasises that security-sensitive activities can be performed by both government agencies and private operators. In addition to regulating security for the handling of classified information, it emphasises the need for protection of other security-sensitive domains, such as essential information systems.

## Transposition of the NIS Directive

Directive 2016/1148 concerning measures for a high common level of security of network and information systems across the Union (NIS Directive) was transposed into Swedish law on 1 August 2018, through SFS 2018:1174. Operators of essential services and digital services became subject to information security requirements in accordance with the NIS Directive.

# 6. Innovative Technologies

## Artificial Intelligence

### AI Commission

In December 2023, the government appointed an AI Commission. The Commission shall (i) analyse the conditions for higher education to meet tomorrow's needs in AI use and development, among other things; (ii) identify how Sweden can act to promote competitive and safe AI within the EU and globally; (iii) propose how Sweden can attract venture capital and facilitate innovation to strengthen competitiveness in AI; (iv) propose how public administration can be made more efficient by using AI; and (v) analyse how the use of AI can affect and promote Sweden's security and counteract undue influence on democracy.

### AI Co-pilot for the Public Sector

In 2024 a project partly funded by the government was launched to develop a co-pilot meant to support public sector businesses. The project is managed by AI Sweden, a non-governmental organisation, and is also supported by four State agencies with a view to realizing the ambition to implement AI co-pilots as public infrastructure. A number of municipalities and regions will work with the first version from the start.

### Large Natural Language Model

AI Sweden, together with RISE and WASP WARA Media & Language, is developing a large-scale generative language model for the Nordic languages, primarily Swedish. The model is called GPT-SW3 and has been released with open licence on HuggingFace.

### Declaration on AI in the Nordic-Baltic Region

In May 2018, the Ministers responsible for digital development from Denmark, Estonia, Finland, the Faroe Islands, Iceland, Latvia, Lithuania, Norway, Sweden and the Åland Islands released a Declaration on AI in the Nordic-Baltic Region. The Declaration aims to create synergies among the Nordic-Baltic countries on:
- Improving opportunities for skills development with the goal of enabling more authorities, companies and organisations to use AI;
- Enhancing access to data for AI to be used for better service to citizens and businesses in the region;
- Developing ethical and transparent guidelines, standards, principles and values to guide on when and how AI applications should be used;
- Ensuring that infrastructure, hardware, software and data, all of which are central to the use of AI, are based on standards, enabling interoperability, privacy, security, trust, good usability and portability;
- Ensuring that AI gets a prominent place in the European discussion and implementation of initiatives within the framework of the Digital Single Market;
- Avoiding unnecessary regulation in the area, which is under rapid development; and
- Utilising the structure of the Nordic Council of Ministers to facilitate the collaboration in relevant policy areas.

### Government Assignment to Promote Public Administration's Ability to Use AI

In 2021, the Swedish government gave an assignment to four government agencies, the Swedish Companies Registration Office, the Swedish Public Employment Service, Digg and the Swedish Tax Agency, aiming at promoting the ability of the public administration to use AI. The assignment was completed in January 2023 with the following results:
- A collaborative platform was created with the deliverables from the AI assignment, such as an AI guide, a trust model and information about relevant AI projects. The results have been made available on the Swedish Data Portal to encourage learning, sharing and reuse within public administration, academia and industry;

- Two AI building blocks (a translation and a transcription service) were developed and, according to the plan, should be made available in the Swedish digital infrastructure (Ena);
- A policy lab was established together with the participating authorities, Combient AB and RISE Research Institutes of Sweden AB, with the aim of investigating how the upcoming AI regulation can affect AI work in practice; and
- Needs analyses were carried out, showing a clear need for a joint administration effort to make an AI infrastructure available for all public actors in Sweden.

### National Approach to Artificial Intelligence

The Swedish government adopted the National Approach to Artificial Intelligence in June 2018. It contains key conditions for the use of AI in Sweden to achieve the government's goal to make Sweden a leader in harnessing the opportunities that AI can offer.

