

# Case studies on digital transformation of social security administration and services

Reference Project: CHN/18/01/EUR - Improving  
China's Institutional Capacity towards Universal  
Social Protection

## CASE STUDIES

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**CASE STUDY**  
**AUSTRALIA**



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The project is managed by International Labour Organization (ILO), in partnership with the United Nations University Operating Unit for Policy-Driven Electronic Governance (UNU-EGOV). The work is led by Luis Frota and Morten Meyerhoff Nielsen. This *Case study on Australia* is authored by, Oxana Cacu and Morten Meyerhoff Nielsen with contributions made by Soumaya Ben Dhaou Zoran Jordanoski and Moinul Zaber. Additional contributions made by Luis Frota and Zhou Jie at the ILO, Raul Ruggia Frick and Ernesto Brodersohn at the International Social Security Association (ISSA) and Yanli Zhai and his team at the Ministry of Human Resources and Social Security (MOHRSS), in China.

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## 1. INTRODUCTION

The case study on digital transformation of social security administration and services in Australia consists of seven parts:

- The context of Australia, digitization, and social security.
- Governance, intergovernmental collaboration, and coordination in relation to technology in the digital transformation of social security and social assistance.
- Legal and regulatory framework, standards relating to digital transformation of the social security and social assistance
- Front-end service production ecosystem for social insurance administration and services in Australia.
- Back-end service delivery ecosystem of social insurance administration and services in Australia
- Skills and capacities within social security entities and for social security clients and customers.
- Expansion inclusion and coverage.

The case concludes by summarising the lessons learned from the Australian experience.

The specific links to core research questions and draft questions to guide the case survey and /or interviews are outlined for each section of the case study below.

## 2. CASE CONTEXT

Australia is geographically the largest country in Oceania and is the world’s sixth-largest country in terms of territory and land mass. Its population of almost 26.2 million lives primarily in the eastern and south-eastern coastal areas of the country. Some 86.5% live in urban areas mainly along the coast [22].

Population (June 2022 est.)	26,141,369
Territory (km <sup>2</sup> )	7,741,220
Population density (2021)	3
Official language	English
Life expectancy / median age (2022 est.)	83.09 / 37.5
Urbanisation (%) of total population (2022)	86.5%
GDP (PPP) (USD, 2021 est.)	1.54 trillion
GDP per capita (PPP) (USD, 2021 est.)	59,934.1
GDP growth rate (%) (2021 est.)	1.5%
Unemployment (2021 est.)	5.1%
Imports (billion USD (2021 est.))	275.13 billion
Exports (billion USD (2021 est.))	342.2 billion

**Table 1: Socio-economic data (Source: [22], [33])**

Australia has a complex federal system and model of governance. Power is divided between the Commonwealth, or federal government and the six state governments. Each state has its own constitution, as well as a structure of legislature, executive, and judiciary. In addition to federal and state governments, local authorities (or councils) also play an important role in delivering public services in federal and state governments.

There are 537 local councils across the country, all united under the Australian Local Government Association (ALGA), which developed a Strategic Plan both for 2020-23 and 2017-20 to strengthen innovation and digital transformation in local government [19]. That said, local councils’ services are limited mainly to local infrastructure, urban planning, waste collection, and social services such as meals-on-wheels for senior citizens. Federal and state authorities provide most of the other services.

As the Government’s main service delivery agency, **Services Australia** is responsible for designing, developing, and delivering government services and payments. This agency provides advice to the Government on service delivery and collaborates with other agencies, providers, and businesses to ensure convenient, accessible, and efficient services for individuals, families, and communities [AU1].

Services Australia’s vision is “to make government services simple so people can get on with their lives”. To achieve this vision Services Australia is continuing with its undertaking for a major transformation and modernization programme, by implementing its service delivery modernization agenda (2020-2025) and key transformation reforms that improved customer

experiences in 2020-2021. This builds up the capacity and structures for sustained change, in order to deliver streamlined customer services seamlessly and efficiently [12], [13], [AU2].

Social security benefits in the Australian context cover a multitude of areas. Key areas and services include (see Table 2):

- Family, e.g. child benefits, child care payments and assistance, maternity/parental benefits.
- Health, e.g. public healthcare, sickness benefit, home care service, benefits and carer allowance for looking after close relatives.
- Incapacity, e.g. industrial injuries (accidents at work and occupational diseases), disability pension, senior citizens' age pension, and flexi-jobs.
- Old-age and survivors, specifically old-age pension, early retirement, and survivors.
- Social assistance benefits.
- Unemployment benefits.

## CHANGES TO RECEIPIENTS OF INCOME SUPPORT PAYMENTS OVER TIME: THE AUSTRALIAN EXPERIENCE

### Government pensions and allowances

Australia's social security system, administered by the Department of Social Services, aims to support people who cannot, or cannot fully support themselves, by providing targeted payments and assistance. Income support payments and family assistance payments are 2 major categories of payment.

Data on income support and other payments are sourced from demographic data on Department of Social Services payments (from 2014 to 2021) and previously unpublished data constructed from Services Australia administrative data (2001 to 2013), unless otherwise specified.

### Income support payments

Benefits classified as income support payments generally serve as the recipient's primary source of income. These are regular payments that assist with day-to-day costs of living. Income support payments are subject to means testing – as income and assets rise, the rate of payment is reduced towards zero. Some payments are also subject to activity tests e.g. to continue qualifying for a payment, recipients of unemployment benefit payments must actively be looking for and preparing to work in future. Individuals may only receive one of these income support payment at a time.

The main income support payments are:

- Age Pension.
- Student payments, i.e. Youth Allowance Student and Apprentice, ABSTUDY (Living Allowance), Austudy and unemployment benefit payments, Newstart Allowance (closed 20 March 2020), JobSeeker Payment (from 20 March 2020) for people aged from 22 to Age Pension qualifying age, and Youth Allowance (other) for people aged 16 to 21.
- Parenting payments, i.e. Parenting Payment Single and Parenting Payment Partnered.
- Disability-related payments, i.e. Disability Support Pension and Career Payment.

Income support payments are defined as the combination of all these payments, as well as other small payments. These other payments include Special Benefit, Bereavement Allowance, Sickness Allowance and payments that are closed to new recipients but still paid to existing recipients (including Partner and Widow Allowance to January 2022, Wife Pension to March 2020).

### Family assistance payments

Family assistance payments help families with the cost of raising children. They include:

- Family Tax Benefit (FTB) Part A, a per-child payment for a dependent child aged 0–15, or 16–19 in full-time secondary study
- FTB Part B, a per-family payment. It is paid to couples with one main income until the youngest child is aged 13. It is also paid to single parents, non-parent careers or grandparent careers until the child is aged 16, or 16–18 and in full-time secondary study.

### Recipients aged under 16

A small number of recipients of income support payments are aged under 16 years of age in March 2021: 388 for ABSTUDY (Living Allowance), 10 for Youth Allowance (student and apprentice), fewer than 5 for Youth Allowance (other), 68 for Parenting Payment Single, 757 for Special Benefit. These recipients are included in the numerator when calculating the proportion of income support recipients aged 16 and over in the population, to ensure consistency in recipient numbers reported on this page.

Source: Australian Institute of Health and Welfare, 2021 [17]; European Journal of Information Systems. 2022, Volume. 31, Issue 3, 313-338. "Algorithmic decision-making and system destructiveness: A case of automatic debt recovery". <https://www.tandfonline.com/doi/full/10.1080/0960085X.2021.1960905>

Specifically, social security in Australia refers to a system of social welfare payments provided by the Commonwealth Government of Australia to eligible Australian citizens and permanent residents. Bilateral agreements mean that some international visitors and temporary residents (e.g. students, and employees) may enjoy benefits similar to those for citizens. This means that citizens of e.g. New Zealand and the Pacific Islands, who are visiting or residing in Australia can receive some benefits citizens of other countries may not enjoy [4].

These payments are administered by the Australian Government Department of Human Services, known as Services Australia since May 2019 [13]. In 2020-2021, Services Australia made social services and welfare, combined with health payments totalling approximately AU\$230.1 billion, the majority on behalf of the Department of Social Services, the Department of Health, and the Department of Education, Skills, and Employment [12], [32].

Table 2 shows that Services Australia processed more than 5.2 million claims for social security and welfare within the same period. Of these, around 3.7 million claims were granted and just over 1.5 million were rejected. Essential benefits and services had to meet unprecedented demand as a result of the COVID-19 pandemic and responses to other emergencies.

Payment type	Claims	Granted	Rejected
ABSTUDY	28,500	23,500	5,000
Additional Child Care Subsidy	145,500	121,500	24,000
Age Pension	188,500	155,000	33,500
Assistance for Isolated Children	6,400	4,700	1,700
Carer Payment and Carer Allowance	199,000	131,000	68,000
Child Care Subsidy	401,500	385,500	16,000
Crisis Payment	1,645,500	986,500	659,000
Dad and Partner Pay	110,000	97,000	13,000
Disability Support Pension	96,000	39,000	57,000
Double Orphan Pension	140	100	40
Family Tax Benefit	486,000	315,000	171,000
JobSeeker Payment	764,000	578,000	186,000
Low Income Card	125,500	73,500	52,000
Mobility Allowance	6,400	1,200	5,200
Paid Parental Leave	319,000	291,000	28,000
Parenting Payment	146,500	89,000	57,500
Pensioner Education Supplement	34,000	25,000	9,000
Seniors Health Card	78,000	65,000	13,000
Special Benefit	21,000	5,000	16,000
Stillborn Baby Payment	1,600	900	700
Youth Allowance (JobSeeker)	135,000	83,000	52,000
Youth Allowance Student and Austudy	281,000	183,000	98,000
<b>Total</b>	<b>5,219,040</b>	<b>3,653,400</b>	<b>1,565,640</b>

**Table 2: Services Australia claims finalized, 2020-2021** (Source: [12])

Social security benefits in Australia are generally financed through income taxes, employee and employer contributions. Set minimum benefits are established for potential recipients, with top-ups often applied to low-income or marginalized recipients (e.g. single parents, low-income pensioners, etc.) [AU2].

In terms of organization, specialized authorities at the Federal level set the parameters for a given social security area, including legal, regulatory, and operational parameters. These include eligibility, type of benefit (financial or non-financial), strategic and operational key performance indicators, and who takes on responsible for managing a given benefit. States are responsible for many of the welfare services. [AU1], [AU2]. Two key principles for assessing eligibility are applied in the Australian social security context. Subjective assessment (i.e. based on an individual assessment of personal circumstances, context, and preference within a framework of qualitative and quantifiable criteria), and objective assessment (i.e. based on a set of defined, quantifiable and binary criteria). With respect to digital transformation of social security, the assessment principle is of particular relevance as objective assessment often requires in-person consultation to identify the most appropriate combination of financial and non-financial benefits for a given individual and their circumstances. Subjective assessments display more binary characteristics and may often be automated to a greater extent.)

**Centrelink** is a so-called Services Australia “**master programme**” processing and distributing social security payments to citizens. It delivers a range of government payments and social support services for various citizen groups, including retirees, the unemployed, families, carers, parents, people with disabilities, Indigenous Australians, students, apprentices, and people from diverse cultural and linguistic backgrounds, and provides services at times of major change. In Australia, most payments are means tested, i.e. a determination of whether an individual or family is eligible for government assistance or welfare, based upon whether the individual or family possesses the means to do without that help. The majority of Centrelink payments are based on objective assessment criteria and thus enjoy a high degree of automation [23], [32]].

In addition to Centrelink, Services Australia administers a range of health, pharmaceutical, aged care, and veterans’ programmes and related services through the **Medicare Program**. These enable access to cost-effective medicines, health services, and care, as well as supporting and improving the wellbeing of an aging population. Medicare looks after the health of Australians through programmes such as the Pharmaceutical Benefits Scheme, the Australian Immunization Register, and the Australian Organ Donor Register. According to the Services Australia Annual report 2020-2021 [12], 26.1 million people were enrolled in Medicare during this period, and AUAU\$27.7 billion was paid out as benefits. The percentage of digital claims continues to grow, with 99.5% of Medicare services claimed digitally in the period 2020–2021. Approximately 80% of all health practices lodge 100% of their Medicare claims digitally at their practice.

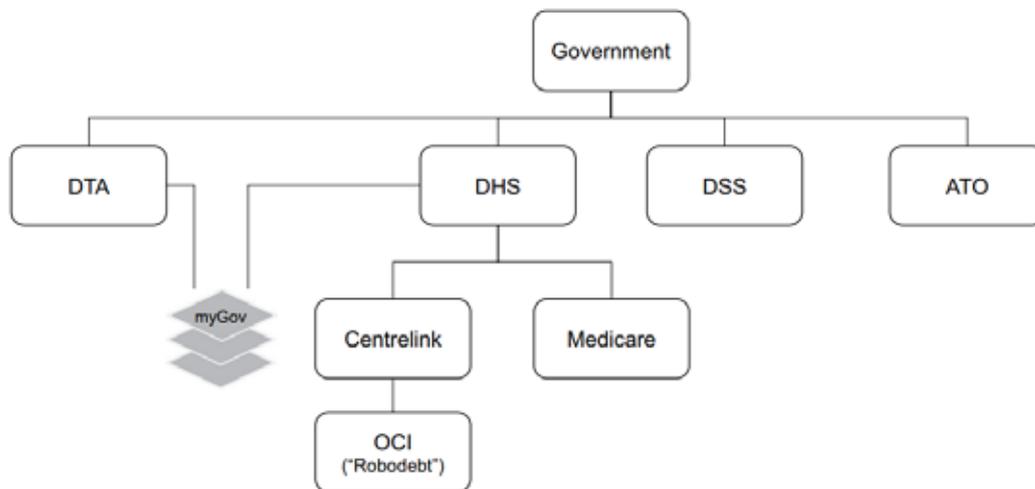
Services Australia delivers the **Child Support Program**, which aims to ensure that children receive an appropriate level of financial and emotional support from parents who are separated. The agency provides child support registration, assessment, collection, and disbursement services to parents and non-parent carers such as grandparents, legal guardians, or other family members. In 2020–2021, the agency worked with separated parents to facilitate the transfer of AU\$3.81 billion to support approximately 1.2 million children.

Fundamental considerations in administering the Centrelink, Medicare, and Child Support programmes are the economic, environmental, equity, and social consequences in short-term and long-term decision making. With respect to **Australia's income support system** [10], [17], this is based on residence and need and is administered through the Department of Human Services by the Australian Government out of general income revenue streams. Payments are usually only available to Australian residents - most migrants are unable to access the majority of payments for up to four (4) years after their arrival under the Newly Arrived Resident's Waiting Period (NARWP). Payments for the long-term contingencies of life and daily living, such as old age and disability, are further restricted to those people with a long-term connection with Australia (unless, in the case of Disability Support Pension, the disability occurs while the person is an Australian resident) [4].

For the Australian context, it is important to refer to the evolution of **welfare departments** [AU1]. In the early 1990s Australia had large departments, similar to a Department of State. Two of the larger, more significant ones were the Social Security Department and the Department of Health. These organizations carried out everything relating to those policy domains (Social Security worked with Government on policy issues to build programmes such as Development-people, Programme-people, and Technology-people programmes) and had staff who delivered operations, handled telephone calls, and people coming in and talking to departments. It undertook everything relating to social security, and the Department of Health was in charge of all-related Health Programmes in Australia. During the 1990s the Government underwent significant changes, and the departments were divided into service delivery [AU2].

In the 1980's and 1990's a number of reforms were enacted at the level of departments. These were aimed at increasing the cost efficiency and productivity of social security, by optimizing the Governments departmental back-office ecosystem and its processes. Reforms were driven by an ageing population, a political agenda of a smaller government, and the welfare state [AU2]. Since the '80s, correspondence between a larger number of ministers (27) and the departments (28) was based largely on a view, that under the Australian Constitution it was not possible to assign more than one minister to a department, although there was no impediment to a minister being responsible for two or more departments. Until 1998, the Department of Social Security was left largely untouched and remained an organization in which administering a large range of payments was more publicly conspicuous than the inherent policy activities. Many of the former activities have been transferred to Centrelink. At a later date, the residual social security functions were combined with others from the former Department of Health and Family Services, the Attorney-General's Department, and the Child Support Agency, previously located in the Australian Taxation Office, to constitute a Department of Family and Community Services. The other welfare department emerging from the 1987 restructuring was the Department of Community Services and Health. At a later date, the responsibility for housing was transferred and the department took on the name of Health, Housing, and Community Services. Following the 1993 elections the department was renamed Health, Housing, Local Government and Community Services, local government having been transferred from the Department of Immigration, Local Government and Ethnic. After the 1998 elections, some functions were transferred to the Department of Family and Community Services, and Health and Family

Services became Health and Aged Care [31]. Organizationally the current organizational structure of the Australian welfare system is summarized in Figure 1.



**Figure 1: Organizational structure of the Australian welfare system (Source: [23])**

The social security ecosystem at Federal level is highly centralized and has a high degree of consolidation at an operational level. Centrelink operates within the Department of Human Services (DHS) and is responsible for service delivery of social policies developed and implemented by the Department of Social Services (DSS). In addition to Centrelink, DHS governs the Australian healthcare programme Medicare, and together with the Digital Transformation Agency (DTA), co-manages the myGov internet portal, which citizens can use to access government services online. The Australian Tax Office (ATO) is responsible for collecting taxes and provides Centrelink data on citizens' income. In July 2016 Centrelink implemented the Online Compliance Intervention (OCI) programme, an automated scheme for calculating debt and collecting debts, which is referred to in popular media as "Robodebt" [23].

With respect to the digital transformation of social security and welfare services, pre-conditions such as internet access and a minimum level of digital literacy and competencies are by and large in place. In fact, Australia is among the most connected countries in the world, with high rates of Internet use and high-speed infrastructure availability.

Population covered by a mobile-cellular network (2020)	99%
Population covered by at least a 3G mobile network (2020)	99%
Population covered by at least 4G mobile network (2020)	99%
Households with Internet access at home (2017)	86%
Mobile-cellular subscriptions per 100 inhabitants (2020)	108
Active mobile broadband subscriptions per 100 inhabitants (2020)	126
Fixed broadband subscriptions per 100 inhabitants (2020)	35
Individuals using the Internet (% of population) (2017)	87%

**Table 3: Connectivity and use of the Internet by households and individuals (Source: ITU, 2021)**

However, remote and rural areas are heavily reliant on mobile connectivity and, by domestic standards, have relatively slow up-loading and download speeds. To compensate for this and

ensure inclusiveness, **regional, rural and remote servicing** are provided by Services Australia, such as face-to-face access to services in regional, rural and remote locations across Australia, including many remote Aboriginal and Torres Strait Islander communities. Services are provided through a mix of Agents, Access Points, service centres, and visits by remote servicing teams and mobile service centres.

ICT skills are considered an important challenge for social security services in Australia. Social security and social assistance beneficiaries make up a large part of the most vulnerable in society. Although other statistics (for example *i-DESI*) show that Australian citizens possess significant ICT skills, official statistics from the ITU do not contain official data about Australia.

Basic ICT skills	N/A
Standard ICT skills	N/A
Advanced ICT skills	N/A

**Table 4: Basic, Standard, and Advanced ICT skills 2019** (Source: ITU, 2021)

Regarding ICT skills, the level of skills is more challenging for social security and social assistance as a large part of beneficiaries are among the most vulnerable members of society. The Australian digital inclusion index, based on the Australian Internet Usage Survey (AIUS) designed by the research team and administered by the Social Research Centre at the Australian National University gives a perspective on the present state of digital inclusion [1]. On a national level, the access score increased from 69.4 in 2020 to 70 in 2021, with 11% of Australians being highly excluded, where 14% of all Australians would need to pay more than 10% of their household income to obtain good quality, reliable connectivity, although Digital Ability has improved slightly, with the national average increasing 0.8 points from 2020 to 64.4 in 2021.