In January 2020, Digg released its report 'Promoting public administration's ability to use AI'. Together with the Vinnova (the Swedish Innovation Agency) 2018 report 'Artificial intelligence in Swedish business and society' and the SCB's report on charting the use of AI and the analysis of large amounts of data in Sweden of November 2020, this report provided a comprehensive overview of the status of AI in Sweden, its uses and its obstacles, as well as recommendations for new initiatives. All reports are available to governmental decision-makers. Furthermore, Vinnova declared that over the following ten years an additional SEK 50 million per year would be added to the annual SEK 150 million for financing AI projects.

In November 2020, the Swedish eHealth Agency published its report 'Artificial Intelligence and eHealth' (*Artificiell intelligens och e-hälsa*). In this report the Agency discusses possibilities and challenges, national and international investments in AI, legal and ethical aspects, as well as competence needs, specifically in the healthcare sector.

## Distributed Ledger Technologies

### Proof of Concept using Distributed Ledger Technology/Blockchain

The Swedish government gave the Swedish Companies Registration Office an assignment in 2021 to develop a proof-of-concept (POC) using the blockchain or the distributed ledger technology (DLT) with the purpose of giving companies more control over their data and more opportunities to share data with each other. As of March 2023, the second phase of the project had been finalised. Since then, the Swedish Companies Registration Office has been exploring how proofs, permits and certificates can be found in the blockchain and function as a real verification service. Thus, the Office has moved beyond the initial POC and analysis stage, and is now considering practical applications of the technology.

Within the framework of the assignment, the Swedish Companies Registration Office has also started a collaboration with the Gothenburg Blockchain Lab. It will conduct a case study, headed by PhD student Mikael Lindquist, and contribute with its knowledge and expertise to the assignment.

## Big Data

No particular initiatives in this field have been reported to date.

## Cloud & Edge Computing

No particular initiatives in this field have been reported to date.

## Internet-of-Things

### IoT Sverige

IoT Sverige is a national initiative to make Sweden a leading force in the usage of the Internet of Things (IoT). It is one of 17 strategic innovation programmes funded by the Swedish Research Council, Vinnova, the Swedish Energy Agency and Formas. IoT Sverige finances innovative projects within the IoT starting from the assumption that the IoT will contribute to

solving societal challenges, in cooperation with municipalities, companies and researchers, and in that way strengthen companies' international competitiveness.

## Quantum Computing

### High-Performance Computing

Sweden is a participating country in the EuroHPC Joint Undertaking (JU), where it is represented by the Swedish Research Council. As part of EuroHPC JU, the EuroCC National Competence Centre Sweden (ENCCS) provides high-performance computing training and support for industry, academia and public administration for free. The second phase of the EuroCC, with national financial support and grants from the Digital Europe Programme, started on 1 January 2023. A third phase of the project is expected to start in 2026, focusing on the deployment and operation of the EuroHPC supercomputers, and the provision of advanced HPC services to users from the public and private sector. The details of EuroCC 3 are not yet available, but it is likely to continue the activities and objectives of the previous phases.

The country also participates in the LUMI consortium (lumi-supercomputer.eu). LUMI has been in full operation and open for all European customers since December 2022, including with a graphics programming unit (GPU) cluster. In June 2023 LUMI was ranked 3rd among the world's supercomputers in the Top500 and Green500 rankings.

In 2022, the Swedish Research Council decided on the Swedish participation in the following initiatives:

- EuroHPC-2022-CEI-QUT-01 Quantum Computing: investment in a quantum computer connected to LUMI but placed in Czechia, SEK 1 million per year for three years;
- Horizon-EUROHPC-JU-2021-COE-01-01 and 02: Swedish participation in four centres of excellence for the development and support of applications on EuroHPC computers (three from the Swedish Research Council and one from Formas), approximately SEK 6 million per year for four years; and
- Digital-EUROHPC-JU-2022-NCC-01-RIA: continued financing of the ENCCS, with approximately SEK 4 million per year for three years.

An investment has also been made to expand Sweden's fastest supercomputer, called Berzelius, at the National Supercomputer Centre (NSC) in Linköping, with 34 more DGX-A100 compute nodes, giving a total computing capacity of 470 PetaFlops (AI).

Starting on 1 January 2023, the National Academic Infrastructure for Supercomputing in Sweden (NAISS) is the new organisation responsible for high-performance computing, storage and data services for academic users in Sweden. The Linköping University is the host organisation, but NAISS acts independently with a national perspective and responsibility. The former organisation, called SNIC, no longer exists.

### National Supercomputer Centre at Linköping University

Berzelius, located at the NSC at the Linköping University, was Sweden's fastest supercomputer for AI and machine learning in 2021. It is based on an Nvidia DGX Super Pod architecture and has a computing capacity of 300 PetaFlops for AI. Berzelius is an important resource for the development of AI research conducted in collaboration between academia and industry.

### Dardel Supercomputer at the Royal Institute of Technology

The KTH Royal Institute of Technology signed a contract in 2021 for a new supercomputer. The system is an HPE Cray EX supercomputer featuring AMD EPYC™ processors and AMD Instinct™ GPU accelerators. It is housed in the PDC Center for High Performance Computing at the KTH main campus in Stockholm. The Dardel supercomputer was installed in two phases. As of December 2022, Dardel was the fastest high-performance computing system in Sweden and the 5th in the worldwide Green500 list. In recent months, Dardel has undergone a number of expansions and upgrades. The most significant is that 56 GPU nodes have been installed. They are now in operation and in the process of undergoing acceptance tests.

### LUMI Supercomputer

The LUMI consortium, where the Swedish Research Council is a member, signed an agreement to build a supercomputer. The investment is part of the EuroHPC JU, including Sweden as member. The project was finalised in 2021. The LUMI supercomputer was built in Finland and

provides world-class performance, offering great opportunities for Swedish research and innovation.

The government considers that the ongoing cooperation in the EuroHPC initiative contributes to European added value by enabling European researchers to access supercomputers capable of performing calculations on an exascale.

## Quantum Technology

Sweden's flagship quantum initiative, the Wallenberg Centre for Quantum Technology (WACQT), was established in 2018, and includes several universities and industrial partners. The main goals of the WACQT are to develop a competence base in Sweden for quantum technology and to build a quantum computer based on superconducting circuits. The quantum computer being built is currently at 25 gigabits, aiming for 100. A copy of the computer will also be built, offering companies and researchers additional availability for testing and exploration.

The WACQT consists of two parts: (i) an excellence programme for quantum-related research; and (ii) a core project on quantum computing. It is funded for a 12 year-period by the Knut and Alice Wallenberg Foundation (approximately USD 110 million), universities (approximately USD 30 million) and industry partners (approximately USD 15 million). The WACQT is led by Prof. Per Delsing from Chalmers University and the other participating universities are the KTH Royal Institute of Technology, the Lund University, the Stockholm University, the Linköping University and the Gothenburg University.

In addition, Vinnova provides government funding for quantum technology. The objectives of Vinnova's programme are (i) to facilitate the formation of a Swedish stakeholders' national quantum agenda; (ii) to establish common goals for cooperation; (iii) to promote cooperation platforms; and (iv) to foster entrepreneurs in start-ups and intrapreneurs in industry.

Finally, the European Quantum Communication Infrastructure (EuroQCI) initiative will be a secure quantum communication infrastructure encompassing the whole EU, including its overseas territories. The open call for CEF Digital of 2022 will contribute to cross-border projects.

## Gigabit and Wireless High-speed Networks

### A Completely Connected Sweden by 2025 − A Broadband Strategy

In March 2017, the Swedish government released Sweden's Broadband Strategy, setting out the government's ambitions concerning coverage in the entire country. By way of the broadband policy, the government would like to inspire all operators to a continuous and fast broadband expansion, and, especially, to see an improvement for users who find themselves outside densely populated areas and in small-populated areas, in order for Sweden to be completely connected. The strategy's starting point is a market-driven development complemented by public efforts. The PTS noted in a report (PTS-ER-2022:33) to the Swedish government the need to revise the current broadband strategy and update it with new connectivity targets post-2025. Suggestions include renewed targets for homes to be connected and a new target for user take-up. However, no update of the PTS-ER-2022:23 report is available yet.

During the last three years, the PTS has coordinated and been responsible for the State aid programme for broadband infrastructure investments (gigabit connectivity). During the timeframe Q2 2022–Q1 2023, State aid amounting to almost SEK 1.3 billion was approved, giving approximately 34 000 buildings the opportunity to connect to highspeed broadband. The State aid programme for broadband investments is still continuing.