While digital inclusion remains closely linked to age, there are signs that digital inclusion of mid-life and senior Australians is improving, Digital inclusion increases with education, employment, and income. Reflecting the increased importance of internet access for social connections and service access during COVID-19 restrictions, older Australians recorded an increase of digital inclusion between 2020 and 2021. The total Index scores of 45-54-year-olds increased by 5.1 points (67.2 to 72.3), for 55-64 year-olds increased by 4.9 points (61.9 to 66.8), for 65-74 year-olds increased by 3.9 points (53.4 to 57.3), and for the 75+ year-old age group increased by 6.1 points (41.3 to 47.4). The Australian Government launched the “Be Connected” [30] initiative on 3 October 2017, in order to increase the confidence, skills and online safety and security of older Australians when using digital technology, “Be Connected” adopts a community-centred approach to assist individuals aged 50 years and over, who have little or no experience with digital technology, and delivers a range of resources (i.e. information and interactive training tools, free access to personalized support and mentoring, etc.) specifically designed to support these seniors.

Australia is among the leaders in providing government services and information over the Internet according to the 2003-2020 EGDI surveys (UNDESA 2020), and with the exception of 2012 when the country ranked 12<sup>th</sup>, has consistently been amongst the Top-10 countries assessed by UNDESA EGDI. Notably, Australia leads in terms of human capital development (UNDESA 2020).

The digital transformation of social security in Australia has evolved over time, and with special emphasis. The potential of technology in service production and service delivery is closely linked to productivity and cost efficiency in the Australian context, not least with respect to social security, welfare, and health care provisions. The first Federal level eGovernment strategy (2000-2002) mainly focused on assisting government agencies to develop and roll-out websites and online services. The second strategy (2002-2006) moved from merely making government information and services available online to a more comprehensive integration and application of new technologies to government information, service delivery and administration. During this period, integrated, flexible, and more customized online service offerings were launched. The third strategy (2006-2010) focused on delivering more coordinated and citizen-driven public services. The focus switched from back-office productivity to one of users' needs, integrated and personalized service offerings.

Key initiatives and projects included: tell us once, updating users' details once makes the update available to other agencies; every door will be the right door; single access point for government information and services; establishing single sign-on (SSO) across all government agencies, and many others. The Public Service ICT Strategy (2012-2015) merges broad digital transformation and narrower eGovernment focus by emphasizing simplification and personalization of online services by establishing authentication standards for individuals, businesses, and governments. Launching the mygov.au national portal was a key step in achieving the vision and strategic objectives for this period. The fourth strategy also saw increased engagement and cooperation between government agencies, industry, and academia to facilitate real innovations rather than merely digitizing existing processes and services.

Digital tools for social services and social insurance were adopted for multiple purposes specifically: Increase efficiency; Improve transparency; Save money for taxpayers, and; Increase overall well-being.

To boost overall ICT development and the whole-of-government concept, Australia's fifth strategy, the Digital Transformation Strategy 2015-2018 (Vision 2025), builds on previous years' achievements. The focus continues to be on online service delivery, back-office productivity, and user-centricity, but now with the stated objective of doing so in an easy and simplified manner and by being digital-by-default by 2025. This strategy emphasizes the importance of multiple key platforms (e.g. myGov, Inbox, Notify, Tell us Once, Payments In, etc.), end-users interacting with the government, plus principles of open and transparent government.

In addition to key digital strategies, Australia has also launched several strategic documents to support the digital transformation process. Namely, the Whole-of-government Hosting Strategy, Digital Service Platforms Strategy, Digital Economy Strategy, Secure Cloud Strategy, and Cyber Security Strategy. As new elements, these complementary strategies and policy documents all focus on improving the overall whole-of-government concept and associated ecosystem of digital platforms and solutions.

Several departments and programmes dealing with social services are committed to further transformation of its digital services and to working with other agencies to support the Government's Digital Transformation Agenda. In this regard, the Department of Human

Services will be working with the Digital Transformation Agency (DTA), Health, Department of Veterans Affairs (DVA), National Disability Insurance Agency (NDIA), and other agencies on major transformation programmes.

### 3. GOVERNANCE

The Australian Government pledged to the nation's residents, that by 2025 they will be among the Top-3 digital governments globally. The country has championed the **whole-of-government approach** (WoG). As a concept, WoG is used as formal guidance for policymakers and to break down organizational silos to improve usability for end-users and to increase public sector efficiency. WoG in the Australian context is used to simplify and integrate eGovernment services. The method applied by the Australian government to perform projects using a WoG, builds constructs within a simple framework of a shared definition of top-down goals, to align interests of the various departments involved. Moreover, each department works internally to attain the accorded objectives. The present digital government strategy works to align other whole of government strategies to create an enabling environment to drive digital transformation.

Historically, the Federal Government of Australia was an early mover in terms of digital transformation initiatives. The associated policy statements outline several strategic objectives for adoption of online technologies by public administration, including digitization of all appropriate government services for online availability by 2001.

The first eGovernment strategy (2000-2002) focused mainly on assisting government agencies in the development and roll-out of websites and online services. The second strategy (2002-2006) transitioned from merely making government information and services available online, to more comprehensive integration and application of new technologies to government information, service delivery, and administration. During this period, integrated, flexible, and more customized online service offerings were launched. The third eGovernment strategy (2006-2010) focused on delivering more coordinated and citizen-driven public services. The focus switched from back-office productivity to one of user needs, integrated and personalized service offers. Key initiatives and projects included: tell us once, updating users' details once makes the update available to other agencies; every door will be the right door; single access point for government information and services; establishing single sign-on across all government agencies, and many others. The Public Service ICT Strategy (2012-2015) merged the broad digital transformation with a narrower eGovernment focus by emphasizing simplification and personalization of online services by establishing authentication standards for individuals, businesses, and government. Launching the mygov.au portal was a key step towards achieving the vision and strategic objectives for the period. The fourth strategy also saw increased engagement and cooperation between government agencies, industry, and academia to facilitate real innovation rather than merely digitizing existing processes and services.

To boost overall ICT development and the whole-of-government concept, Australia's fifth strategy, the Digital Transformation Strategy 2018-2025, or Vision 2025, builds on previous years' achievements. The focus continues to be on online service delivery, back-office productivity, and user-centricity, but now with the stated objective of doing so in an easy and simplified manner and by being digital-by-default by 2025. The strategy emphasizes the importance of multiple key platforms (e.g. myGov, Inbox, Notify, Tell us Once, Payments In, etc.), end-users interact with the government, plus principles of open and transparent

government (Digital Transformation Strategy, 2018). Australia’s historical development and approach to eGovernment are summarized in Table 5.

PERIOD	MAIN E-GOVERNMENT DEVELOPMENT FOCUSES AND HIGHLIGHTS
2000 – 2002 The Government Online Strategy	Establishing the whole-of-government approach, governance and investment framework for ICT decisions. Examples include All appropriate services online; Meeting web sites standards; Improved and/or new services; Improved access to services for rural and remote communities; Ensuring that enablers are in place, and; Facilitating cross-agency services.
2002 – 2006 The Federal Government's E-government Strategy "Better Services, Better Government"	Transition from merely providing government information and services online to a more comprehensive and integrated application of new technologies to government information, service delivery, and administration. One of the strategic objectives specifically addresses eParticipation and citizens’ engagement. Examples include: Integrated web portals, such as business.gov.au, jobsearch.gov.au, fishonline.tas.gov.au; Paying tax online through tax portal etax.ato.gov.au; Building shared infrastructure for interoperability between dissimilar systems, integration of services, and; application, data, and infrastructure connectivity.
2006 – 2010 E-Government Strategy: Responsive Government - a new service agenda"	Focus was on the technology enablers, shared infrastructure, common standards, and establishing connected service delivery. Examples include: establishing australia.gov.au as the main entry point; Single government sign-on; Functional personalized accounts; Connected Government through common infrastructure, and mobile connectivity and smart cards.
2012 – 2015 Australian Public Service Information and Communications Technology Strategy	Focus on increasing the quality of online service offerings, simpler and more personalized services, increased automation of services, improving the efficiency of government operations, improving whole-of-government ICT investment, and encouraging innovation for better ICT enabled services. Examples include GovShare Repository; Roll authentication for individuals, businesses, and government; myGov.au; eHealth personal individual records., and; Cloud solutions.
2018 - 2025 Digital Transformation Strategy (Vision 2025) Whole-of-government Hosting Strategy Digital Service Platforms Strategy Secure Cloud Strategy Cyber Security Strategy	Focusing on transformation of services into easy, fast, and personalized service delivery, availability, digital-by-default delivery by 2025. Improved whole-of-government concept, plus exiting tell us once, single-sign-on and digital identity initiatives, and increasing use of emerging technologies. Examples includes Notify.gov.au; Payments in; Domainname.gov.au; Secure Inbox; myGov Dashboard, and Digital identity. Complimentary strategies include The whole-of-government Hosting Strategy to ensure government data and digital infrastructure enabling the Digital Transformation Strategy goal of a government fit for the digital age; the Digital Service Platforms Strategy to provide guidance for Australian Government departments and agencies who create or manage digital service platforms; the Secure Cloud Strategy to make it easier for government to invest in cloud technology to provide better service delivery and the Cyber Security Strategy to improve the cybersecurity environment.

**Table 5: Historic development stages of eGovernment in Australia**

As the Digital Transformation Agency in 2021 adopted specific strategies and action plans for alignment with the Digital Government Strategy 2025, Table 6 summarizes the key strategies’ focus and related action plans.

Strategy	Action plan
<b>All Government services available digitally</b> <ul style="list-style-type: none"> <li>Expand digital capability.</li> <li>Develop the modern infrastructure.</li> <li>Provide accountability.</li> <li>Ensure services are easy to understood, discover and are accessible for all users.</li> <li>Underpin services with modern technology, enabling legislation and operational processes.</li> </ul>	<b>Architecture alignment</b> <ul style="list-style-type: none"> <li>Enables consistency of language across government.</li> <li>Provides methods to improve cross-agency collaboration.</li> <li>Enables a common approach to designing changes of government.</li> <li>Maximises value for money achieved for digital and ICT implementation.</li> <li>Streamlines the user experience.</li> </ul>

	<ul style="list-style-type: none"> <li>• Provides a common and reusable approach to exchange information across government and enable the delivery of connected services.</li> <li>• Provides a clear overview of digital and ICT capabilities needed to support the Australian community in future.</li> <li>• Informed strategic investment plans and planning.</li> <li>• Provides clear expectations for agencies to align future investments.</li> </ul>
<p><b>Ease of access</b></p> <ul style="list-style-type: none"> <li>• Interaction with the Government with minimal effort, and in a timely and efficient manner.</li> <li>• Simplified Government function, enhance information and improved understanding and comprehension of content.</li> <li>• Intuitive and convenient services.</li> <li>• Integrated services supporting citizens' needs and life events.</li> <li>• Digital identity for easy and secure access</li> <li>• Adoption of flexible, scalable, and resilient technology, through a common operational backbone, positioning citizens to deliver adaptable services that meet the future needs of all Australians.</li> </ul>	<p><b>Digital workforce</b></p> <ul style="list-style-type: none"> <li>• Enhances digital capability of the current workforce.</li> <li>• Grows digital talent and skills base..</li> <li>• Retains: key digital talent and skills.</li> </ul>
<p><b>People and business-centric</b></p> <ul style="list-style-type: none"> <li>• Smart services that adapt to the data which citizens choose to share.</li> <li>• Greater insights for better services.</li> <li>• Trust and transparency.</li> <li>• Adoption of a people-driven approach by focusing on what they need during their life event.</li> <li>• Integrated digital service allows a user to move from service to service in a single interaction without having to log in multiple times.</li> </ul>	<p><b>Reuse and invest</b></p> <ul style="list-style-type: none"> <li>• Encourages agencies to reuse, design, and build for reuse, and to share what they have done to enable reuse.</li> <li>• Identifying opportunities to reuse solutions and avoid duplication.</li> <li>• Supporting government to build mature digital capability.</li> <li>• Coordinating procurement and investment priorities across multiple agencies.</li> <li>• Creating an environment for stronger planning, coordination, and delivery of trusted and secure digital services.</li> <li>• Reducing unnecessary complexity.</li> <li>• Delivering value for money.</li> <li>• Increase speed of delivery.</li> </ul>

**Table 6: Strategies and related action plans [7], [8]**

With the launch of multiple interrelated strategies directing digital transformation in Australia, including social security, the context diagram in Figure 2 outlines the interconnectivity of strategies.

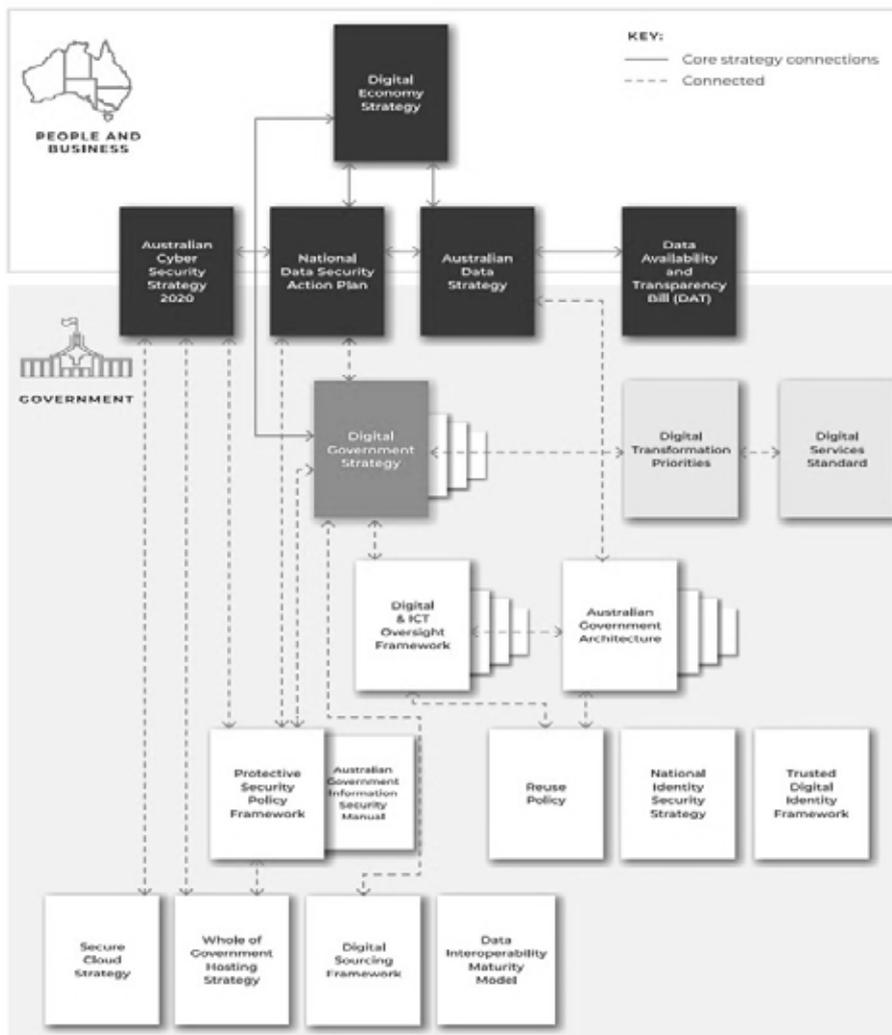


Figure 2: Strategy Context Diagram (Source: [7])

The governance and intergovernmental cooperation model in Australia has changed over the years. The current model differentiates between the Federal, or Commonwealth level and state level (i.e. central and regional levels). The Federal Government is responsible for developing and implementing a digital transformation strategy on a national level, while each of the six states and two mainland territories in turn develops their own tailored eGovernment strategies and models for governance and intergovernmental cooperation. What is more, ALSA also developed the Strategic Plan 2017-2020 to strengthen innovation and digital transformation in local government. The key to Australian success lies in coordination and cooperation between all levels of government.

On a Federal level, the Department of the Prime Minister and Cabinet (PM&C) is the main driver for defining strategic initiatives and objectives for eGovernment. The PM&C hosts the Digital Transformation and Public Sector Modernization Committee (DTPSMC), which is mandated with overseeing the Digital Transformation Agenda, improving user-experience for interacting with the public sector, driving service delivery reform, as well as with transforming, simplifying and driving value-creation in Commonwealth ICT use and overall modernization of the Australian public sector. The DTPSMC consists of several key federal ministers and is chaired by the Minister of Finance.

Since 2018, the PM&C has hosted the secretariat of the Australian Digital Council (ADC). The ADC oversees development of Australia's digital capability and ensures cross-governmental collaboration on digital transformation, in particular between federal and state level. The ADC is a ministerial-level forum composed of ministers responsible for data and/or digital matters from all six states and the two territories under chairmanship of the Federal Minister for Human Services (responsible for social security) and Minister Assisting the Prime Minister with Digital Transformation. The ADC promotes prioritized initiatives offering national or cross-jurisdictional benefits, reforms national data-sharing arrangements, ensures equitable access to benefits of digital transformation, ensures that digital initiatives are provided appropriate privacy and security safeguards, etc. The ADC is supported by a Senior Officials Working Group, while the Deputy Senior Officials Working Group on Data Collaboration and the Commonwealth-State CIO forum supports delivery of projects agreed upon by Ministers in the ADC.

The Federal Government formed the Digital Transformation Advisory Board in 2016 to include other stakeholders in strategic development and policy creation. The Advisory Board consists of experts from the public and private sectors. The main objective of the Advisory Board is to provide practical advice and insights to the PM&C on digital transformation of the government. The Advisory Board meets twice a year and is chaired by the Secretary of the PM&C.

The specialized Digital Transformation Agency (DTA) was established as an executive agency in 2016 and falls under the Prime Minister and Cabinet's portfolio. The DTA is mandated with coordinating the overall process for strategic development and implementation of the national Digital Transformation Strategy and other related strategies. At an operational level, DTA is mandated with providing strategic leadership on whole-of-government and shared ICT and digital services, including financing (including funding sources) and capability development; delivering policies, standards, and platforms for WoG and shared ICT and digital service delivery; providing advice to agencies and the Government on ICT and digital investment proposals; and with overseeing significant ICT and digital investments, the assurance policy and framework, and whole-of-government digital portfolio (DTA, 2019a). This includes ICT relating to social security services provided by the Federal government. DTA is also mandated with coordinating the implementation of public service delivery across all federal government agencies. To do so, DTA works very closely with agencies but also puts significant efforts into building close relationships with key stakeholders and partners, for the most part from the private sector and academia. Key tools applied to coordinate the digital transformation across the public sector includes:

- Aligning awareness and priorities of government leaders to the strategy, its key priorities, and high-level plan for execution.
- Implementation of governance and monitoring mechanisms to track progress against the strategy, embedding digital capabilities and growing our digital workforce to support it.
- Developing an integrated investment approach that promotes re-use of existing technologies and systems, and

- Alignment to a single architecture and by growing strategic alliance partnerships at a whole of government level.

Table 7 below summarizes the division at national and agency levels of the main functions and actors involved in public service delivery in Australia.

NATIONAL LEVEL	Department of the Prime Minister and Cabinet	Coordinates the overall strategic development and monitoring of implementation at a federal level. Initiator of strategies and policies relating to eGovernment.
	Digital Transformation and Public Sector Modernization Committee (DTPSMC)	Oversees the Digital Transformation Agenda. Improves the experience of people dealing with the Government. Drives service delivery reform, transforms, simplifies and drives value in Commonwealth ICT and modernizes the Australian Public Service.
	Australian Digital Council (ADC)	Oversees development of Australia's digital capability. Ensures cross-jurisdictional collaboration. Ensures equitable access to the benefits of digital transformation for all Australians including a consideration of addressing the digital divide. Ensures digital initiatives have appropriate safeguards for privacy and security.
	Digital Transformation Advisory Board	Ensures inclusiveness of the public and private sectors when formulating policy decisions and in strategic development. Provides practical and strategic advice to the Prime Minister's office on the digital transformation of government.
	Digital Transformation Agency (DTA)	Provides strategic leadership on whole-of-government and shared ICT and digital services, including sourcing and capability development. Delivers policies, standards, and platforms for WoG, and shared ICT and digital service delivery. Provides advice to agencies and the government on ICT and digital investment proposals. Oversees significant ICT and digital investments, assurance policy and framework, and the WoG digital portfolio.
AGENCY LEVEL	Federal Agencies / State and Territory agencies / Local Councils	Public service delivery and quality control. Development and implementation of sectoral/state/local strategies.