In its capacity as coordinator of the Connective Europe Facility (CEF), the PTS will also assist Swedish actors applying for funding for high-capacity networks, including 5G systems, for socioeconomic drivers such as hospitals, schools and public areas.

According to the latest broadband survey by the PTS (October 2021), more than 96% of households in Sweden have gigabit access. The corresponding share for rural areas is around 76%. Having reached its peak in 2016, fibre roll-out in Sweden continues to slow down. The PTS expects that this downward trend will continue in the coming years, although State funding will soften the decline and improve gigabit access in rural areas. According to the latest forecasts by the PTS (October 2022), around 98% of households in Sweden will have gigabit access by 2025 and the share is likely to increase further in the years after 2025, as the full effects of State funding programmes become visible. As of 2024, the percentage of households with internet access in Sweden is forecasted to increase by 2.7 percentage points between 2024 and 2028.

## Letter of Intent on the Development of 5G in the Nordic Region

In May 2018, Sweden signed a Letter of Intent on the Development of 5G in the Nordic Region within the framework of the Nordic Council of Ministers. In addition to accelerating the development of 5G, the Declaration outlines the collective vision of the Nordic region becoming the first interconnected 5G region in the world and identifies areas in which Nordic cooperation needs to be strengthened. The document also acknowledges that the deployment of 5G will require substantial investments and an appropriate regulatory framework, both in the national contexts and in forging a common Nordic 5G space.

Around 20% of Sweden's population has 5G coverage according to the latest data by the PTS (October 2021). The PTS expects that investments will continue in the next years, as mobile network operators roll out their 5G networks and upgrade 4G networks. These investments will lead to a rapidly growing 5G population coverage and a substantial increase in network capacity, although end users will probably not receive gigabit access, at least not on a larger scale, as a result.

## GovTech

### GovTech Sweden

GovTech Sweden creates, develops and supports the ecosystem for GovTech in Sweden, and is an exchange platform for ideas and innovations that benefit society. In this ecosystem, users and value creators in the public and private sectors can provide competence and support collaboration. The idea is to create a space where to secure and increase societal value in the digital transformation through cooperation among different actors.

GovTech Sweden has intensified the efforts to increase the use of innovative procurement systems in the public procurement procedures to allow for start-ups, and innovative small and medium-sized enterprises (SMEs) to compete with larger private sector actors. Projects like the Demand Accelerator (*Efterfrågeacceleratorn*) and Ignite Public serve to create meeting places for start-ups and public sector representatives, as well as programmes for ensuring that good solutions to public sector challenges are accelerated within a framework that includes procurement procedures for successful POCs.

### Use of New Technologies in Public Sector

The Swedish Mapping, Cadastral and Land Registration Authority and Digg jointly carried out a government assignment to test new technology for automation in public administration. The goal of the assignment was to explore how the public sector's processes and routines can be automated while maintaining or increasing quality and transparency behind decision-making.

The result, outlined in the December 2020 report, is a trust model for automation in public administration aimed at maintaining trust in the public administration. It is based on transparency and understanding to ensure trust and confidence. The concept was tested at a function of the Land Registry but is generic and intended for use in the entire public sector. The findings of the report are now being used in the above-mentioned assignment to promote public administration's ability to use AI (see Section 3.5.1).

# 7. Digital Public Administration Governance

For more details on Sweden's responsible bodies for digital policy and interoperability, its main actors, as well as relevant digital initiatives, please visit the NIFO collection on Joinup.

## National

### Ministry of Finance

In January 2023, the Ministry of Infrastructure was abolished and its competencies were transferred to the Ministry of Rural Affairs and Infrastructure, the Ministry of Climate and Enterprise, and the Ministry of Finance. The latter is now responsible for matters relating to digital policy. The Minister specifically responsible for digital policy is Mr. Erik Slottner, Minister for Public Administration.