**Table 7: eGovernance and coordination model**

Australia published the Digital Service Platforms Strategy, in order to improve the overall management of digital platforms. The strategy applies to all federal government departments and agencies, while states, territories, and local governments may choose to follow the strategy on a voluntary basis. This strategy provides a governance model for managing digital platforms. The aim is to establish a decision-making framework clarifying accountabilities and responsibilities across key decision-making areas, in turn supporting platform autonomy, transparency, and efficiency. Governance of the digital platforms model consists of three tiers, i.e. the strategy, the platform portfolio, and the platforms themselves. Each tier has a distinct set of rights for decision-making. The DTA has established specific charters and processes for recommended governance forums, as outlined in the strategy. Figure 3 outlines the digital platform governance model.

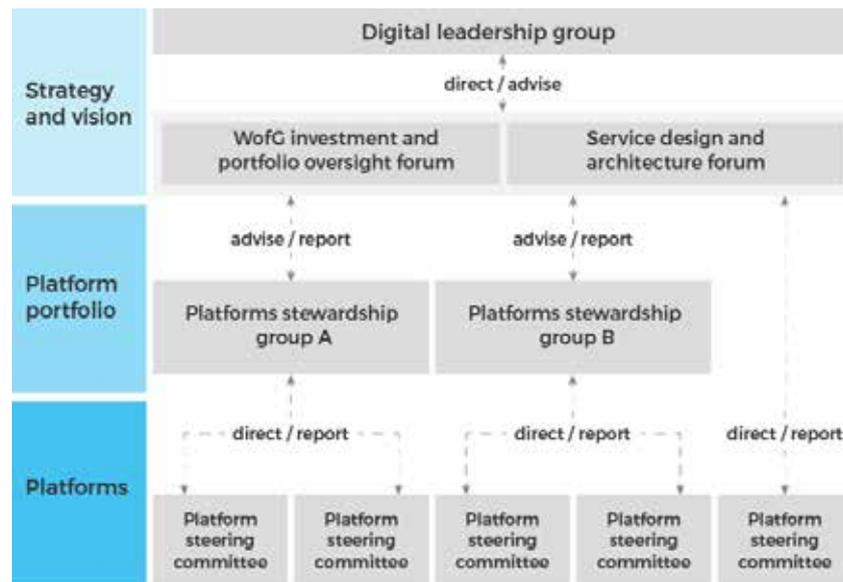


Figure 3: The digital platform governance model (Source: [6])

The Digital Leadership Group provides strategic leadership and oversight. The Whole-of-Government Investment and Portfolio Oversight Forum reviews and recommends investment priorities. While the Service Design and Architecture Forum provides oversight on interoperability across digital platforms. Platform Stewardship Groups may be established as and when required by interrelated digital platforms, life events, etc. [6].

In summary, the Prime Minister's Office leadership and vision is the main driver behind the success of eGovernment and digital transformation, including for social security, particularly at the central government level. Mandates of the DTPSMC and ADC on a coordination level, and of the DTA on a strategic and operational level are widely recognized and their roles will prove key for achieving Vision 2025. The Digital Transformation Advisory Board and Government CIO Forum are forums, where experts from the private and public sector, civil society, and academia collaborate on policy creation and strategic development. While the ADC does facilitate the coordination between federal and regional authorities, there is less evidence of its positive impact for this. In practice, local authorities are more likely to align their own strategic focus to states than to federal governments. Similarly, state and local

authorities are digitized to different degrees, with states such as New South Wales, Victoria, the ACT, and large metropolitan areas tending to be first movers.

#### THE AUSTRALIAN DIGITAL GOVERNMENT STRATEGY

The Digital Government Strategy (DGS) is the DTA plan to deliver a digital government meeting and exceeding the expectations of Australians. The DGS reflects the urgency to drive digitalization of government services and create an enabling environment that accelerates digital transformation across government.

The Vision is to become one of the Top-3 digital governments in the world by 2025, by delivering benefits to all Australians, with sustainable foundations to retain this position going forward. Six strategic outcomes are at the heart of DGS, and are underpinned by critical enablers. These are the building blocks essential for achieving outcomes and driving consistency in the delivery process.

##### Strategic Outcomes

For individuals and businesses the outcomes are:

1. **All Government services are available digitally** – Australians will be able to deal with government anywhere, anytime, on any device, for every service.
2. **Easy to access** – Services will be easy to use, accessible and interconnected, so Australians can complete their government business transactions from one single access point.
3. **People and business centric** – Digital services will be designed for the user with a consistent look and feel, and will be centred around life events.

For government, the outcomes are:

4. **Architecture alignment** – Platforms and services will be connected within the Whole-of-Government Architecture.
5. **Re-use and investment** – A culture of reuse will be built up, backed by modern digital capabilities.
6. **Digital workforce** – The government will be fit for the digital age, empowered by digital skills, capabilities and tools.

##### Critical enablers

To ensure strategic outcomes are being achieved in a sustainable and responsible manner, they will be underpinned by following 4 priorities:

1. **Security** – to protect and secure Australian interests while building trust
2. **Privacy** – to ensure personal data is safe, secure and is used ethically across our digital landscape
3. **Data** – data is captured, analysed and used safely, to inform service design and policy
4. **Governance** – to provide accountability and ensure consistent and timely implementation of the Strategy.

##### Principles

The strategic outcomes are supported by a number of principles, such as simple, helpful, respectful, transparent, digitalized, connected, skilled, and are adaptable.

Source: DTA, 2022. <https://www.dta.gov.au/digital-government-strategy>

## 4. LEGAL AND REGULATORY FRAMEWORK, STANDARDS

In Australia, the federal government is responsible for enacting relevant legal, regulatory, and standards. Several strategic documents have been launched to support the backend ecosystem for digital transformation. These complimentary strategies and policy documents focus on improving the overall whole-of-government concept and associated ecosystem for digital platforms and solutions, as illustrated in Figure 4.



**Figure 4: Whole-of-government concept and ecosystem of digital platforms and solutions**  
 (Source: Digital Service Platforms Strategy, 2018)

Table 8 summarizes the digital transformation-related legislation adopted by the Australian government. Although legislation and standards specific to digital transformation have a direct impact, there is a range of other legislation that plays a role, with an indirect impact in terms of setting the nation’s trajectory. Australia’s other notable legislation includes the Public Service Act 1999, Public Service Regulations 1999, Competition and Consumer Act (2010) - Australian Consumer Law (ACL) (eCommerce), Competition and Consumer Regulations 2010 (eCommerce), and Telecommunications Act 1997.

	yes/no	Name of Acts and Regulations	Description of the most recent Act
<b>General eGovernment legislation</b>	no	n/a	There is no general e-Government legislation. However, The Australian Government Information Management Office (AGIMO) was a branch of the Australian Government. Established on 8 April 2004, it took on some of the functions of the former National Office for the Information Economy (NOIE) in 1997.
<b>eID and PKI legislation</b>	yes	<ul style="list-style-type: none"> <li>• Electronic Transactions Act 1999</li> <li>• Electronic Transactions Regulations 2000</li> <li>• Gatekeeper Public Key Infrastructure Framework</li> <li>• Ongoing Trusted Digital Identity Bill for Digital Identity Federation and</li> </ul>	The Digital Identity legislation is a package of multiple legislative instruments which, together, form the rule book that governs how the Australian Government Digital Identity System (and other aspects, like the accreditation framework) will work. The different components of the legislation are: Trusted Digital Identity Bill – proposed primary legislation providing high-level rules for the expansion, maintenance, and regulation of the Australian Government Digital Identity System and TDIF accreditation scheme. The Bill will become law once passed by Parliament.

		the Trusted Digital Identity Framework. (Single eID provider, the Federal Government myGovID).	<p>TDIF accreditation rules – provide the requirements for entities obtaining and maintaining accreditation under the TDIF. These rules are a legally binding instrument that must be tabled in, and can be ‘disallowed’ by, Parliament.</p> <p>Trusted Digital Identity (TDI) rules – as above, a legally binding, ‘disallowable’ instrument, which provides more detail as to the operation of certain provisions of the Bill.</p> <p>Technical standards (not included in this draft exposure package) – relating to technical integration requirements or technical features for entities to onboard to the Australian Government Digital Identity System. These will be published by the Oversight Authority on its website.</p> <p>Electronic Signature (2000).</p> <p>The former National Office for the Information Economy (NOIE) was responsible for Gatekeeper PKI [10]</p>
<b>Access to Public Sector Information</b>	yes	<ul style="list-style-type: none"> <li>Freedom of Information Act (1982)</li> <li>Freedom of Information (Charges) Regulations 2019</li> <li>Freedom of Information (Prescribed Authorities, Principal Officers and Annual Report) Regulations 2017</li> <li>Evidence Act 1995, Archives Act 1983, Archives Regulations 2018</li> <li>The Data Availability and Transparency Bill 2020</li> </ul>	The Data Availability and Transparency Bill 2020 is about Data Sharing and Release Legislative Reforms, which are part of the Government’s plan to ‘modernize’ and ‘streamline’ the way it shares data with and between different agencies. This act elaborates on the potential of unfettered access to data for Government agencies and data users.
<b>Security, Data Protection, and Privacy legislation</b>	yes	<ul style="list-style-type: none"> <li>Privacy Act (1988), including 13 Australian Privacy Principles (APPs)</li> <li>Privacy Regulation 2013</li> <li>Spam Act 2003</li> <li>Do Not Call Register Act 2006</li> </ul>	The Privacy Act 1988 (Privacy Act) is the principal piece of Australian legislation providing protection for individuals, against how their personal information is used and handled. This includes collection, use, storage, and disclosure of personal information in the federal public sector and in the private sector.
<b>Re-use of Public Sector Information</b>	yes	The Data Availability and Transparency Bill 2020	The Data Availability and Transparency Bill 2020 is about Data Sharing and Release Legislative Reforms, which are part of the Government’s plan to ‘modernize’ and ‘streamline’ the way that it shares data between agencies.
<b>eCommerce legislation</b>	yes	<ul style="list-style-type: none"> <li>Public Governance, Performance and Accountability Act (PGPA Act) (2013)</li> <li>Commonwealth Procurement Rules (CPRs)</li> <li>The Electronic Transactions Act 1999</li> </ul>	The Electronic Transactions Act 1999 ensures that a transaction under a Commonwealth law will not be invalid, simply because it was conducted using electronic communication. Where Commonwealth laws require you to: give information in writing. Please provide a handwritten signature.
<b>eCommunication legislation</b>	yes	The Electronic Transactions Act 1999	The Electronic Transactions Act 1999 covers e-communication as well.

**Table 8: eGovernment-related legislations adopted by the Australian Government**

Apart from the legislation mentioned above, Australia has adopted and established mechanisms to ensure that all new regulations and laws are ready for digitization, do not add unnecessary barriers to increased use of technology, or impose any new administrative burdens or costs. In this context, the full ex-ante, ex-post assessment, through the Regulatory Impact Assessment associated with digitization-ready principles, may be regarded as a model for maximizing eGovernment potential and transforming the law into an enabler for successful digital transformation.

Similarly, legislation to ensure privacy and protection for personal data has been enacted. The 1988 Australian Privacy Act regulates the collection and processing of personal information for individuals. The act includes thirteen Privacy Principles (or APPs) which set out standards, rights, and obligations for collecting and processing personal data, as well as the data subjects' rights (i.e. the rights of the individual or organization to which data refers). The 2013 Privacy Regulation was adopted to complement the Privacy Act. A number of security breaches led to the Privacy Amendment (Notifiable Data Breach) Act in 2017. It should be noted here, that Australia has adopted a number of sector-specific legal Acts relating to privacy, with these including telecommunications, criminal records, data matching, anti-money laundering, eHealth systems, Medicare and pharmaceutical benefits schemes, and the Personal Property Securities Register (Office of the Australian Information Commissioner, 2019). At an institutional level, the Office of the Australian Information Commissioner (OAIC) is responsible for implementation, monitoring and investigations. The OAIC is an independent statutory agency within the Attorney General's portfolio. Notably, Australian states and territories have also adopted their own general and sector specific privacy and data protection regulations, and also have their own specific privacy institutions respectively. Australia recently changed part of its privacy legalization, in order to align and comply with EU GDPR standards. This was largely driven by a desire to ensure continued access to EU markets for Australian companies, recognition of the importance of data protection and privacy as well as international cooperation.

Australia has a significant focus on the legislative and regulatory issues relating to digital transformation. The country is among the early movers, when it comes to adopting correct, orderly legislation for digital transformation. In adopting digitalisation-ready legislation the country ensures the role of the legislation as a catalyst, rather than as an obstacle. It has adopted several general and sector-specific Acts and regulations. In formulating legislation and designing regulatory frameworks, the goal has been to integrate administrative processes and new technology through comprehensive and digital-ready legislation.

## 5. BACK-END SERVICE DELIVERY ECOSYSTEM

Strategically, Australia is an early mover having adopted ICT strategies in the late 1990's. Initial strategies focused on roll-out of the internet, digital literacy, and initial platforms for online service delivery. Recent strategies focus more on integrated paths and methods of service delivery and on improving the whole-of-government ecosystem. Namely, Australia has focused on issues such as creating reliable infrastructure, digital literacy, building institutional capacity, cooperation, and collaboration, establishing platforms and websites for online services, system developments for back-office efficiency, the rollout of key enablers like digital ID and digital signatures, interoperability, and standards, digitization-ready legislation, etc. Table 9 summarizes the most important infrastructure elements.

	yes/no	Solution	Description
<b>Electronic ID</b>	yes	myGovID	myGovID is an app designed to allow users to authenticate with Australian Government websites and services. The app, developed by the Australian Tax Office and Digital Transformation Agency was first launched in October 2019, with a public Beta being performed earlier that year in June
<b>Public Key Infrastructure (PKI)</b>	yes	Gatekeeper PKI Framework and accreditation programme	A DigiCert Gatekeeper certificate lets you interact with the ICS (Integrated Cargo System) via a Web browser or EDI software. This allows you to lodge import/export declarations and cargo reports, amend EDI messages, check cargo status, access the CMR diagnostic facility, update client registers and obtain research reports.
<b>Single Sign-On (SSO)</b>	yes	myGov: Sign-in	The myGov: Sign-in has a central role in digital infrastructure, including the SSO for all government platforms and portals.
<b>National data exchange platform</b>	yes	Australian Government Records Interoperability Framework	The Australian Government Records Interoperability Framework (the Framework) is a semantic information model that clarifies the meaning of data associated with the structure and functions of the Australian Government. Clarity of meaning permits semantic interoperability, which means people and machines can understand the context of information. Maintaining and understanding context improves the usefulness of information for business purposes and allows information to be managed as Commonwealth records in accordance with the regulatory framework.
<b>Once-only principle</b>	no		Australia acknowledges the principle. It has the required components to establish it incl. the Privacy Act, the Foundational unique identifier and authentication, and the existing federated exchange at the federal level.  The govt will need to have the following: eID, digital signature, and secure data exchange before this principle could be enacted. <sup>1</sup>
<b>Digital post</b>	yes	notify.gov.au	Notify.gov.au is a whole-of-government notification platform that allows agencies to send reminders and messages to users.
<b>Usability service standards</b>	yes	Whole-of-Federal Government digital platforms	The Digital Transformation Agency (DTA) has developed the Whole-of-government Digital Service Platforms Strategy (the Strategy) to help enable the Digital Transformation Strategy. The Strategy is intended to provide guidance for Commonwealth Government departments and agencies involved in digital service platforms. The Strategy applies to whole-of-government digital service platforms developed by the Commonwealth Government, but state, territory, and local governments may choose to follow the Strategy if they wish.
<b>Interoperability</b>	yes	Australian Government	The Australian Government Records Interoperability Framework (the Framework) is a semantic information model that clarifies the meaning of

<sup>1</sup> <https://www.aspi.org.au/report/introducing-integrated-e-government-australia>

		Records Interoperability Framework	data associated with the structure and functions of the Australian Government. Clarity of meaning permits semantic interoperability, which means people and machines can understand the context of information. Maintaining and understanding context improves the usefulness of information for business purposes and allows information to be managed as Commonwealth records in accordance with the regulatory framework.
<b>Personalized and proactive services</b>	yes	Department of the Prime Minister and Cabinet's Guidance on data sharing for Australian Government Entities	Australian Government entities collate, compile and produce large amounts of data. However, to harness the value of this data, it must be more effectively shared both publicly and between Australian Government entities. Linking and sharing government data will help solve a myriad of social, economic, and environmental problems in an inter-connected digital environment. The Australian Government Public Data Policy Statement requires Australian Government entities to securely share data to improve efficiencies and inform policy development and decision-making.
<b>Personalized and proactive services</b>	yes	Secure strategy cloud	The strategy focuses on helping government agencies use cloud technology. It was updated in September 2021 to reflect 'Framework and Practices', to align with Australian Cyber Security Centre (ACSC) cloud computing security considerations and hosting and data considerations.

is an important part of the public service production and delivery framework and ecosystem. Australia has established solid foundations for its technology use and eGovernment developments. Although

<b>Personalized and proactive services</b>	yes	Multi-agency data integration project (MADIP)	MADIP is a secure data asset combining information on health, education, government payments, income and taxation, employment, and population demographics (including the Census) over time. It provides whole-of-life insights about various population groups in Australia, such as the interactions between their characteristics, use of services such as healthcare and education, and outcomes like improved health and rates of employment. MADIP was first established in 2015, in response to a review of the Commonwealth arrangements for data integration, that found more focus was needed to access the substantial value inherent in public data. The MADIP data asset was further developed between 2017 and 2020 through the Data Integration Partnership for Australia (DIPA).
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**Table 9: Availability of major key enablers and standards in Australia**

Key enabling factors for digital transformation consists of the existence of national eID or other eID solutions recognized for public services, single sign-on, official digital post, the once-only principle, and national data exchange platforms – although there is currently no legal or regulatory foundation for the once-only principle. Most importantly, Australia established a framework for both government and the public sector, to provide eID solutions. This was done by establishing the Digital Identity Federation and the Trusted Digital Identity Framework. Currently, there is one eID provider, the Federal Government myGovID provided by the Australian Taxation Office, but the frameworks allow private certification companies to become members of the Identity Federation. myGovID is currently available in both iOS mobile and Android versions. The first pilot using myGovID is an end-to-end digital tax file number (TFN) application process. At present personal services such as accessing government online services via myGOV, applying for a tax file number, access to Centrelink services, and for students - unique student identifier portals, use myGovID. Along with this, business services such as relationship authorization manager, access manager for the Australian taxation office, and many other services now use myGovID. It is important to note that Australia applies an active opt-in approach to electronic identity identification and does not have a single federal or set of state and territory population registries.

The availability of the key enablers and supporting technical infrastructure the specificities vary, the focus has been on the roll-out of key enablers and supporting technical infrastructure, interoperability, and exchange platforms.

To move toward WoG architecture, the government established at WoG Architecture Taskforce, managed by the DTA, in 2019. The Taskforce defined the vision and strategy, defined the government architecture framework and set up an operating model. Currently, the core products are under development.<sup>2</sup> An easy-to-understand Governmental architecture is depicted in Figure 5.

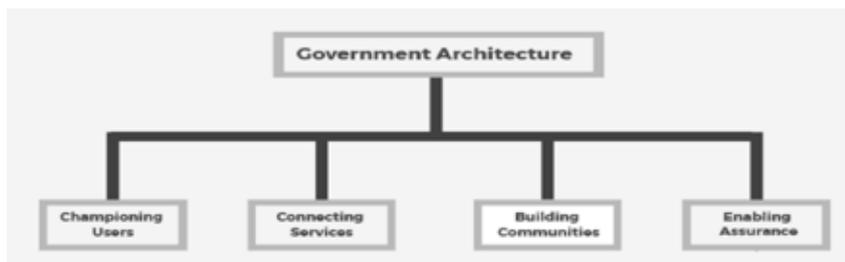


Figure 5: An easy-to-understand whole-of-government architecture (Source: [9], [11])

One of the ways of achieving WoG approach is by adopting data and processes in enterprise architecture (EA). The EA framework adopted in 2011 establishes the norms for how agencies should communicate and accordingly design information infrastructure, applications, and technologies.<sup>3</sup> The EA framework and reference model includes cloud computing as an option for designing innovative services. The EA principles adopted established the first tenets and related decision-making guidance for selecting, designing, developing, and implementing information systems. These principles are the basis for architectural planning and decisions across service environments such as developing the architecture for cloud services and as a framework for assessing the capabilities, processes, and service design. Figures 6 and 7 summarize the EA reference model and the principles and fundamental requirements the backend system should meet.