### Agency for Digital Government

In 2018, the Agency for Digital Government (Digg) was established to serve as hub for the digitalisation of the public sector. The primary objective is to improve the coordination of public sector digitalisation and support it at the central, regional and local levels. The agency is also responsible, inter alia, for eIdentification, eInvoicing, digital post, web accessibility, digital infrastructure for information exchange, and promotion of access to and usability of public data. Digg is also the Swedish National Coordinator for the Single Digital Gateway, as defined in Article 28 of Regulation (EU) 2018/1724. Moreover, Digg manages the Swedish data portal, dataportal.se, with the goal of providing a national infrastructure which increases access to public data. During 2021, Digg established a formal organisation for the Swedish data portal responsible for the development and support of increased access to open data and data-driven innovation. Digg also provides methodological support and guidelines to help public actors in making data available for reuse.

### National Government Service Centre

The National Government Service Centre (*Statens Servicecenter*) coordinates the administration of government agencies by offering administrative support services to other government agencies. By working together with other authorities, the Centre can coordinate the overall administrative service needs and deliver services that create volume advantages and cost efficiency within the Swedish State administration.
More specifically, it offers basic services in the areas of salary administration, financial administration and eCommerce. Its operations in payroll, human resources and finance will make the State's administration more efficient. At the service offices, it provides guidance and service to citizens and entrepreneurs in services from the Employment Agency, the Swedish Social Insurance Agency, the Swedish Pensions Agency and the Swedish Tax Agency. The Centre has also expanded cooperation with the municipalities in the country. An example is the city of Malmö and the service office in Rosengård, where citizens receive State and municipal services in the same place.

### Swedish Social Insurance Agency

The Swedish Social Insurance Agency (*Försäkringskassan*) is tasked by the government to offer coordinated and secure IT operations for Sweden's authorities. For a more efficient and safer digitisation of the State administration, increased access to secure functions and improved competence regarding IT operations in the public sector are needed. The government verifies that *Försäkringskassan* has the necessary capacity, competence and experience in the field to build up the necessary capabilities within a relatively short time. *Försäkringskassan* offers everything, from a comprehensive commitment to IT operations for authorities that have little resources for IT operations, to individual IT services for authorities that manage most of their IT operations in-house. The assignment originally extended through 2020, but has been prolonged until 31 December 2024.

## Swedish eHealth Agency

The Swedish eHealth Agency was established in 2014. It is responsible for registries and IT services relating to the management of prescriptions, meeting pharmacies' and caregivers' need to have access to patient-safe and cost-effective information. The Agency is also responsible for coordinating the government's initiatives concerning eHealth and following the overall development in the eHealth area. During the last years, the Agency has been responsible for issuing the EU Digital Covid Certificates in Sweden.

## Swedish Civil Contingencies Agency

The Swedish Civil Contingencies Agency (MSB) is responsible for issues related to civil protection, public safety, emergency management and civil defence. The MSB's responsibilities include supporting and coordinating Swedish cyber and information security, acting as the single point of contact (SPOC) for the NIS Directive, as well as issuing regulations on cybersecurity.
The MSB provides extensive support for a systematic and risk-based information security management, partly through the website informationssakerhet.se. The MSB is also tasked with receiving reports of serious IT incidents from critical market operators (as part of the NIS Directive) as well as from governmental agencies. Based on these two kinds of reports the MSB publishes two summarising reports on a yearly basis. Furthermore, the MSB hosts the Swedish national Computer Security Incident Response Team (CSIRT), CERT-SE. For more information about CERT-SE, see the dedicated paragraph below.

## Legal, Financial and Administrative Services Agency

The National Procurement Services, a department within the central government agency called Legal, Financial and Administrative Services Agency (*Kammarkollegiet*), procure and manage coordinated framework agreements for the public sector in the area of information and communication technology (ICT). More in general, the task of the National Procurement Services is to procure and provide coordinated framework agreements for goods and services of general use to central government agencies, as specified in the Government Regulation concerning the *Kammarkollegiet* and in the Ordinance on Coordinated Public Procurement (1998:796). In the area of ICT framework agreements can also be used by local and regional authorities.

## eCollaboration Programme

Government agencies that were members of the eGovernment delegation started a programme in 2015 to continue their collaboration in the digital field. The main focus of the eCollaboration Programme (*eSamverkansprogrammet*) is to cooperate in developing digital solutions and promote interoperability by networking, using guidelines, and sharing knowledge and best practices. The steering group is formed by the director-generals of the member agencies. By the end of 2023, 38 government agencies had joined the eCollaboration Programme as members. The secretariat is hosted by the Swedish Pensions Agency.