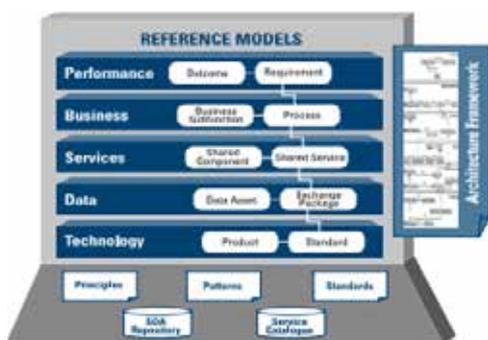


Figure 6: AGA (Australian Government Architecture) Reference Mode [9]



Figure 7: Role of architecture principles from a government agency perspective [11]

For the back-end service delivery ecosystem, the Australian Government moved ahead from the basic interoperability framework of 2005 [16] to Australian Government Architecture 2018

<sup>2</sup> <https://www.dta.gov.au/blogs/developing-whole-government-architecture>

<sup>3</sup> <https://studylib.net/doc/7061990/australian-government-enterprise-architecture-principles>

[9], [11]] The 2005 Interoperability framework was based on components such as interconnection, security, data exchange, discovery, presentation, metadata for process, and data description and naming. There was a systematic shift with the AGA model. The AGA model is made up of sub-models - Performance Reference Model (measurement framework to assist business measurement systems and performance architectures), Business Reference Model (taxonomy for classifying a functional view of the Australian Government's Lines of Business), Service Reference Model (a framework for classifying services according to how they support business and performance objectives), Data Reference Model (a framework that supports information sharing and re-use), and the Technical Reference Model (framework for categorizing standards and technologies). AGA helps to scrutinize business processes, identify gaps, identify synergies between projects, and support cross-agency initiatives.

The Public Sector Data Management Implementation Report 2016 of the Australian government delineates recommendations pertaining to the backend data management process. The recommendations support the WoG approach and development of data assets in consultation with data users. In 2016 geo-coded national address file (G-NAF) was made freely available on data.gov.au – the whole of the government data catalogue. The government also adopted an open standards policy that is consistent among all agencies. The government provides a toolkit, with toolkit.data.gov.au providing guidance on integrating and publishing data.

New computational technologies and the abundance of non-traditional data show potential for improved service delivery and decision making. The Australian Government is currently reorganizing its data management architecture to adapt to this new paradigm. Data has been created to expand data.gov.au and National Map infrastructure and to maximize the discoverability and reuse of high-value open data in government, industry, and community sectors. The infrastructure, outlined in Figure 8, ensures improved search, discovery, and harvesting functionalities across jurisdictions and agencies, enhanced quality and enhanced quality of data, data publishing, and API frameworks, improved spatial data publishing workflow, and ensures scalability.

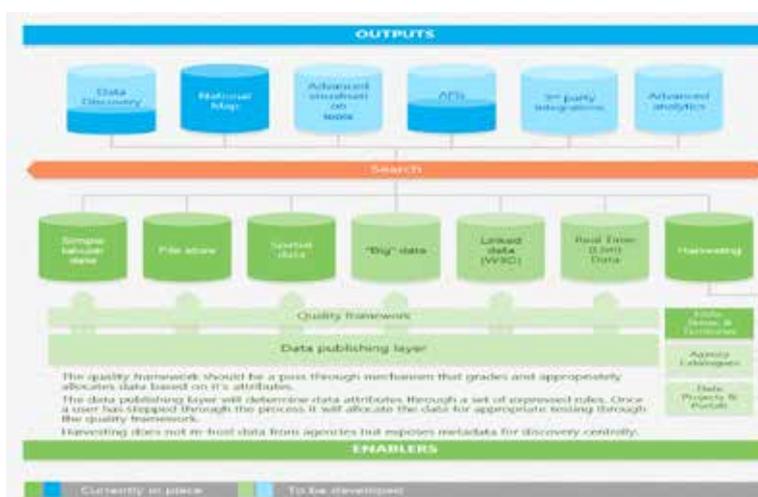


Figure 8: The Structural Diagram of Data (Source: [5])

Australian authorities increasingly rely on algorithmic decision-making (ADM) to deliver public services, not least with respect to social security services based on objective assessment and eligibility criteria.

The Australian “Robodebt” programme, designed to automatically calculate and collect welfare overpayment debts from citizens, proved to be a sensitive way of using data and digital services to reduce Government debts held in the community. Reducing the national debt has been an objective of Australian political parties for years. One debt-reduction strategy has been to reduce and recoup welfare support and assistance overpayments. Still public and political discourse in Australia has serious concerns regarding unintended negative consequences of ADM, such as widespread discrimination, which in extreme cases can be destructive for society [23].

#### UNINTENDED REPERCUSSIONS OF USING TECHNOLOGY IN SOCIAL SECURITY: THE CAUTIONARY TALE OF CENTRELINK

For instance, the use of ADM had been limited and involved human oversight. Centrelink’s cost-benefit analysis of employment and welfare benefit data found that over 860,000 recipients of government benefits had discrepancies in their accounts between 2010 and 2013. According to these calculations, in most cases the discrepancy would have resulted in welfare recipients owing an average of AU\$1400 (AUD) to the government.

In July 2016, Centrelink implemented the Online Compliance Intervention (OCI) programme, an automated debt-calculation and -collection scheme - referred to as ‘Robodebt’. Between July 2016 and October 2019 the government issued a total of AU\$2 billion (AUD) in debt notices to 700,000 current or former welfare recipients (hereafter, citizens), from which AU\$640 million was successfully recouped [23].

The new Government is proposing a Royal Commission of inquiry before the end of the 2022 year (highest level of public inquiry) into the “Robodebt” scandal of welfare debt, which the previous government pursued but was later found by courts to be illegal - costing the Government of Australia about AU\$1.2 billion in settlement costs. The new Government is forecasting the terms of reference for the inquiry to extend beyond “Robodebt”, to other digital transformation programmes as a lot of money has been spent for its implementation, which ended up causing severe distress to citizens and welfare agency staff [AU1].

*Source:* European Journal of Information Systems. Volume 31, 2022 - Issue 3, 313-338. "Algorithmic decision-making and system destructiveness: A case of automatic debt recovery", <https://www.tandfonline.com/doi/full/10.1080/0960085X.2021.1960905> and [AU1]

## 6. FRONT-END SERVICE DELIVERY ECOSYSTEM

Australia’s digital transformation strategy aims to place the public sector in the Top-3 digital governments globally by 2025. This includes making all government services available digitally by 2025. The strategic outcome is centred on people and business and includes ease of access, user-centric service design, and ensuring a consistent look-and-feel across government and centring these around personas and life events.

The Australian government ensures front-end service delivery to its citizens through a number of measures, including a strategic move towards eliminating paper-based communication channels and establishing full end-to-end digital services through implementing digital-by-default principles and digital-first communication.

In Australia, [australia.gov.au](http://australia.gov.au) is a central platform for linking to information and services provided by Australian federal government agencies, States, Territories, and Local Governments. Often, the platform is linked to separate States’ or Territories’ central platforms. In addition to specialized citizen and business portals, the online ecosystem consists of a number of specialized and complementary platforms, and there are portals too. Australia has developed portals for services at a Federal and State or Territorial level, including for businesses (e.g. business register ([abr.gov.au](http://abr.gov.au)), tax ([ato.gov.au](http://ato.gov.au)), human services ([humanservices.gov.au](http://humanservices.gov.au)), public procurement ([tenders.gov.au](http://tenders.gov.au)), a legislation register ([legislation.gov.au](http://legislation.gov.au)), open data ([data.gov.au](http://data.gov.au)), etc. Table 10 below lists the specialized portal ecosystem in Australia.

	yes/no	Portal	
<b>Citizen and business portal(s)</b>	yes	<a href="https://info.australia.gov.au/index">https://info.australia.gov.au/index</a> <a href="https://my.gov.au/">https://my.gov.au/</a> <a href="https://immi.homeaffairs.gov.au/">https://immi.homeaffairs.gov.au/</a> <a href="https://portal.business.gov.au">https://portal.business.gov.au</a>	This portal is provided for citizens to find and locate government information and services  Some portals are dedicated for ID-related services of Citizen and business
<b>Health</b>	yes	<a href="https://www.myhealthrecord.gov.au/">https://www.myhealthrecord.gov.au/</a> <a href="https://dataportal.health.gov.au">https://dataportal.health.gov.au</a>	My Health Record lets residents control their health information securely, in one place. This means important health information is available when and where it’s needed, including in an emergency.  The Health Data Portal allows healthcare staff and professionals to exchange data and other files with authenticated individuals, businesses, and other government agencies via a website.
<b>Jobs and vacancies</b>	yes	<a href="https://jobsearch.gov.au">https://jobsearch.gov.au</a>	This portal helps employers circulate job vacancies, and job seekers to find and get a job. Apart from jobs, there are skills development courses and other programmes for job seekers. The App is available on both iOS and android platforms.
<b>Legal repository, consultation, government gazette</b>	yes	<a href="https://www.legislation.gov.au/">https://www.legislation.gov.au/</a> <a href="https://info.australia.gov.au/about-government/publications/australian-government-gazettes">https://info.australia.gov.au/about-government/publications/australian-government-gazettes</a>	The Federal Register of Legislation (the Legislation Register) is the authorized whole-of-government website for Commonwealth legislation and related documents. It contains the full text and details of the lifecycle of individual laws, and the relationships between them.

		<a href="https://asic.gov.au">https://asic.gov.au</a>	This page provides information on the current series of Australian Government gazettes. For legal support.
<b>Participation, engagement, consultation portal</b>	yes	<a href="https://ogpau.pmc.gov.au/">https://ogpau.pmc.gov.au/</a> <a href="https://www.aph.gov.au/Getting_Involved">https://www.aph.gov.au/Getting_Involved</a> <a href="https://iap2.org.au/">https://iap2.org.au/</a>	This website contains information on Australia's commitment to open government and engagement with the Open Government Partnership, including Australia's two National Action Plans. For consultation support

**Table 10: Specialized portal ecosystem in Australia** (Source: Authors, 2021)

Data from 2016–2017 on Centrelink Digital Services and Centrelink service recipients refer to 53 million interactions online and via the Department's Express Plus mobile apps. The Department offered Australians the ability to make claims for Centrelink payments online, via myGov. This means people can start a claim, enter information and upload documents without visiting a service centre or contacting the Department. Within the same period, over 76% of claims for Family Tax Benefit (FTB), Child Care Benefit, Parenting Payment, Parental Leave Pay, Dad and Partner Pay, Age Pension, Newstart Allowance, Youth Allowance, Austudy, Sickness Allowance, and Mobility Allowance were submitted via the Department's digital services. Through enhancements to the Department's online services, recipients are able to view more of their details on the landing page of their online accounts such as viewing the status of their claims, reminders, and details of their next payment. To ensure they receive the correct payments, Centrelink recipients can also update their personal details and notify changes to circumstances online or via the Department's mobile apps. This includes changes to their address and accommodation, income and assets, study, overseas travel, and bank account details. Recipients can also report employment income, request a document, and claim Advance Payments online. These changes have made it easier for Australians to access Centrelink information and services, and also reduced the need for people to contact the Department in person or by telephone. In addition, during 2016–17 the Department began to deliver a capacity for claimants (starting with students) to track the progress of their claims through digital channels as part of its Welfare Payments Infrastructure Transformation (WPIT) Programme.<sup>4</sup>

With respect to social security, the Department of Human Services launched the myGov digital service infrastructure in 2013. myGov provides individuals with secure online access to a range of high-volume, high-frequency social security services. myGov allows individuals to access the social security services of participating Government entities. It is a first step toward provision of a WoG digital service delivery capability and increasing the user-experience for individual users.

Significant progress is made toward the Government of Australia's 2030 ambitions. According to the Digital Economy Strategy 2022, 7.8 million Australians use myGovID to access online services safely and securely, and 1.4 million businesses have now created a Digital Identity via the Commonwealth's identity provider myGovID, giving users access to over 100 government services. myGov continues to provide Australians with a front door entryway to access a range of government services online, and all in one place. There are now over 24.6 million active myGov accounts allowing the community to access services

<sup>4</sup> Australian Government. Department of Human Services. Digital Delivery of Government Services, Submission to the Finance and Public Administration References Committee. P. 9-10, Accessed 1-10 June 2022

including Medicare, the Australian Taxation Office, National Disability Insurance Scheme, My Health Record and My Aged Care. Testing for a myGov app for Android and iOS devices is underway, to provide Australians greater access when they need it [7].

myGov provides both a user interface and a set of out-of-the-box functionalities, which allow service providers to streamline business processes, and lower development costs while improving the user experience and aligning to the national service design standard. The myGov platform has provided a basis for improved service delivery, including a reduction of time spent by individuals interacting with the Government. This benefit accrues where individuals use the myGov functionalities to receive correspondence or update their details, and in particular, and where individuals link their account to at least two member services. As Australia does not have a unified eID, individuals with multiple online credentials can link these credentials, and thereby create a single set of credentials.

The total development and operational cost of the first four years of myGov is AU\$86.7 million. The Government of Australia is continuing to invest in the Digital Identity system to improve online access to government services and payments.

The quality and performance of the services provided are in focus with the increased frequency of producing proactive and personalized eServices, through well-established

#### THE MYGOV SERVICE PLATFORM AND ITS BUSINESS CASE

To enable a more personalized whole-of-government service experience the myGov platform was developed in 2013 by the Department of Human Services. As a shared platform myGov allows participating entities to reuse shared functionality while simultaneously aligning with government standards for interoperability, enterprise architecture, security, data protection, privacy, service design and web accessibility.

The myGov platform includes electronic identity management infrastructure, personal information, a secure and encrypted digital inbox and archive, service finder (i.e. search function), integration and service functions for online services as well as code and stylesheets for reuse.

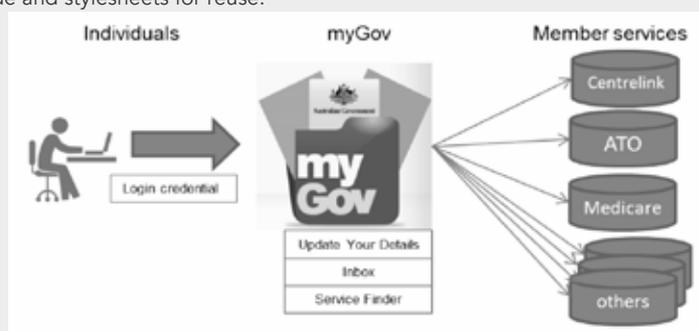


Figure 9: The myGov infrastructure and functionality

The total development and operational cost of the first four year of myGov is AU\$86.7 million of which the majority was recuperated in terms of cost and operational savings in the participation entities, including the Department of Human Services' but particularly Centrelink, Medicare and ATO. The associated business case is mainly based on six drivers for savings for the government. Savings are primarily from a reduction in contacts by individuals through traditional channels, such as face-to-face contacts at government shopfronts and through telephone calls. Among others were, reduction in verification, incorrectly addressed mail, fewer password resets and postage costs.

By 2016 myGov had some 11 active citizen and business accounts. In addition to the Department of Human Services', six key high-frequency and high-volume services, including for social security, from Centrelink, Medicare and ATO were integrated. myGov is also accessible from the national one-stop-portal [australia.gov.au](http://australia.gov.au)

Source: Department of Human Services' and <https://www.anao.gov.au/work/performance-audit/mygov-digital-services>.

national one-stop-shop portals and with a focus on an extending this to the local authorities. Australia has adopted and implemented a special Digital Service Standard to ensure a user-centric, monolithic, integrated, and whole-of-government brand experience across online service offers, including social security and welfare offerings. Anchored in user-centric service design and international web accessibility standards (i.e. W3C WCAG) it defined frameworks and mechanisms for evaluating and measuring user satisfaction from design and testing, to continuous service improvement.

#### DIGITAL DESIGN STANDARD IN AUSTRALIA

The mere provision of online service offers does not guarantee their use. To improve usability, web accessibility and a common look-and-feel across online service offers, the DTA have made the Digital Service Standard mandatory for all Australian government services. The standards are optional for States, Territories and local authorities.

Government online service offers are defined as any public-facing digital (or online) solution, owned by non-corporate Commonwealth entities, including new informational or transactional services (designed or redesigned after 6 May 2016) or existing high-volume transactional services. This includes portals, websites, apps and transactional services.

The Digital Service Standard contains thirteen criteria for government services. It requires services to be accessible to all users regardless of their ability and environment (criteria 9), that agencies design and build online services using an agile and user-centred approach (criteria 3), and that agencies identify the data and information the service will use or create and put appropriate legal, privacy and security measures in place (criteria 5) (DTA, 2017).

The compliance procedure provides two types of assessments: self-assessed and DTA-assessed.

First launched in 2013, an updated third edition of its Digital Service Standard was launched by GDS in early 2019. The updated standard remains mandatory for central government agencies only. It contains thirteen design principles, including publishing performance reports on the Performance Platform.

Summing up, Australia is a global leader with respect to user-friendly, personalized, and proactive eServices. have established an ecosystem of complementary portals and platforms incl. national one-stop portals acting as the main gateway for public content, information, or transactional services. They focus on maximizing accessibility, ease of use, and service efficiency including the adoption of special digital service standards to ensure the monolithic brand experience of the government websites and platforms. However, the Australian Digital Service Standard is the most advanced in relation to a monolithic brand experience. In fact, the GDS Digital Service Standard and Service Manual established a new standard for online user experience when first published in 2013.

## 7. SKILLS AND CAPABILITIES

Australia recognizes the importance of skills to drive digital transformation of the public sector and society at large. With a population of some 25 million, some 1.2 million are expected to be working in ICT jobs by 2027, thus adding some 0.3 million jobs to this sector in comparison to 2022.<sup>5</sup> The focus on developing skills and capabilities is not new for the Australian public sector. The 2015 Public Sector Data Management Report (published under guidance of the Department of the Prime Minister and Cabinet) established a roadmap to reduce the undersupply of data and analysts limiting the ability to obtain maximum value possible from publicly available data. The Report suggests a WoG approach to building data use and analytics capability within the APS. The report also puts forward the Australian Public Sector (APS) Data Skills and Capability Framework, which promises to tackle this undersupply of data skills and meet the demand for more data capabilities in the APS.

Similarly, the Australian Public Sector (APS) Data Skills and Capability Framework (launched in 2016) is an investment plan to address significant gaps or limitations in digital capabilities, exploiting opportunities to share capabilities across all levels of government and with the partner ecosystem, investing in expansion of the digital ecosystem and leveraging research and expertise from academia, industry, the government and not-for-profit sectors and maintaining a proactive, forward-looking view of emerging needs and evolving the strategy accordingly.

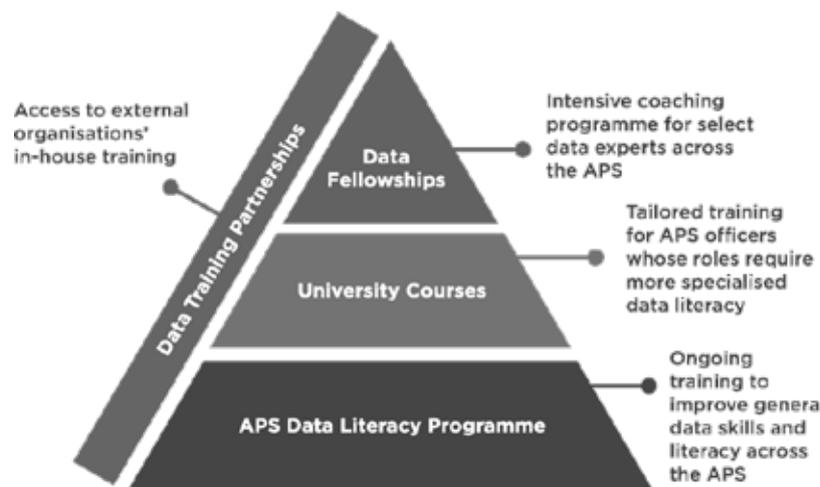
APS Data Skills and Capability Framework consists of four component programmes which are summarized in Table 11 below, and with Figure 10 synthesizing the conceptual framework illustrates how individual programmes are interconnected.