## Municipal Cooperation and Development

Local authorities have their own Collaboration for Cooperative Use (*Sambruk*), the purpose of which is to cooperate around business development and digital services, and to exchange best practices, that way speeding up the development of eGovernment in municipalities. Slightly more than one third of the Swedish municipalities have been collaborating for 15 years in more than 30 projects developed to identify, design and introduce common system architectures, technical platforms and basic functions for digital services in municipalities. They also actively share knowledge around state-of-the-art topics regarding digitalisation and related change management.

## Swedish Agency for Public Management

The Swedish Agency for Public Management (*Statskontoret*) is tasked with providing support to the government and to government bodies through analyses and evaluations of State and State-funded activities. *Statskontoret* sometimes conducts studies, upon the government's request, in the field of digitalisation to help modernise public administration through the use of ICT.

## Swedish Post and Telecom Authority

The Swedish Post and Telecom Authority (PTS) monitors the electronic communications and postal sectors in Sweden. Its mission is to ensure that everyone in Sweden has access to efficient,

affordable and secure communication services. The PTS works on consumer and competition issues, efficient utilisation of resources and secure communications. It is a public agency reporting to the Ministry of Finance and is managed by a board appointed by the government. The PTS is also the Swedish supervisory authority for issuers of qualified certificates to the public.

## Swedish National Digitalisation Council

The Swedish National Digitalisation Council serves in an advisory role on matters of digitalisation in Sweden. In addition to its advisory function, it also provides a forum for strategic discussion between the government, and private and public representatives of various sectors of society.

## CERT-SE

CERT-SE is Sweden's National CSIRT and the constituency consists of the Swedish society, including, but not limited to, governmental authorities, regional authorities, municipalities, enterprises and companies.
In brief, the relevant ordinance states that CERT-SE shall:
- Respond promptly when IT incidents occur by spreading information and, where needed, working on the coordination of measures, and assist in the work needed to remedy or alleviate the consequences of incidents;
- Cooperate with authorities that have specific tasks in the field of information security; and
- Act as Sweden's point of contact for equivalent services in other countries, and develop cooperation and information exchanges with them.

CERT-SE is certified by the Trusted Introducer Service and fulfils the requirements relating to a national CSIRT as established in the NIS Directive.

## National Centre for Cybersecurity

The government commissioned four government agencies - the National Defence Radio Establishment (FRA), the Swedish Armed Forces, the MSB and the Swedish Security Service - to establish a national cybersecurity centre by 2020. The National Cybersecurity Centre aims to strengthen and increase the national capacity to prevent, detect and manage cyberattacks and other cyberincidents that risk damaging Sweden's security. The activities in the Centre will be developed gradually and expand over a five-year period to have full effect in 2025. The goal in the long run is to:
- Compile joint analyses and promote overall situational awareness regarding threats and vulnerabilities;
- Disseminate information between participating authorities and other actors; and
- Coordinate work in the event of cyberincidents, including cyberattacks.

## AI Sweden

AI Sweden is the national centre for applied AI, jointly funded by the Swedish government, and several public and private partners. Its mission is to accelerate the use of AI to the benefit of society, competitiveness and everyone living in Sweden. To achieve this, AI Sweden runs projects of national interest in areas such as information-driven healthcare, AI solutions for the Swedish language, data-driven journalism and AI to help tackle climate change. It also provides targeted training for its partners and the general public.

## Swedish Authority for Privacy Protection

The Swedish Authority for Privacy Protection is a supervisory authority under the General Data Protection Regulation (GDPR) and the Data Protection Directive. It also supplements and implements the Act (2018:218) on Data Protection. The Swedish Authority for Privacy Protection is also Sweden's national supervisory authority for the processing of personal data under the Schengen Convention, the Convention on the EU's Customs Information Systems, the Decision of the Council on the establishment of the EU Agency for law enforcement cooperation (Europol), the Regulation concerning the Visa Information System (VIS Regulation) and the Regulation on the establishment of EURODAC (EURODAC Regulation).

## Subnational (Federal, Regional and Local)

### Swedish Association of Local Authorities and Regions

In 2007, the Swedish Association of Local Authorities and the Federation of Swedish County Councils (FCC) formed a joint federation, the Swedish Association of Local Authorities and Regions (SALAR). SALAR is an organisation representing and advocating for local government in Sweden. All of Sweden's municipalities and regions are members of SALAR.

### Inera AB

Inera AB coordinates the development and management of joint digital solutions that will help to streamline regions and municipalities' operations. Inera AB is a company owned by regions and municipalities, as well as SALAR.

### Single Face to Industry

Single Face to Industry (SFTI) is a joint initiative in the Swedish public sector to promote and facilitate eCommerce/eProcurement. The aim of the SFTI is to recommend standards for eCommerce/eProcurement in the public sector. The work involves public sector entities, suppliers and IT providers. The SFTI recommends Peppol for all eCommerce/eProcurement operations, e.g. business documents for the exchange of catalogues, orders, dispatch advices and invoices between public buyers and their suppliers.
The SFTI is coordinated by SALAR, Digg, the National Agency for Public Procurement (*Upphandlingsmyndigheten*) and the Legal, Financial and Administrative Services Agency.

# 8. Cross border Digital Public Administration Services for Citizens and Businesses

Further to the information on national digital public services provided in the previous chapters, this final chapter presents an overview of the basic cross-border public services provided to citizens and businesses in other European countries. Your Europe is taken as reference, as it is the EU one-stop shop which aims to simplify the life of both citizens and businesses by avoiding unnecessary inconvenience and red tape in regard to 'life and travel', as well as 'doing business' abroad. In order to do so, Your Europe offers information on basic rights under EU law, but also on how these rights are implemented in each individual country (where information has been provided by the national authorities). Free email or telephone contact with EU assistance services, to get more personalised or detailed help and advice is also available.

Please note that, in most cases, the EU rights described in Your Europe apply to all EU member countries plus Iceland, Liechtenstein and Norway, and sometimes to Switzerland. Information on Your Europe is provided by the relevant departments of the European Commission and complemented by content provided by the authorities of every country it covers. As the website consists of two sections - one for citizens and one for businesses, both managed by DG Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) - below the main groups of services for each section are listed.

## Life and Travel

For citizens, the following groups of services can be found on the website:
- Travel (e.g. Documents needed for travelling in Europe);
- Work and retirement (e.g. Unemployment and Benefits);
- Vehicles (e.g. Registration);
- Residence formalities (e.g. Elections abroad);
- Education and youth (e.g. Researchers);
- Health (e.g. Medical Treatment abroad);
- Family (e.g. Couples);
- Consumers (e.g. Shopping).

## Doing Business

Regarding businesses, the groups of services on the website concern:
- Running a business (e.g. Developing a business);
- Taxation (e.g. Business tax);
- Selling in the EU (e.g. Public contracts);
- Human Resources (e.g. Employment contracts);
- Product requirements (e.g. Standards);
- Financing and Funding (e.g. Accounting);
- Dealing with Customers (e.g. Data protection).

## The Digital Public Administration Factsheets

The factsheets present an overview of the state and progress of Digital Public Administration and Interoperability within European countries.

The factsheets are published on the Joinup platform, which is a joint initiative by the Directorate General for Digital Services (DG DIGIT) and the Directorate General for Communications Networks, Content & Technology (DG CONNECT). This factsheet received valuable contribution from Agency for Digital Government (Digg).

*The Digital Public Administration Factsheets are prepared for the European Commission by Wavestone.*

## An action supported by Interoperable Europe

The ISA² Programme has evolved into Interoperable Europe - the initiative of the European Commission for a reinforced interoperability policy.

The work of the European Commission and its partners in public administrations across Europe to enhance interoperability continues at full speed despite the end of the ISA² programme. Indeed, enhanced interoperability will be necessary to unlock the potential of data use and reuse for improved public services, to enable cross-border collaboration, and to support the sector-specific policy goals set by the Commission for the future.

Interoperable Europe will lead the process of achieving these goals and creating a reinforced interoperability policy that will work for everyone. The initiative is supported by the *Digital Europe Programme*.

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