Components	Descriptions
Data Fellowship programme	The Data Fellowship is a competitive programme to provide advanced data training to high-level performance data specialists in APS. Up to ten APS employees will be selected each year to undertake three-month placements either within Data61 or an appropriate partner private sector organization. Participants will bring along a data-related problem or opportunity for which they then develop a solution, benefitting their agency. Based on the nature of the participant's problem, Data61 and the participant will work together to scope and determine the most suitable placement. After successfully completing the placement, participants will attend an awards and achievement ceremony with the Secretary of the Department of the Prime Minister and Cabinet. Data Fellows will become part of an alumni network for future Data Fellows.
University courses	Specialized data analytics courses and subjects offered by tertiary-wide institutions across Australia will help the APS improve its technical data analytics capability, while boosting the number of future graduates with the required data skills and capabilities. Under this initiative, Universities provide Master level degrees, graduate diplomas in Data science, Data engineering, Information Science, Data analytics and related subjects.
APS Data Literacy programme	The APS Data Literacy programme consists of initiatives that improve the data capabilities of non-specialist APS employees. The programme focuses on five core skills for using data in the APS: 1.

<sup>5</sup> <https://businesstech.co.za/news/it-services/610256/not-all-south-africans-are-fed-up-and-want-to-leave-heres-what-many-skilled-workers-are-doing-instead/>

	Providing evidence for decision-makers, 2. Undertaking research, 3. Using statistics, 4. Visualizing the information, 5. Telling the story.
Data Training Partnerships	Data Training Partnerships are an ongoing initiative, linking APS to partner organizations' training and expertise relating to data and data use. These partner organizations have been selected due to their relevant technical expertise and knowledge to deliver training that has practical and real-world application to the APS. Current partner organizations are: 1. Open Data Institute Queensland (ODI QLD), 2. The Office of the Australian Information Commissioner (OAIC), 3. Data to Decisions Cooperative Research Centre (D2D CRC).

**Table 11: Summary of APS Data Skills and Capability Framework consisting of four component programmes**



**Figure 10: A conceptual framework showing how the skills programmes are interlinked [6]**

Data skills are essential for all APS employees to support evidence-based, informed decision making, whether in policy development, programme management or service delivery. These skills also assist in improving operational efficiency, more efficient resource allocation, and improved engagement with stakeholders. However, while foundational data skills are important for all APS employees, there are some roles across the APS that require more specific data processing and analysis skills. The following definitions of specific data roles will apply differently for each agency and/or team and are subject to further clarification. However, they provide a good reference point for APS employees and agencies to determine the level of skills and the capabilities required in their roles.

Key roles	Capabilities
Data analysts	Manipulate and interpret data for decision making and to solve problems.
Data scientists	Are hybrid experts in analysis and software programming. Possess strong business acumen, coupled with the ability to communicate findings.
Data policy and legal experts	Monitor the effectiveness of controls. Resolve compliance challenges. Advise on legal rules and controls to meet applicable legislation and standards.
Data infrastructure engineers	Support the infrastructure required to make data applications and platforms available in agencies and across the public service.

**Table 12: Data Skills and Capabilities required by the APS employees [6]**

The Department of the Prime Minister and Cabinet partnered with the Australian Public Service Commission (APSC), other Australian Government entities, and the private and academic sectors to develop a holistic approach to improving overall data skills and capabilities across the APS. Senior executives across the APS are tasked to encourage employees to take advantage of these learning and development opportunities. Moreover, the following action plans have been taken by the Australian Government:

Goal	Action Plan
Enable career development	The Human Resources Professional Stream commenced in October 2019, with the Digital Professional Stream subsequently launched in April 2020. The Data Professional Stream will complement and leverage the work that is still ongoing in these Streams. Recognizing the close connections between data and digital services in particular, the Data Professional Stream will ensure alignment with relevant Digital Professional Stream initiatives, creating synergies where possible and providing cross-Stream development opportunities for APS employees.  APS Data Professional Stream Strategy, 2020 has four central themes, that is: Establishing the Data Professional Stream; Getting it right from the start; Developing sophisticated and specialist data capabilities, and; Embedding a professional data workforce.
Promote digital literacy and collaboration	In early 2016, the Government inaugurated APS Data Capability Framework which comprises capability areas defined in the APS Data Capability Framework. Each area has capability indicators spanning three proficiency levels from foundation, to intermediate and then advanced. The 26 indicators are Value organizational data as assets; Data communication; Improvement and Innovation – data; Processes/systems and tools/products; Data governance; Data availability; Data access; Sourcing and use of administrative data; Data collection; Subject matter expertise; Identify research questions; Data outputs, products or services; Data collection methodology; Data integrity and quality assurance; Statistical concepts and methodologies; Data and information management; Data classification; Integrate data; Data editing; Metadata – Describe and summarize data; Data use and re-use; Data processing methodology; Exploratory data analysis; Visualise data; Statistical data analysis; Specialist data analysis, and; Business intelligence data analysis.
Modernize the information and data management professions	APS Data Professional Stream Strategy, 2020 was introduced to strengthen data capability across the APS, generate deeper insights, inform evidence-based decisions, and enable more effective service delivery.
Strengthen leadership development	The Government has asked the Secretaries Board to implement agreed initiatives of the APS Review and other priority actions, as part of the Government’s broader APS reform agenda. The Board will conduct a three-month detailed planning sprint in early 2020 to develop an integrated set of reforms to build APS capability and raise performance-levels.
Expand open government training and outreach	GovTEAMS is one such mechanism. It provides a digital platform for APS employees to work, learn and collaborate in a secure online environment. Uptake increased by 351% to 86,970 users over the 12 months to 30 July 2020, up from 19,285 registered users on 30 July 2019. Between 1 March and 30 June 2020, there were 454,497 community-wide chats on GovTEAMS; 4,761,034 one-to-one chat messages; 142,004 audio and video calls; and 193,874 meeting attendees.
Professional Network	A Data Professional Network (the Network) will build professional capability through shared experience and knowledge. This Network will complement existing data-focused groups across the APS, such as the Data Champions Network, APS Data Network, and Graduate Data Network. The Network will be open to all APS employees in data roles, with the aim of promulgating knowledge, learning, experiences, and professional behaviours across the APS data workforce.

**Table 13: Goals and action plan adopted to enhance data skills**

The 2021-2022 budget includes AU\$100 million in digital skills for Australians. The plan also includes funds to help employment service providers deliver digital skills training to job

seekers.<sup>6</sup> The funding is expected to be shared by the “Digital Skills Cadetship Trial”. This is an important policy step forward due to the fact that as of March 2021, according to the Australian Public Service (APS) Commission, 72% of APS agencies reported that they suffer from a shortage of staff with data, digital, and IT skills.<sup>7</sup>

The Australian Government has adopted a multifaceted approach to improving digital skills and capabilities within the public sector including social security and welfare service entities. The approach combines traditional academic study and learning and on-the-job training for professionals. The Government's Digital Skills Organization (DSO) has undertaken trials since 2021 to test new approaches to design digital qualifications and training to reduce the skills gap. Special emphasis was given to entry-level data analysts, to ensure their qualifications are fit-to-purpose, to improve the skills pipeline and to adopt citizens and residents into the digital workforce. Along with efforts on a Federal level, the States also came forward. The New South Wales government for example, announced<sup>8</sup> that new digital specialists for products, software, data, salesforce engineers, and content, service, and product designers are required to enhance the backend and frontend ecosystem.

In line with the Federal Government, DTA emphasizes the importance of digital skills across government. To help agencies across government, DTA provides online guides and tools to help government teams set up, run and maintain digital services. They also offer free training to help government teams understand and meet the digital service standard. In addition, DTA has established entry-level programmes, especially targeting women (who are under-represented in ICT-related positions) in IT coaching and mentoring programmes for developing leadership skills and increasing the number of people working in digital roles in government. At an institutional level, DTA partners with other agencies, and regularly organizes workshops, meet-ups, and events at their local offices for people working in government. The aim is to bring stakeholders and individual actors together to share ideas, showcase their work, solve problems, and in order to explore best practices DTA organizes digital communities of practice.

The Services Australia Annual report 2020-2021 [12] detailed the **learning and development path of Services Australia**, including complex, but also short-term leadership and talent management programmes. A number of other specialized training offerings are available across the public sector, particularly at the Federal level. The priority across the different Services Australia training offers is to increase the awareness of **digital technologies for learning**. A growing proportion of staff engages with technology to increase their capability (and efficiency) in the workplace, and support the agency’s digital transformation. In 2020–2021, the agency:

- Used virtual learning extensively during the COVID-19 pandemic, as a response to train new staff quickly in customer service delivery functions.
- Offered a variety of learning programmes that use virtual meeting technology.
- Focused on building staff awareness of digital learning.

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<sup>6</sup> <https://budget.gov.au/>, <https://www.microsoft.com/en-au/business/industry/government/digital-plus/new-skills-for-a-new-era/>

<sup>7</sup> See: <https://www.zdnet.com/article/australian-public-service-identifies-agencies-suffer-from-critical-tech-talent-shortage/>

<sup>8</sup> <https://www.govtechreview.com.au/content/gov-digital/news/nsw-govt-looking-for-more-than-200-digital-specialists-1217004238>

- Launched a self-service learning intranet site.
- Introduced a mobile device application that enables staff to access a wide range of learning products at any time.

Table 14 outlines a number of the Services Australia training and capacity development initiatives related to the successful digital transformation of the public sector and Services Australia’s backend and frontend ecosystems and service offers.

Initiative	Description
Service Delivery Faculty	A centralized approach to developing skills and capabilities of the service delivery workforce. The faculty brings together technical training and development staff from across the Services Australia agency into one virtual, national team. The faculty has started building a modern and flexible Service Delivery Master Curriculum, which when completed will be integrated with clear career paths, the agency’s recruitment pipeline, and workforce mobility processes. The faculty uses a multi-disciplinary team approach to design, develop and deploy the agency’s high-performance Empowering Excellence programme across the agency. The programme provides leaders with tools to find better ways of working and adopt high-performance habits that place customer needs at the centre of everything Services Australia does. The faculty is an integral support mechanism for the agency to effectively respond to the needs of our community during emergencies. The rapid development of learning products for diverse surge workforces has become a core part of the faculty’s work. During the year, the faculty developed training packages (both self-paced and virtually facilitated) that covered systems, telephony, customer service skills and policy requirements for a workforce that included internal redeployes as well as our APS colleagues from departments and other agencies, including the ATO, the Department of Human Services, and the Department of Foreign Affairs and Trade.
Leadership Unlimited	Leadership and talent management programmes contribute to the skills development of the Services Australia agency. The programme targeted high-performing and high-potential Executive Level (2) SES Band 1 and SES Band 2 staff. Focus on Several
The Aspiring Program	Program for high-performing and high-potential Aboriginal and Torres Strait Islander staff at the APS5, APS6, and Executive Level 1 classifications. Twenty participants have completed Aspiring level courses, and 37 participants completed it in December 2021.
Enterprise Leadership Programs	Aim to help strengthen resilience and leadership qualities. To date more than 5,000 managers and supervisors across the agency.
Learn2Lead and Lead2Inspire	Learn2Lead target APS5 and 6 level staff while the Lead2Inspire is for Executive Level 1 staff. Each programme consists of 6 days of leadership training spread over 9 months. The Exceed (for Executive Level 2 staff) is a 3-day leadership programme held each year.
Sector Management Program	Programme provides formal education opportunities through participation in a post-graduate course which provides individuals with a Graduate Certificate in Business (Public Sector Management). In 2020–2021 45 agency managers were accepted into the programme.
Leadership and development of Aboriginal and Torres Strait Islander staff	Services Australia offers a range of cultural and career development opportunities to support the leadership and development of Aboriginal and Torres Strait Islander staff. During the year 9 Indigenous employees graduated from the Australian Graduate School of Management Executive Leadership program and 4 employees started the programme; 6 Indigenous staff participated in the Coolamon Advisors’ Talent Management programme for APS levels 5 and 6; 2 Indigenous scholars were supported with their first undergraduate degree through the Indigenous Australian Government Development Program (IAGDP); 4 Indigenous staff were supported to take up Pat Turner Scholarships; 60 Indigenous staff were supported and encouraged to take the agency’s new Aspiring Indigenous Leadership program.

**Table 14: Services Australia leadership training offers, selected.**

## 8. EXPANDING INCLUSION AND COVERAGE

Australia essentially has universal coverage with respect to social security and welfare services, both financial and non-financial. Social security in Australia refers to a system of social welfare payments provided by the Commonwealth Government of Australia out of general revenues. As a rule, citizens, permanent residents, and limited groups of international visitors are eligible for social security benefits. Specific rules and criteria apply to the length of residency (including for citizens) and a minimum number of years' contributions to social security and variously for pensions, child and family support, maternity benefits and parental leave. Contributions are usually made by employee and employer contributions and are topped up by Government (e.g. from income tax). Most migrants do not have access to the majority of social security payments for up to four years after they arrive, under the Newly Arrived Resident's Waiting Period. Bilateral agreements mean that special (preferential) rules may apply to nationals such as those from New Zealand and the Pacific Islands. Payments for long-term contingencies of life, such as old age and disability, are further restricted to those people with long-term connections to Australia (unless, in the case of the Disability Support Pension, the disability occurs while the person is resident in Australia).

Reduced social expenditure, particularly since the 1980's has led to an increasing number of social challenges in Australia. This includes increases in the relative poverty amongst marginalized socio-economic groups such as low-income seniors, single unemployed or underemployed individuals, single parents, persons on disability pensions, etc. The aging population requires more assistance and care. Consequently, an increasing need to expand old age security adds financial pressures for the government and public sector. The Covid-19 pandemic added a layer of complexities and challenges to the current social security assistance, initially as a result of lockdowns, access to health and educational services, and a depressed economy. This contrasts with 2022 which has seen full employment, labour shortages, and excess demand for housing.

The historical evolution of the welfare system and departments, predecessors of Services Australia, and the impact of that, which went through three or four iterations of being a single and then multiple organizations are important for the Australian context. The Department of Social Security and Department of Health are the two major departments, around which the social security policies were built or aligned, and Development-People, Programme-People, and Technology-People programmes were implemented. The need to improve processes constantly led to the specialization of service delivery and security policies led to the creation of the main government service delivery agencies such as Services Australia [AU2].

Within this period, the government invested in population and grant-assisted model programmes. In terms of coverage, the population payments are more inclusive and widely spread, while grants payments are focused on citizens living in a certain area, or within a certain demographic. Grant payments can be politicized, thus becoming very sensitive to the population payments which are well supported. Governments are now starting to point out the challenges of maintaining those systems and models. The increased rate of unemployment benefits paid out has already been at the centre of the current debates in Australia for many years. Nobody increases them considering that the population-based

payments are so expensive, and increasing frontline benefits paid by a couple of dollars each year, has an impact of “hundreds of millions of dollars” on Australian government budgets. Consequently, Federal and State governments spend more time on grant programmes, which are cheaper and more targeted, structurally serving unemployment, and are even negatively perceived during elections, when previous governments are blamed for inappropriately directing money to particular areas of the country for political purposes, to people not in favour or to the vulnerable. The country has an estimated approximately 250,000 - 300,000 truly vulnerable people, marginalized socio-economic groups such as low-income seniors, single unemployed people or underemployed individuals, single parents, persons on disability pension suffering from poverty, homelessness, mental health problems, domestic violence, or unemployment, etc. Since they do not receive good cover from any of the programmes, this is a new challenge, political in nature for the federal government and the next iteration of the country’s social security policy development [AU2].

The digital transformation of public sector services in general and in social security, in particular, have also led to specific challenges around digital inclusion (and exclusion). Major transformation and modernization programmes are implemented as part of the service delivery modernization agenda and key transformation reforms to improve customer experiences. However, each jurisdiction is autonomous and is run individually, around how it should build a digitalization style service (i.e. digital ID, digital wallet, a digital profile of the history and service history, etc.) for citizens who work with them. The Government structure to mandate particular processes or standards in order to keep all States moving in the same direction and at the same speed presents a key challenge. Digitization programmes are in place and the flagship technology around this would be the myGov programme offering the opportunity to all Australians to securely log into Services Australia and connect with the Government, not only for social security aspects but also for other services they process [AU1], [AU2].

investment in Technology and digitization are mainly completed on a Federal level. The majority of financial social security benefits are consolidated around three main programmes (i.e. Centrelink, Medicare, and Child Support), based on objective eligibility and assessment criteria. The major challenge for the Government is being unable to tailor a targeted policy to whichever level of each personal journey a citizen has reached, since the government does not possess a large portion of each personal story (‘my story’) and each user’s data. The vast majority of data the government collects is in Centrelink. Thus, it is extremely challenging to find the right legislation and policy in order to target services for a certain person/user. In Australia, citizens do not just deal with one institution, but with many parts of the Federal Government and many different parts of state governments. Therefore, there is no integration or very limited integration around digital, data, and ‘me’ as ‘my journey’ [AU2].

To ensure inclusiveness, Services Australia provide regional, rural, and remote servicing. Face-to-face access to services in regional, rural and remote locations across Australia, including in many remote communities. Services are provided through a mix of agents, access points, service centres, and visits by remote service teams and mobile service centres. These

are also increasingly automated and considered whole-of-government and user-centric approaches.

Services Australia has three **mobile service centres**: Golden Wattle, Desert Rose and Blue Gum. Blue Gum is the newest mobile service centre, becoming operational in October 2020. The mobile service centres travel to rural and regional communities, to ensure that these have access to the same range of services that are available at any other service centre in Australia. In 2020-2021, the mobile service centres visited 289 towns (176 of which were more than 50 kilometres away from a service centre), helped 9,179 people, and spent 32 days in 42 flood-affected communities in New South Wales, helping over 2,000 people.

**Agents and Access Points** help people in rural, regional, and remote communities to access Services Australia services, by providing free self-service facilities for customers to conduct their business. Customers can access internet-enabled computers and printers, upload documents to their customer records, call Services Australia up using the self-service phone, and access free wi-fi to use their own devices. Agents also provide a face-to-face information service, identity document certification, and assist customers to use self-service facilities. On 30 June 2021, Services Australia had 352 Agents and 230 Access Points throughout regional, rural and remote Australia [9], [10]].

Australia performs across a number of international welfare and well-being measurements, including satisfaction with quality of life, air quality, and quality of support networks [18]. There is nonetheless room for improvement, and the recent exposure and challenge of the country concerning the automated debt compliance programme across social security programmes, “Robodebt” proved to be a sensitive way of using data and digital facilities to reduce levels of governments debt held in the community. The new government is proposing a Royal Commission (the highest level of public inquiry) inquiry before the end of 2022 into the “Robodebt” welfare debt scandal, which the previous government pursued but was later found to be illegal by the courts - costing the Government of Australia about AU\$1.2 billion in settlement costs. The new Government is forecasting terms of reference for the inquiry to extend beyond “Robodebt” to other digital transformation programmes, as a lot of money has been spent with not a lot to show for it [AU1].

#### UTILISING THE DIGITAL FRAMEWORK TO FACILITATE RAPID EXPANSION OF SOCIAL SECURITY AND PAYMENTS DURING COVID-19)

During COVID-19, the Australian Federal government experienced rapid uptake of the digital agenda due to the state of the agencies digital service offering.

The existing governance, legal and regulatory framework, standards and key backend and frontend systems allowed the Australian government to rapidly roll out targeted and COVID-19-specific support payments and grants to individuals and businesses during the pandemic, thus helping facilitate recovery. Existing registries were used to expand social security and payments both vertically (e.g. increased payments to existing target groups) and horizontally (e.g. to new target groups). Similarly, new benefits or payments could be tagged to existing services recipients.

During the initial response to the COVID-19 pandemic, Services Australia mobilized thousands of extra staff, increased ICT capability to meet the surge in demand, and worked closely with policy agencies to deliver support and services to vulnerable people and senior population as quickly as possible. This added a layer of complexities and challenges to the current social security assistance and a financial pressure on the government and public sector.

## 9. LESSONS LEARNED

Australia has a strong welfare state where digital transformation is driven by an aging population, and pressure on efficiency and productivity.

Australia is a global leader in government and public service IT adoption, and digital transformation. The country has successfully implemented the electronic and digital government and continuously ranked among the Top-10 in the EGDI ranking. It is also considered an innovator in digital service delivery and consolidation of social security offers.

Social service digital transformation is formulated at the Federal level in the national digital transformation strategy. Strategically, the Australian government continues to consolidate social services and increasingly also looks at WoG and user-centricity, not least in light of a “Robodebt” scandal. It is also establishing the principle and foundations for data sharing and collaboration, but mainly on a Federal level – which is a result of the complex federal structure of the country.

The advanced state and globally leading position of Australia are in part due to early uptake of digital transformation, but more importantly, it is the result of a coordinated approach at Federal level. There is a high degree of specialization and consolidation of key functions and services areas here – including both financial and non-financial social security and welfare services. **Services Australia**, responsible for designing, developing, and delivering government services and payments is an example of this consolidation. In fact, Services Australia has been the nucleus of major transformation and modernization programmes, and collaborates with other agencies, service providers, and businesses to ensure convenient, accessible, and efficient services for individuals, families, and communities. A key enabling factor is the adoption of relevant tools for monitoring and compliance. With respect to social security, three of Services Australia’s programmes dominate the provision of social security and digitization efforts in Australia. That is, **Centrelink**, which distributes social security payments and social support to citizens, including retirees, the unemployed, families, carers, parents, people with disabilities, Indigenous Australians, students, apprentices, and people from diverse cultural and linguistic backgrounds, and provides services at times of major change. **Medicare** deals with a range of health, pharmaceutical, aged care, and veterans’ programmes and related services by enabling access to cost-effective medicines, health services, and care, as well as supporting and improving the well-being of an ageing population. **Child Support** aims to ensure that children receive an appropriate level of financial and emotional support (registration, assessment, collection, and disbursement) from parents who have separated or divorced.

It is important to note that:

- Services Australia’s social services and welfare, and health payments were on behalf of the Department of Social Security, the Department of Health, and the Department of Education, Skills, and Employment.
- The Australian welfare system’s organizational structure comprises Centrelink, which operates within the Department of Human Services, responsible for the service delivery of social policies developed and implemented by the Department of Social

Services. In addition to Centrelink, the Department of Human Services governs the Australian healthcare programme Medicare, and together with the DTA, co-manages the myGov internet portal through which citizens can access government services online. The Australian Tax Office is responsible for tax collection and provides Centrelink with data about citizens' income.

- Policy on social security continues to evolve, and is moving from mere grant payments towards 'population-based payments' (e.g. NewStart Allowance or new JobSeeker Payment, an Employment support programme for people who are unemployed, population-wide).
- Reducing national debt has formed a central pillar of the intentions and objectives of Australian political parties for years. One debt-reduction strategy has been to reduce and recoup welfare support overpayments. However, the Online Compliance Intervention programme, an automated debt-calculation and debt-collection scheme, launched by Centrelink in 2016 turned into the "Robodebt" scandal.
- Existing governance, legal and regulatory frameworks, standards, and key backend and frontend systems enabled the Australian government to rapidly roll out targeted and COVID-19-specific support payments and grants.

Finally, the Australian case illustrates that the learning and development path includes complex, but also short-term programmes. As part of the innovation culture, learning, and development process, the service delivery, leadership, and talent management programmes contribute to development of the skills and capabilities of the service delivery workforce. Skills and capacities development are embedded as a focal area in both digital and non-digital strategies across the public sector. This is further supported by a mixed-method and community-centred approach toward internal and external end-users including starting to receive digital education at an early age, but also continued and vocational education being promoted by employers (public and private sector) and through job centres for the unemployed, and by civil society and social security organizations working with senior citizens and persons with disabilities.

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# Case studies on digital transformation of social security administration and services

**Reference Project:** CHN/18/01/EUR - Improving China's Institutional Capacity towards Universal Social Protection

**CASE STUDY**  
**CANADA**



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## 1. INTRODUCTION

This case study on digital transformation of social security administration and services in Canada consists of seven parts:

- The context of Canada, digitisation and social security.
- Governance, intergovernmental collaboration and coordination in relation to technology in the digital transformation of social security and social assistance.
- Legal and regulatory framework, standards relating to digital transformation of social security and social assistance.
- Front-end service production ecosystem for social security administration and services in Canada.
- Back-end service delivery ecosystem for social security administration and services in Canada.
- Skills and capacities within social security entities, and for social security customers.
- Expanding inclusion and coverage.

The case concludes by summarising lessons learned from the Canadian experience.

The specific aim links to core research questions and draft questions to guide the case survey and/or interviews are outlined for each section of the case study.

## 2. CASE CONTEXT

Canada is geographically the largest country in the Americas and is the world's second-largest country in terms of territory and landmass. The population of nearly 38 million lives in the country's south, with 81.7% living in urban areas (CIA - Central Intelligence Agency 2021).

Population (July 2021 est.)	37,943,231
Territory (km <sup>2</sup> )	9,984,670
Population density (2020) <sup>1</sup>	4
Official language	English and French
Life expectancy / median age (2021 est.)	83.62 / 41.8
Urbanisation (%) of total population (2021)	81.7%
GDP (PPP) (USD, 2020 est.)	1,742 trillion
GDP per capita (PPP) (USD, 2020 est.)	45,900
GDP growth rate (%) (2019 est.)	1.66%
Unemployment (2019 est.)	5.67%
Imports (billion USD (2020 est.))	510.29 billion
Exports (billion USD (2020 est.))	477.31 billion

**Table 1: Socio-economic data (CIA - Central Intelligence Agency 2021)**

Social assistance and social security started in the 1930s, and the welfare state emerged progressively, leading to implementation of several social programmes in the 1960s that are still in use today, encompassing education and healthcare. Programmes are funded and delivered by the federal, provincial and municipal governments. "It is the largest Program of Service Canada, the Public Pension plan alone has 25,000 employees, 170 billion per year and 640 regional agencies" (CA1). It manages more than 900,000 members<sup>2</sup>.

Most welfare programmes are typically funded through the federal government's general tax revenues. Eligibility to social assistance in Canada is linked to citizenship and permanent residency. It also includes indigenous First Nation peoples, refugees and people claiming refugee status (*and asylum-seekers*). Then, each province and territory has different eligibility criteria, programmes and administrative rules, benefit levels, and provisions concerning special types of assistance. However, even though the specifics vary, the basic structure of social assistance in Canada is the same across the country. In every jurisdiction, eligibility for social assistance is determined on the basis of a needs test, which takes a household's financial assets and income into account.

<sup>1</sup> The World Bank (2021). Accessed 1-15 November 2021:

[https://data.worldbank.org/indicator/EN.POP.DNST?end=2020&locations=AU-CA-DK-FR&name\\_desc=false&start=1961&view=chart](https://data.worldbank.org/indicator/EN.POP.DNST?end=2020&locations=AU-CA-DK-FR&name_desc=false&start=1961&view=chart)

<sup>2</sup><https://www.canada.ca/en/treasury-board-secretariat/services/pension-plan/pension-publications/reports/report-public-sector-pension-plans/report-public-sector-pension-plans-march-31-2020.html>

Digital transformation of the social security and social assistance delivery service requires essential pre-conditions such as Internet access and a minimum level of digital literacy and competencies (Meyerhoff Nielsen 2017). Canada is among the most connected countries in the world, with high rates of Internet use and high-speed infrastructure availability.

Population covered by a mobile-cellular network (2020)	100%
Population covered by at least a 3G mobile network (2020)	100%
Population covered by at least 4G mobile network (2020)	99%
Households with Internet access at home (2019)	91%
Mobile-cellular subscriptions per 100 inhabitants (2020)	96%
Active mobile broadband subscriptions per 100 inhabitants (2020)	84
Fixed broadband subscriptions per 100 inhabitants (2020)	42
Individuals using the Internet (% of the population) (2018)	95%

**Table 2: Connectivity and use of the Internet by households and Individuals (ITU 2021)**

Digital transformation of social security in Canada has evolved over time, at times with great difficulty but with significant willingness to move forward and with a number of successes (CA1). ICT skills are considered an important challenge in social security in Canada. Social security and social assistance would like more people to learn these skills, as a large part of the beneficiaries receiving them are among the most vulnerable in society. Although other statistics (for example, [i-DESI](#)) show Canadian citizens possess significant levels of ICT skills, official statistics on ITU do not contain official data on Canada. According to the World Economic Forum (WEF), more than 32% of adults were below Level 1 or elementary proficiency level, encompassing the most vulnerable in society and seniors in the country, who require assistance with digital literacy. Stakeholders emphasise that one of the most important aspects relating to digital transformation is to remember that not all beneficiaries, or even social security staff are digitally literate (CA2). In this regard, the SST (Social Security Tribunal) has been trying to improve access to social security justice by providing citizens with multiple options, meaning citizens' needs are based on the level of digital literacy they have acquired (CA2).

Basic ICT skills (Level 1 and below)	32%
Standard ICT skills (Level 2)	30%
Proficient ICT skills (Level 3)	30%
Advanced skills (Level 4)	8%

**Table 3: Basic, Standard, and Advanced ICT skills 2019 (WEF, 2017)<sup>3</sup>**

Canada is among the leaders in providing government services and information on the Internet, according to the 2003-2020 E-Government Development Index (EGDI) surveys (UNDESA 2020), with a stable and consistent score. It constantly ranked among the Top-10 countries in the period 2003-2010.

<sup>3</sup> <https://www.weforum.org/agenda/2017/02/a-quarter-of-adults-can-t-use-a-computer/>

The Canadian government was among the first administrations to utilize technology and develop the “digital welfare state”. Digital tools in social service and social insurance were adopted for multiple purposes:

- Increased efficiency.
- Improved transparency.
- Saving money for taxpayers.
- Increased overall well-being.

The start of the onset of the digital transformation in Canada, and of social security, coincided with a period of austerity. A political and administrative objective to increase social assistance control and a reduction of federal social and health expenditure were key drivers. Several reforms relating to childcare benefits, access to housing and other service were adopted. Furthermore, a strategy to reduce the size of government, empower citizens and cut unemployment by encouraging women to stay at home with their children was established. In this context, several digital transformation measures were adopted to support the austerity policies:

- Accelerating the design and online delivery of the most commonly used services for social services and social insurance in the country, including: Employment (EI), Canadian Pension Plan (CPP), Old Age Security (OAS), Guaranteed Income Supplement (GIS), Social Insurance Numbers (SIN), Veterans Affairs Canada Assistance Services (VAC).
- Rethinking how they used the electronic channel to provide information and services to citizens, more specifically to the most vulnerable.
- Collaboration to offer “no wrong door” access to government services.
- Shared experiences, approaches, learning and tools among the agencies.
- Becoming more citizen-centric.
- Building a secure and robust electronic infrastructure capable of expansion, to support more sophisticated online transactions steadily in future (Government of Canada, 2006).

In 2005, to improve the quality of social services provision, most of the services were integrated into the multi-channel Service Canada, with a mandate to be a single point of access for multiple government services. Notably, over the years, Service Canada evolved from a simple tool for providing information into a “one-stop-shop” transactional portal that integrates most federal and provincial government social protection services. The number of online social insurance and healthcare services increased rapidly, integrating progressively more and more technology such as artificial intelligence (AI), automation, robotics, blockchain and algorithmic decision making, allowing the collection and production of significant amounts of data. These developments offer governments immense opportunities to deliver more efficient and effective services and policies. These could prove crucial for the state's response to mounting social initiatives such as for ageing societies, that already highlight limits to the capabilities of governments' policies, and the continuously increasing poverty and social challenges society faces today as a result of 40 years of social reduction policies.

The social security and assurance services were integrated into the current Strategic Plan for Information Management and Information Technology 2017 to 2021, Digital Operations Strategic Plan: 2021–2024, and Canada’s Digital Government Strategy, aiming to deliver programmes and services to people in simple, modern and effective ways that are optimized for digital uses and are available anytime, anywhere and from any device (Treasury Board of Canada Secretariat 2021). Therefore, multiple policies and standards have been adopted to guide public servants to develop open and user-focused digital services and establish conditions for better service delivery, information management, technology and improved integration of cybersecurity.

Despite significant efforts to cope during the Covid period, benefits thousands of Canadian citizens today face significant delays for social insurance.

### 3. GOVERNANCE

Canada has a complex federal system and governance model. The decision making power is distributed across the federal government, ten provincial and three territorial governments. Each province has its own legislation, legislature, executive, and judiciary structure. The federal government administered the three territories, while territorial councils had jurisdiction in local matters. Each province and territory is sovereign in organising its local government, resulting in a complex and fragmented practice across the country. Provinces are mainly responsible for social security and social assistance such as health care, employment and social protection and insurance matters (i.e. Table 2) (Commonwealth Governance 2021; Parliament of Canada 2021).

Social Programs	Governance	Programmes and service departments
Healthcare	Provinces and territories	Health care programmes
Education	Provinces and territories	Apprenticeship grants
Social Housing	Federal government (Canadian Mortgage and Housing Corporation), Provinces and territories (Ministries)	CMHC Federal Government program Investment and affordable housing
Unemployment benefits	Federal government, Provinces and territories	Employment Employment insurance Wage Earner Protection Program (WEPP)
Low-income support	Federal government (50%), Provinces and territories (50%)	Guaranteed Income Supplement (GIS) Self-employed benefits
Seniors	Federal Government (+Provincial pension plan management for Quebec only)	Allowance for the Survivor program Allowance for people aged 60 to 64 Canada Pension Plan International benefits Old age security pension Retirement planning
Children and families	Provinces and territories, Federal government for the Universal Child Care Benefits	Canada Child Benefit Minister of Families, Children and Social Development
Disabilities	Federal government, Provinces and territories	Adults with disabilities Federal disabilities support Children and youth supports
Regional aid	Federal government	

**Table 4. Social Programmes Governance**

Governance was one of the most critical challenges in the Canadian Government's digital transformation. It is considered an important factor for slowing down digital transformation and lowering the [EGDI ranking](#) over the last decade, after ranking among the [top leaders in 2010](#) in Digital Government. Canada invested around CA\$ 6 billion a year in technology. However, the lack of a holistic nationwide strategy is considered the most significant problem<sup>4</sup>. Interviewees also commented, saying: *"It's a no-brainer. You may have an approach at federal level, and may then find that provinces have their own system that has evolved. At some point, you must bring these things together. But people are sceptical. It is the same issue, as with the same silos, but a different version of silos"*. [CA1]. *"There has a*

<sup>4</sup> Government of Canada Strategic plan for IM-IT 2017-2021 <https://www.canada.ca/en/treasury-board-secretariat/services/information-technology/strategic-plan-2017-2021.html>

been a consensus for benefits, access, interoperability. In terms of autonomy, you start with complete autonomy, and then you discover that there is an advantage in handing over a little bit of autonomy, to save a lot and gain a lot” (CA1).

This inconsistency with respect to the governance model impacted the social security and assurance service. For instance, due to the lack of data held by federal government ministries. Despite the national government [data strategy](#), there was no coherent governance. So this caused citizens to navigate and register for each assurance security benefits provider separately.

- There is an ongoing redundancy situation with the same citizen data in each Ministry.
- Data collection issue. The Government of Canada invests a tremendous amounts of time, resources for a data governance strategy in the upcoming [strategy for 2021-2022](#) to improve data collection for improved decision making.
- The security aspect is also lacking with respect to data held.
- Difficulty in sharing data between social security agencies and service providers. Multiple layer service (federal, province and territories, and municipality). One of the problems is that each of these layers collects the necessary data from citizens separately, but is still unable to share services or data.

Since the 2018–2022 [Digital Operation Strategic Plan](#) (DOSP), the Government of Canada introduced changes to digital governance and management practices to set the foundations for a digital government across all ministries. They are planning to launch the OneGC platform, which will allow individuals and businesses to use a single identity and password to access federal government services through a single window on [canada.ca](#):

- The Government of Canada adopted a whole-of-government or “enterprise” approach and created a common IM-IT foundation.<sup>5</sup>
- Sharing infrastructure and information, when appropriate, and using common IM-IT solutions to meet common needs and address requirements for security, privacy, interoperability, accessibility and open information.
- The government also fosters prioritization and authoritative governance to make enterprise decisions on IM-IT investments.

The table below summarizes the effort realized since 2017 at the Governance level for solving the challenges faced by the Government of Canada, with specific highlights for the social security and social service assistance through the SSC (Shared Service Canada).

Entity	Objectives	Description
Treasury Board Of Canada Secretariat	Reviewing and updating governance committees for the Government of Canada to ensure that the	<ul style="list-style-type: none"> <li>• TBS reviewed and updated enterprise governance, including committee mandates and memberships.</li> <li>• Establishment of an integrated approach to governance at the DM level in Treasury Board policy on Service and Digital</li> </ul>

<sup>5</sup> Government of Canada Strategic Plan for IM-IT 2017-2021. <https://www.canada.ca/en/treasury-board-secretariat/services/information-technology/strategic-plan-2017-2021.html#toc8-2-1>

(TBS) & Deputy Minister (DM)	"whole-of-government" governance approach is appropriate for the needs of a digital government.	<ul style="list-style-type: none"> <li>• Inception and chairing of a senior-level body responsible for providing advice and recommendations, in support of the GC's priorities and the Government of Canada Digital Standards, regarding strategic direction for the management of external and internal enterprise services, information, data, information technology (IT), and cybersecurity prioritization of GC demand for IT shared services and assets</li> <li>• The DM Committee on Service and Digital Government has established a new committee to support this policy requirement. TBS will review the underlying committees and update the terms of reference to align with and support the new DM Committee.</li> </ul>
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Table 5. Canadian eGovernance and coordination model in 2020

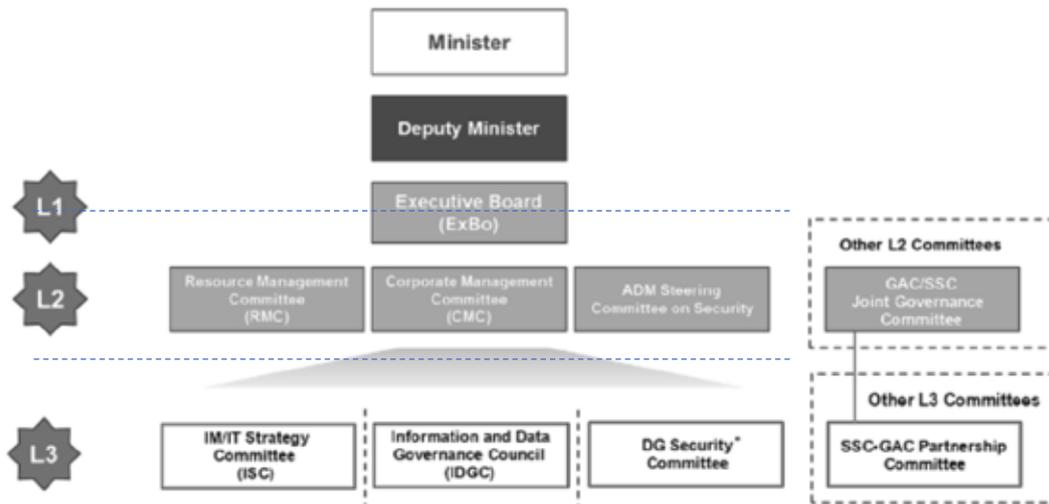


Figure 1. Digital Governance Structure

The Deputy Minister (DM) and Assistant Deputy Minister Committees on Enterprise Priorities and Planning (CEPP) lead governance, priority setting and oversight bodies for all federal IM-IT investments. CEPP will also provide oversight for [Shared Service Canada](#) (SSC) service delivery. In support of the enterprise approach, a new GC Enterprise Architecture Review Board (EARB) has been established, to further the "whole of government as one enterprise" vision. It is integrated into the larger Government of Canada governance structure. It looks at the alignment of initiatives, system and solution gaps and overlaps, development of new digital capabilities and innovation opportunities, setting technology standards and providing IM-IT investment direction.

The following table identifies key government organisations in relation to this digital governance transformation of the Government of Canada.

Organisations	Roles and responsibilities
<b>Secretary of the Treasury Board of Canada (TBS)</b>	Establishing and chairing a senior-level body that is responsible for providing advice and recommendations, in support of the Government of Canada's priorities and the Government of Canada Digital Standards, regarding: <ul style="list-style-type: none"> <li>• Strategic direction for the management of external and internal enterprise services, information, data, information technology (IT) and cyber security;</li> </ul>

	<ul style="list-style-type: none"> <li>• Prioritization of Government of Canada’s demand for IT shared services and assets.</li> </ul>
<b>The Chief Information Officer (CIO)</b>	<p>Providing advice to the Secretary of the Treasury Board of Canada and President of the Treasury Board of Canada about Governing and managing enterprise-wide information, data, IT, cyber security, and service design and delivery; Prioritizing the Government of Canada’s demand for IT shared services and assets; and using emerging technologies and implications and opportunities of doing so for the Government of Canada:</p> <ul style="list-style-type: none"> <li>• Providing direction for the enterprise-wide transition to digital government, including regularly reviewing and updating the Government of Canada Digital Standards; managing information, data, IT, and cyber security; and advising on enterprise-wide service design and delivery.</li> <li>• Prescribing expectations about enterprise architecture.</li> <li>• Establishing and chairing an Enterprise Architecture Review Board mandated with defining current and target architecture standards for the Government of Canada and reviewing departmental proposals for alignment.</li> <li>• Establishing priorities for IT investments (including cyber security investments) that are enterprise-wide in nature or that require support from Shared Services Canada (SSC).</li> <li>• Facilitating innovation and experimentation in service design and delivery, information, data, IT and cyber security.</li> <li>• Approving an annual, forward-looking three-year enterprise-wide plan establishing the strategic direction for integrated management of services, information, data, IT, and cyber security. It ensures the plan includes a progress report on how it was implemented in the previous year.</li> </ul>
<b>Deputy Minister Committees (DMC)</b>	<p>Make policies more coherent government-wide and promote a whole-of-government approach to management, human resources and policy planning. These committees include committees on digitization of services; enterprise priorities and planning; core services; and governance in a digital age, which focuses on issues such as privacy and data use, and strategic procurement for complex programmes</p>
<b>Government of Canada Enterprise Architecture Review Board (GC EARB)</b>	<p>It is mandated with setting out to “define current and target architecture standards for the GC and review departmental proposals for alignment” in the <i>Policy on Service and Digital</i>.</p>
<b>Shared Services Canada (SSC)</b>	<p>Providing services related to email, data centres, networks and end-user technology devices. SSC is responsible for delivering these services in a consolidated and standardized manner. Minister responsible for SSC can personally authorize a department to provide otherwise mandatory services.</p>
<b>Public Services and Procurement Canada</b>	<p>Providing services for federal departments and agencies to support them in achieving their mandated objectives as their central purchasing agent, linguistic authority, real property manager, treasurer, accountant, integrity adviser, and pay and pension administrator.</p>
<b>The Communications Security Establishment</b>	<p>CSE is the lead technical authority for information and IT security, including providing leadership, advice and guidance for technical matters related to IT security. It helps protect electronic information and information infrastructures important to the Government of Canada. It fulfils government-wide functions by identifying emerging cyber threats, monitoring government networks and systems, and helping protect against and mitigate potential impacts of cyber security events.</p>
<b>Public Safety Canada</b>	<p>Heading coordination and strategic policymaking on national cyber security matters.</p>

**Table 6. Canada eGovernance roles of government organisations**

Delivering IT services to core departments is now shared between central providers such as SSC and PSPC. Cybersecurity is the shared responsibility of SSC, Communications Security Establishment Canada, and TBS, in partnership with departments. The Treasury Board of Canada Secretariat’s (TBS’s) Chief Information Officer Branch (CIOB) supports the Treasury Board by developing strategy, setting government-wide policy, and providing implementation guidance for IM-IT, service, access to information, privacy and security; and establishing technology standards for the GC.

Year	Co-ordination of strategy implementation	Wider co-ordination for the development of information society
Vision	TBS and DMC	CIOB with IM/IT committee facilitated consultation
Strategy	TBS and DMC	CIOB facilitated consultation
Implementation of action plans	CIO for DMC	TBS and the DMC
Implementation of individual initiatives	CMC committees Individual Ministries and authorities	CIO
Monitoring and measurements	CIOB of TBS	TBS and DMC

Table 7. Canada eGovernance and coordination model since 2017

Two key factors foster the political drive for digital transformation of social insurance administration and services in Canada:

- An increasingly ageing population with the retirement en masse of baby boomers.
- The Government efficiency policy in the public sector, including social security.

Social security and social assistance by and large are still managed at the provincial level. The provinces are responsible for the well-being of the majority of the society and, specifically, the most vulnerable. It is important to note that the country's average social assistance reciprocity rate has declined. While the reciprocity rate was more than 12% in 1995, this was less than 6% in 2021, representing and illustrating dramatic changes in the approach to and degree of social assistance in Canadian provinces and territories.

Various benefits fall under the umbrella of "social security and social assistance", including welfare disability, support payments, old age security and employment insurance. As each province and territory regulates social assistance coordination, this results in variations in procedures across the nation. At the same time, indigenous peoples have a separate, federally administered social assistance program.

Five different ministries are involved in the management of social security and assistance: the Canada Revenue Agency, the Minister of employment, workforce development and disability inclusion; the Minister of families, children and social development; the Minister of Labor and the Minister of Seniors. Service Canada primarily provides these services as online offerings. These ministers report to parliament through Canada's Employment and Social Development.

Year	Coordination of social security implementation	Wider co-ordination for developing f information society
Vision	The Corporate Secretary (CS). The CS supports the Department by providing portfolio coordination, executive and ministerial services, cabinet and parliamentary affairs coordination, and management. of <i>Access to Information and Privacy Act</i> requests.	For the department Employment and Social Development Canada (ESDC).
Strategy	Strategic and Service Policy Branch (SSPB).	Corporate secretary.

<b>Implementation of action plans</b>	<p>Program Operations Branch (POB). The Program Operations branch handles the operation and coordination of Grant and Contributions programmes across the Department.</p> <p>Canada Revenue Agency, Minister of Employment, Workforce Development and Disability inclusion; Minister of Families, Children and Social Development, Minister of Labor and the Minister of Seniors.</p>	<p>ESDC. Innovation, Information and Technology Branch.</p> <p>The Innovation, Information and Technology branch provides information and technology services to the Department. This includes business applications that support and streamline work processes, for accessing data, and processing millions of benefit-related transactions, to address Canadian citizens' needs.</p>
<b>Implementation of individual initiatives</b>	<p>Social service agencies and other organisations.</p> <p>Service Canada regional operations.</p>	<p>ESDC through Service Canada.</p>

**Table 8. The Canadian approach to social security and social assistance since 2020**

Social assistance is highly correlated with the employment rate. Canada recently set up [Opportunity for All: Canada's First Poverty Reduction Strategy](#). This strategy changed Canada's social security and social assistance tremendously, renewing Canada Child Care Benefit services, guaranteeing income supplements to most seniors, renewing the Canadian worker's benefits, and other services. This is a federal programme integrated into the "whole-of-government" strategy that will be implemented in close collaboration with provinces, territories and municipalities.

## 4. LEGAL AND REGULATORY FRAMEWORK, STANDARDS

Digitalization has government-wide relevance and cannot be not covered fully under a single federal regulatory framework. Furthermore, in Canada, every Canadian province and territory has its social assistance system, that is, its legislation, its regulations and its policies.

The legal framework was a challenge to integrating services on a federal level. Legal processes tend to lag behind other processes when it comes to digitalisation. It is part of the inherent conservatism aspect in legal culture (CA2). Current legislative frameworks do not enable effective sharing of information across departments, and the government's current IT environment needs updating to support an accurate "one-stop-shop" service approach.<sup>6</sup>

Despite the lack of a single regulatory framework in this area, a number of broader Government of Canada initiatives aim to deliver a more open and collaborative digital government, providing improved digital-first, user-centred services and programmes. The GC is also taking steps to modernize its regulatory frameworks to streamline processes, foster innovation, and unlock growth and investment.

In 2018, Government of Canada published the Digital Standards, co-created with the public and key stakeholder groups. These Standards were set up to support the work of federal departments and agencies in becoming more agile, open, and user-focused in designing and delivering digital services. The release following this in 2019 of the Treasury Board Secretariat Policy on Service and Digital, which introduced an integrated set of rules for how public sector organisations should manage service delivery, information, data, IT, and cybersecurity in the digital era. This policy took effect on 1 April 2020. The primary objective of this policy is to improve client service experience and government operations, including regulatory administration, through digital transformation approaches.

### **Ontario is implementing the Digital ID**

After the increasing use of Online Service during this Covid-19 Pandemic, the Government of Ontario responded favourably to the request from its citizens to have a secure and privacy-enhancing digital ID, permitting citizens to safely carry out transactions online.

Digital identity is developed in collaboration between the Governments and the private sector, to create the pan-Canadian digital-ID.

The Government of Ontario is adopting following standards: W3C for the Data model, the key management, data format and DID method. It is adopting the OIDEC Standard Open ID Foundation for the identity standard.

The Ontario government has noted on its website that Ontario's digital ID will be based on tech standards from the World Wide Web Consortium (W3C), the Decentralized Identity Foundation (DIF), Trust Over IP Foundation, and OpenID connect.

Some of the tech standards that the provincial government is currently considering includes the Verifiable Credentials Data Model 1.0 for data modelling, Decentralized Identifiers (DIDs), v1.0 for key management, JSON-LD 1.1 for data formatting, OpenID Connect as identity standard, BBS+ Signatures 2020 and Ed25519 Signature 2020 for signature format, Self-Issued OpenID Provider v2 and more for interoperability.

Source: <https://www.ontario.ca/page/ontarios-digital-id-technology-and-standards>

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<sup>6</sup> <https://www.tbs-sct.gc.ca/report-on-service/report-on-service/digital-services-en.html>

Furthermore, the suite of policies devised since DOSP 2018-2022 allowed us to accelerate federal government services accessible through a single window on [canada.ca](https://www.canada.ca). Since the Covid-19 pandemic, Government of Canada has worked on eliminating long-standing institutional barriers to digital services and the urgent need to maintain services. They announced that standards ensure that the users and their needs are at the heart of the social services to citizens. The digital services are leveraged to meet Canadian citizens' expectations. As one interviewee stated, this was not always the case, particularly in the judicial part of social protection, but *"The point is that SST is paid to serve Canadians, not just to make their own life easier. So it is this shift of mentality which is critical. If you don't have this shift, all that you can do when you digitalise is to transform an inaccessible system into an accessible electronic system."* (CA2).



Figure 2. Government of Canada Digital Standards

	Name of acts, regulations or standards	Description
Digital Standards <sup>7</sup>	<u>Canada Digital Standards</u>	<p>There is no general eGovernment legislation. However, the Digital standards are introduced to provide guidance for public servants to develop open, agile and user-focused digital services and the new Digital Operations strategic plan. These digital standards were co-created by the government, the public and key stakeholder groups. They are living standards and evolve with practice. They encompass:</p> <ul style="list-style-type: none"> <li>• Design with users.</li> <li>• Iteration.</li> <li>• Open by default.</li> <li>• Open standards and solutions.</li> <li>• Security and privacy risks.</li> <li>• Empower staff to deliver better services.</li> <li>• Good data stewards.</li> <li>• Ethical services.</li> <li>• Collaborations.</li> </ul>
Policy on Service and Digital		The Policy on Service and Digital and supporting instruments serve as an integrated set of rules that articulate how Government of Canada organisations manage service delivery, information and data, information technology, and cyber security in the digital era. Other requirements, including but not limited to requirements for privacy, official languages and accessibility, also apply to the management of service delivery, information and data, information management and cyber security.
Digital Governance	CAN/CIOSC 100:2020	Data protection of digital assets. Third-party access to data. Specification for Scalable Remote Access Infrastructure.

<sup>7</sup> <https://www.cspc-efpc.gc.ca/tools/jobajds/pdfs/digital-standards-eng.pdf>

		The responsible use of digital contact tracing, monitoring data in the workplace.
<b>Open standards and solutions</b>		Leveraging open standards and embracing leading practices, including using open source software where appropriate. Design of services and platforms that are seamless for Canadians to use, no matter what device or channel they are using.
<b>Accessibility standards</b>		Services should meet or exceed accessibility standards. Users with distinct needs should be engaged from the outset, to ensure what is delivered will work for everyone.
<b>Service standards</b>		Departments must aim to have meaningful service standards and real-time performance reporting in place for priority services as soon as possible and should consider establishing different service standards to monitor access, accuracy and timeliness for their full range of services.

**Table 9. Canada eGovernment related legal acts**

	yes/no	Solution	Description
<b>Electronic ID</b>	yes	CAN/CIOSC Digital trust and Identity	This Standard specifies minimum requirements and a set of controls for creating and maintaining trust in digital systems and services that, as part of an organisation's mandate, assert and or consume Identity and Credentials in data pertaining to people and Organisations. This Standard may be applied to either digital systems and services used within an identity context or to those used and applied across identity contexts, i.e. in credential and/or identity federation. Digital ID is managed at the Provincial level.
<b>Public Key Infrastructure (PKI)</b>	yes		The PKI Policy was established to implement the position of GC, that public key technology would be the preferred means for GC to electronically authenticate the identity of entities or persons, and enhance the integrity and confidentiality of documents.
<b>Single Sign-On (SSO)</b>	no		
<b>National data exchange platform</b>	yes	Open Data 150/ODX	Establishment of an open data institute in Canada (the Canadian Open Data Exchange, or ODX) as a national marketplace that includes an online community for those engaged in the commercialization of open data.
<b>Once-only principle</b>	yes		Inspired by the "once only" principle, i.e. collect the same data only once. A Data Strategy Roadmap for the Government of Canada was set up to collect data from users only once and reuse it wherever possible. Ensure that data is collected and held securely for reuse by others, for easy provision of services
<b>Digital post</b>	yes	ePost Connect	The government departments and agencies that require secure electronic delivery of Protected B level documents, use electronic post Connect to securely share confidential messages, documents and files outside the corporate firewall with one or many citizens, colleagues, partners and suppliers.
<b>Usability service standards</b>	yes	User-experience working group (UXWG) guide to usability and testing	Describes the usability requirements for Government of Canada websites, including requirements for domain names, terms, conditions and archiving of online web content, as well as common webpage layouts and visual design elements.
<b>Personalized and proactive services</b>	yes	Policy on service and digital	The Policy on Service and Digital focuses on the client, ensuring proactive consideration at the design stage of key requirements of these functions in developing operations and services.

**Table 10. Availability of the significant key enablers and standards in Canada**

## 5. BACK-END SERVICE PRODUCTION ECOSYSTEM

Social services are offered in Government of Canada federal departments, provinces, territories, and municipalities

- 40% of these public service organisations are facing readiness challenges for digital transformation.<sup>8</sup>
- Digital transformation occurs in silos.
- Duplication across the GC makes it inefficient.

Canadians navigating multiple levels of government are likely to experience even more critical challenges obtaining the information and services they need<sup>9</sup>.

The Government of Canada comprises more than 100 organisations that deliver a broad range of programmes and services to individuals and businesses in Canada and abroad. Information management (IM) and information technology (IT) support the government in providing these programmes and services. In each federal department, IM-IT is operated separately and focuses on fulfilling the individual mandate of the department. This approach has led to complex, time-consuming and costly client interactions with the government. *“There is a difference in culture. If you talk to lawyers, they have their own culture. If you talk to service delivery people, they have a certain way. If you talk to IT people, they have another culture and so on. So all these have to collaborate, and it has to be forced”*. (CA1). To solve the difference and facilitate the collaboration, *“the citizen must be at the centre. Adopting a citizen-centric approach helped to resolve these difficulties. Instead of focusing on what is good for the lawyer, let’s focus on what is good for the citizen”*(CA1).

This siloed approach leads to inefficiencies through duplication of platforms, incompatibility of systems and data models, inconsistent service delivery and standards, lack of information sharing, inability to find information and other factors.

Alberta and British Columbia issued digital identities (MyAlberta Digital IDentity and BC Services Card) and integrated them with CRA and Service Canada, giving holders of these digital identities rapid access to federal government programs of Employment Insurance and the Canadian Emergency Response Benefit.

A digital identity pilot project launched in the summer of 2019 enabled people in Alberta to log in to Government of Canada online services using their MyAlberta Digital Identity

Another project, launched in February 2020, saw the British Columbia government and the Canada Revenue Agency enable accessing CRA’s My Account and the CERB using the BC Services Card

Source: (<https://www.canada.ca/en/government/system/digital-government/digital-government-strategy/working-with-provinces-territories.html>)

<sup>8</sup> Cukier 2019, Public sector summit Ottawa (Amazon Web service), Develop a Digital Ready Public Service

<sup>9</sup> <https://www.canada.ca/en/government/system/digital-government/digital-government-strategy.html>

The Government of Canada currently plans to set up “OneGC” as a long-term vision to provide a service through a diversity of platforms, devices, or partners. The Government of Canada is incorporating a wide range of approaches to achieve OneGC by developing common services such as digital identity or using emerging technologies, whether digital by design or not. My Service Canada Account is an example of this. There are also efforts to link the (CRA) or Canada Revenue Agency’s My Account and Employment Social Development Canada’s (ESDC), even though GC still faces challenges integrating the services through different layers, levels and organisations.

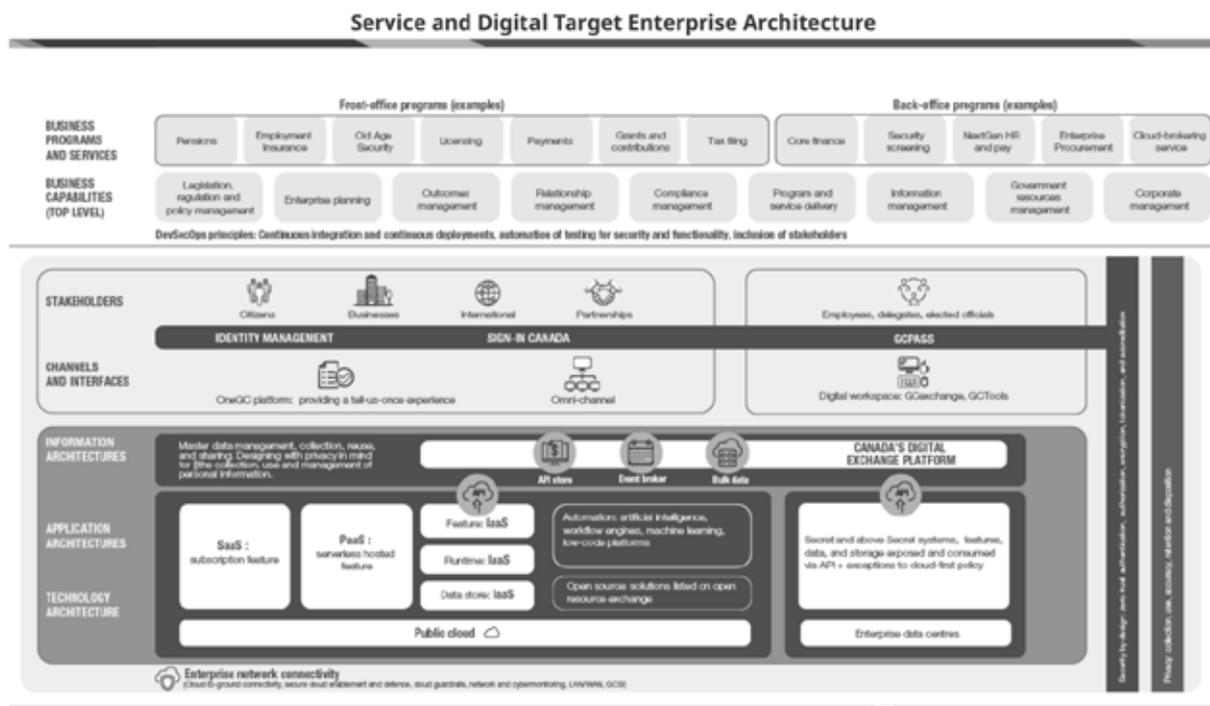


Figure 3. Service and Digital Enterprise Architecture of the Government of Canada

- 1) Social security programmes and services are part of the front-office programmes: Pensions, Employment Insurance, Licensing, Payments, Grants and contributions and Tax filing.
- 2) Social security programmes are supported by legislation, regulation and policy management, enterprise planning, outcomes management, relationship management, compliance management, programme and service delivery, information management, government resources management and by corporate management.
- 3) DevSecOps principles include continuous integration and continuous deployments, automation of testing for security and functionality, or stakeholder inclusion.
- 4) External stakeholders include citizens, businesses, and international partnerships with two types of user authentication Identity management and Sign-in Canada (GCPass is user authentication for internal stakeholders).

- 5) Interfaces such as the OneGC platform: providing a tell-us-once experience and Omni-channel, Digital workspace, GCexchange, GCTools and tools for internal users.

The architecture includes, in addition to application architecture, technology architecture and two overarching principles:

- Security by design: zero-trust authentication, authorization, encryption, tokenization and accreditation.
- Privacy: collection, use, accuracy, retention, and disposition.

## 6. FRONT-END SERVICE DELIVERY ECOSYSTEM

The digital transformation of social security and social service assistance at the provincial level remains in silos with little inter-organisational coordination. It led to confusion, created inconsistencies for Canadian citizens who must understand and navigate these multiple levels and services; and navigation through various levels of government are likely to experience even more critical challenges in obtaining the information and services they need.<sup>10</sup>

The front-end service social security and social service assistance provided by the Federal Government are more integrated:

- It is realized through a multi-channel strategy, to ensure inclusiveness among the population.
- It is managed by the CRA and the ESDC, who are responsible for providing information to the public on programmes of the Government of Canada and other Government departments.

Service Canada integrates most social services together in one portal, assistance and portal for pension and benefits. *"We work with Service Canada in the sense that almost all the information SST receives is transmitted to Tribunals electronically. SST has information sharing agreements with Service Canada and a seamless interface from which SST can get data needed for the deals" (CA2). "Currently, documentation is obtained from Service Canada through an interface" (CA2). "They are moving towards greater use of the portal they have, which enables citizens basically to access Canadian federal benefits. Service Canada is working towards a single portal that gives citizens access to any issues with respect to Canada Pension Plan, Old Age Security Pension, Guaranteed Income Supplement, etc. so all of the federal benefits would be accessible through the portal" (CA2).*

Since October 2016, CRA and ESDC linked key services for Canadians to also allow citizens access through the new single sign-in

- "My Account" service will enable people to track their refunds, review or change their returns, and choose whether to receive a refund by cheque or by direct deposit.
- "My Service Canada" account allows Canadian citizens, and residents of Canada to update personal information for some of ESDC's benefits, including employment insurance, the Canada Pension Plan (CPP) and other benefits.
- "Tell us once" experience is adopted in order for CPP recipients to be able to update their direct deposit information with either the CRA or ESDC and, with their consent, have this information updated automatically.

Furthermore, to scale down the administrative burden, Service Canada opened centres in rural areas to facilitate access to social security and social service assistance. The Canada Revenue Agency (CRA), which manages family benefits, created an Automated Benefits Application for beneficiaries. It collaborates with the Vital Statistics Agency, which securely sends birth registration information to the CRA after the birth registration process. (Canada

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<sup>10</sup> <https://www.canada.ca/en/government/system/digital-government/digital-government-strategy.html>

Revenue Agency, 2017). Some social services are improving accessibility to the service for citizens, to ensure they do not leave any citizens behind. For example, as one interviewee highlighted, *“the SST prospective is to use human-centred design to accommodate people who are not digitally literate or where there is a physical obstacle while using digital means”* (CA2). They also have made a significant effort to translate the complex technical legal language to serve Canadian citizens better and support them in their procedures using the “Navigator” (CA2).

The service delivery programme is described in the table below:

Service and programs access	Description
<b>Service Network Supporting Government Departments</b>	<ul style="list-style-type: none"> <li>• Supports Government of Canada programs, including social security and social service assistance, by ensuring access to the information necessary to make informed choices about available programmes and services, and the tools for accessing them.</li> <li>• Supports migration to preferred service channels.</li> <li>• Access information about ESDC and other social security and social service assistance programs and services by the most convenient means.</li> <li>• Program delivered through the Internet, customized telephone services, as well as through an in-person service delivery network.</li> </ul>
<b>Government of Canada Telephone General Inquiries Services</b>	<ul style="list-style-type: none"> <li>• Supports Canadians and provides customized information services.</li> <li>• first point of contact for general information on all Government of Canada programs, services and initiatives.</li> <li>• Supports key government priorities and messaging, including those outlined in the Budget and Speech from the Throne.</li> <li>• Supports the Government's communication needs in times of crisis.</li> <li>• Customized information services provide support for programmes and services that require a service delivery partner to meet their communication needs to Canadians and other clients, including ongoing requirements, targeted campaigns and temporary needs in crises.</li> </ul>
<b>Government of Canada Internet Presence</b>	<p>The Government of Canada's Internet presence supports Canadians by providing online access to information and services. Through Service Canada, ESDC is the principal publisher of single Government of Canada website, canada.ca.</p> <p>Canadians can locate information on the programmes and services through ESDC and general information on all Government of Canada programmes and services. Through Service Canada, ESDC also provides a simple and secure online portal for Canadians to bring together a number of services and allowing clients, among other things, to view and update their personal information and conduct transactions securely with ESDC.</p>
<b>In-Person Service Delivery Network</b>	<p>An in-person service delivery network supports services and information for the Government of Canada. They provide information on self-service, client authentication and identification, and services for clients who require one-on-one assistance. Canadians who require specialized or client-specific information for programmes such as Employment Insurance, the Canada Pension Plan or Old Age Security are directed to appropriate online resources and programme call centres.</p>
<b>Delivery of Services for other Government of Canada Programs</b>	<p>This programme provides service delivery, oversight, and monitoring of other government department programs through service delivery agreements. It provides Canadians access to a range of Government of Canada programs, benefits and services in person, by phone, by mail and through the Internet by providing basic and detailed programme and service information; application intake and review for completeness; client authentication and validation of identity documents; quick and direct access to specialist agents in other departments; and provision of space in the service delivery network for other departments. It enables a shift from department and programme silos to achieve a seamless service delivery network, resulting in timelier, accurate and cost-effective service delivery for Canadians.</p>

<b>Other Government Department Programs</b>	Services provided on behalf of other Governments of Canada such as assistance to Canadians; provision of basic service information; application intake and review for completeness; client authentication and validation of identity documents; (i.e. Service Canada Compliance Verification).
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**Table 11. Canadian eGovernance and coordination model in 2020**

The table below presents examples of Federal and Provincial portals providing social security and assistance services. The interviewees cited some of these examples. *“There are some specific other systems, really effective examples. In Canada, in British Columbia – there is a [Civil Resolution Tribunal](#) which is almost 100% online, for dispute resolutions. If you look at their website, it’s a fabulous, incredible and very accessible system, very well designed, 100% user-focus. It is an example that with great technology you can get there”* (CA2).

	yes/no	Federal Portal	Provincial Portal (examples)
<b>Social security and social assistance portals</b>	yes	<ul style="list-style-type: none"> <li>https://www.canada.ca</li> <li>https://eservices.cic.gc.ca</li> </ul>	<ul style="list-style-type: none"> <li>https://mybenefits.mcass.gov.on.ca (Ontario)</li> <li>https://www.retraitequebec.gouv.qc.ca/fr/Pages/accueil.aspx</li> </ul>
<b>Education</b>	yes	<ul style="list-style-type: none"> <li>https://www.canada.ca/en/education-canada/services/</li> <li>https://eservices.cic.gc.ca</li> </ul>	<ul style="list-style-type: none"> <li>https://www.quebec.ca/education</li> </ul>
<b>Health</b>	yes	<ul style="list-style-type: none"> <li>https://www.canada.ca/en/health-canada/services/</li> </ul>	<ul style="list-style-type: none"> <li>https://portal3.clicsante.ca</li> <li>https://www.alberta.ca/ahcip.aspx</li> <li>https://www.ontario.ca/page/health-care-ontario</li> </ul>
<b>Employment</b>	yes	<ul style="list-style-type: none"> <li>https://www.canada.ca/en/services/jobs/opportunities/government.html</li> </ul>	<ul style="list-style-type: none"> <li>Quebec Online Employment Service</li> <li>https://www.emploi.quebec.gouv.qc.ca</li> </ul>
<b>Legal repository, consultation, government gazette</b>	yes	<ul style="list-style-type: none"> <li>https://laws-lois.justice.gc.ca/eng/acts/</li> <li>https://www.loc.gov/item/guide-to-law-online/canada/</li> </ul>	<ul style="list-style-type: none"> <li>https://sst-tss.gc.ca/en</li> <li>https://www.justice.gouv.qc.ca/<a href="#">Civil Resolution Tribunal</a> (British Columbia)</li> </ul>
<b>Participation, engagement</b>	yes	<ul style="list-style-type: none"> <li>https://open.canada.ca/en/proactive-disclosure</li> </ul>	<ul style="list-style-type: none"> <li>https://www.ontario.ca/page/public-engagement</li> <li>https://www.mamh.gouv.qc.ca/organisation-municipale/democratie-municipale/participation-des-citoyens/</li> </ul>

**Table 12. Specialised portal Social security and social assistance service ecosystem in Canada**

Assessing citizen satisfaction levels from online and digital services remains an issue from a regulatory perspective. Service Canada is currently taking initiatives to evaluate and assess citizen satisfaction. Some organisations regularly measure and monitor satisfaction. The SST has an ongoing survey. *“This is what our client surveys look like: [Client survey results \(sst-tss.gc.ca\)](#). At the SST, appellants are asked about their experience of using the appeal process. The surveys help us understand where we need to improve. We publish the feedback because we believe in being transparent about how we work for Canadians. We publish our survey results quarterly. The results period could be seen on the same page. They offer a detailed breakdown of results and comments from appellants”* (CA2).

## 7. SKILLS AND CAPABILITTIES

Over the last two decades, the Government of Canada has struggled to recruit and retain digital talent with an adequate skills base to design and deliver the type of services people expect in the digital age (CA1, CA2). However, by focusing on transformational change, user experience, and agile methods of working, public services have been attracting tech employees with digital skills interested in working on short-term projects through the Interchange Canada program, as well as offering more varied opportunities for upskilling and digital skills training for public servants and officials.

Digital, IM and IT workforces of the Government of Canada are recruited and managed separately and in silos, leading to an inconsistent and sometimes limited professional development, greater outsourcing weak integration of roles and functions that fit closely together. The table below summaries the key initiatives the Government of Canada has and is currently undertaking.

Activities	Description
Enable career development	Enabling IM-IT professionals to evolve into new roles and functions and addressing competency gaps in strategic thinking, influencing, innovation, collaboration, and agility requires employee investment. To support IM-IT professionals, retain talent, and re-skill or up-skill the workforce, emphasis will be placed on:
Promoting digital literacy and collaboration	<p>Making the most of investments in the IM-IT environment, devices and tools to ensure that IM-IT supports workforce productivity, rather than hindering it.</p> <p>TBS will develop partnerships to leverage and design an engagement and awareness programme for all public servants to enable them to:</p> <ul style="list-style-type: none"> <li>• Become more data-literate.</li> <li>• Leverage evidence-based decision-making.</li> <li>• Engage internally and externally as digital citizens.</li> </ul> <p>Use GCTools such as GCpedia, GCconnex and GCintranet to share information and build the professional networks needed to respond to shifting priorities and problems. Collaborating digitally involves “working out loud,” where others can see, benefit from and help improve how employees work.</p> <p>To promote a culture of openness and collaboration, departments will nurture these skills throughout the public service by:</p> <ul style="list-style-type: none"> <li>• Adopting and using GCTools for everyday work.</li> <li>• Deploying targeted and general learning and community outreach activities.</li> <li>• Promoting the use of self-directed learning tools and materials.</li> </ul> <p>Senior management’s adoption of GCTools will be critical to successfully integrating digital collaboration into their departments and demonstrating the full benefits of these collaborative tools. Leaders will adopt an “open first” approach toward content creation and encourage their employees to participate in shared knowledge and collaborative digital spaces, other than where security requirements prohibit such an approach.</p>
Modernizing information and data management professions	<p>Revitalizing the information and data management profession is necessary to ensure that it keeps pace with current and emerging business needs in a digital, open and service-oriented environment. Furthermore, information and data professionals should become more involved early in the development process, whilst designing or renewing programmes and systems to ensure that issues associated with information and data management and sharing receive proactive consideration. Realigning the roles and responsibilities of information and data management professionals and other key stakeholders could help improve collaboration and overall coherence.</p> <p>TBS will lead the development of new, standardized:</p>

	<ul style="list-style-type: none"> <li>• Generic workstreams and job descriptions.</li> <li>• Generic competency profiles.</li> <li>• Organisational structures.</li> </ul>
Strengthening leadership development	<p>There is a need to invest in current and aspiring leaders across the enterprise to:</p> <ul style="list-style-type: none"> <li>• Address talent retention issues.</li> <li>• Increase the capacity for developing leadership competencies.</li> </ul> <p>Emphasis will be placed on:</p> <ul style="list-style-type: none"> <li>• Talent management and succession planning.</li> <li>• Learning provider solutions completed.</li> </ul> <p>Specific leadership development efforts include:</p> <ul style="list-style-type: none"> <li>• Talent reviews.</li> <li>• Promoting leadership development programmes at Canada School of Public Service (CSPS).</li> <li>• Tracking and facilitating the movement of IM-IT leadership across the enterprise.</li> </ul> <p>TBS will lead the work in these areas.</p>
Expanding open government training and outreach	<p>Training and awareness sessions are being provided to public servants across federal government to enhance knowledge and skills for open government.</p> <p>TBS will continue its work to expand open government training and outreach in coming years, in partnership with CSPS. In addition to hosting public webinars on open government issues and developing dedicated open government training and learning activities for public servants, the Government of Canada will create and publish open government learning materials for teachers and post-secondary instructors. This will help Canadians to find out about our open government work and more actively participate in it, increasing Canada's ability to harness open government's social and economic potential.</p>
Assessing public service skills and analysing future needs	<p>Technological disruption, changing approaches and the digital government will require public servants to possess new skills and competencies. To help public servants and the public service adapt to this evolving digital environment, TBS will work with partners such as CSPS to identify competencies for the digital age, in order to better understand how the current skills profile of the government needs to evolve.</p>
Digital Academy	<p>The Government of Canada is launching a Digital Academy to increase the offerings available to public servants who wish to increase their digital literacy and understanding of key areas such as service design, data analytics, and new technologies as these apply to their work. Informed by examples in other jurisdictions, we will build a made-in-Canada model to understand better how digital environments and functionalities can improve government functions and provide better services. CSPS will lead delivery of the Digital Academy in partnership with TBS, the Canadian Digital Service, Statistics Canada, other government departments and partners from the non-profit, academic or private sectors.</p> <p>The development of the Digital Academy will be guided in particular by principles of open by default, collaborating wisely and iterative development. Initial courses were piloted in September 2018, and the government will aim for this service to be available starting in 2019.</p>

**Table 13. Digital skills and capabilities program in the Government of Canada**

Despite the efforts in digital skills development as well as to improve recruitment conditions and become an employer of choice, Olivia Neal, Executive Director for Digital Change, highlights the fact that Government of Canada is at present struggling to attract and upskill its digital workforce, – in particular among women, who remain underrepresented in technology roles in the civil service.

Dr Wendy Cukier, Professor at Ted Rogers School of Management & Academic Director of the Diversity Institute in Ontario, outlines the importance of:

- Rethinking digital skills at the level of expertise from Basic digital literacy, Technology skills and deep technical and content creation.
- Reviewing the traditional definition of digital skills by the public sector and Government organisations as being computer science will attract a larger pool of candidates and upskilling and alternative pathways.
- Introducing Diversity in Digital skills as a competitive advantage and key to talent creation.
- Adopting accountability and metrics to support more flexibility for creating worthwhile working arrangements, to attract and retain diverse digital talents.

## 8. EXPANDING INCLUSION AND COVERAGE

While Canada by and large has universal coverage, challenges persist at federal and provincial levels. Reduced social spending is leading to an increased number of social challenges in Canada, such as an increase of homelessness and an increase in poverty.

The ageing population requires both long-term help along with short-term assistance and care. Consequently, there is an increased need to expand Old Age Security and Guaranteed Income Supplement as well as deferred savings plans like the Registered Retirement Savings Plan.

The Covid-19 pandemic situation adds complexities and challenges to the current social security and social service assistance, with increased unemployment, housing difficulties, an increase of reduced and lower incomes, and with access to healthcare and access to online educational support.

The digitalization of social services and assistance during the Covid-19 particularly exacerbated these social inequities, increasing the consequences of the situation due to the digital gap among Canadians' abilities to access digital technologies.

The Covid-19 period showed that internal employees or citizens have an important duty and ability to learn fast. As interviewees highlighted, *“COVID has done more to change mentality and acceptance of digitalization than anything else”* *“The recent COVID situation has demonstrated clearly that the vast majority of people can adapt. But you must ensure that no one is left behind, especially by the programme targeting the vulnerable, that is super important. Tremendous progress has been made here, there is so much technology nowadays, so much easier for use by the elder people”* (CA1).

Four elements are considered critical for improving digital inclusion for social assistance, education support and healthcare systems. There is an important gap between the majority of Canadian and specific demographic groups, that are lagging behind as illustrated in the table below.<sup>11</sup>

	Situation in Canada
Digital access	<p>18.7% fewer households in the lower-income quartile have access.</p> <p>34.5% fewer people in the 65+ age group from the lowest income quartile had access to the Internet at home.</p> <p>52% fewer households residing in First Nations reserves have basic broadband services available and, on average, are more expansive (same for rural Canada).</p>
Digital skills	<p>37% of Canadians are proficient in digital technology</p> <p>23% fewer people from the 55-75 age group are able to use online services (e.g. government, banking, commerce) in comparison to 25-54 year-olds.</p>

<sup>11</sup> Statistics collected from different sources including Deloitte reports, <https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/fcc/ca-digital-equity-spotlighting-canadas-divide-deloitte-canada-en.pdf>

	<p>20% fewer people between 45-55 years of age are able to solve issues in technological environments in comparison to 25-35 year-olds.</p> <p>8% fewer First Nations, or minorities are most likely to invest in digital skills or online capabilities.</p>
Ecosystem	<p>Policy and regularity environment on accessibility infrastructure, Canada ranks highly (16<sup>th</sup>), but is falling behind in creating regulations that support Digital inclusion and equity.</p> <p>Canada provides a good level of Digital accessibility (top 25%) but lacks policies on key education, employment and independent living.</p> <p>Protection of personal data and privacy: Canadians feel that they have no control over how the Government uses their data and personal information.</p>

**Table 14. Digital skills and capabilities situation in Canada**

Government and social security experts highlighted the importance of innovating the health coverage system. It is considered as problematic as it is currently, and innovation could foster improvements. *“In healthcare, what you want from the future of technology is to enable people to age in place, to live in their community. The health system is too health-centric. It should sooner be the case, that the gateway to health is through the hospital. This should not necessarily be so; it should be in your own place, where you live. Now with remote sensors, you can stay on, remain in your home, as we can monitor the situation remotely”* (CA1).

The Government of Canada continues to strive toward its objective of becoming a world leader in inclusive digital service provision and is taking a number of relevant steps to ensure this, e.g. :

- Federal new income called Canadian Emergency Response Benefits (CERB) to support people's basic needs during the Covid-19 pandemic.
- Reducing the digital health divide magnified during Covid-19 for vulnerable communities and others at risk of experiencing health disparities, such as immigrants.
- Government-led initiatives, the Connecting Families programme that offers internet access for CA\$ 10 a month, for those people receiving the maximum Canada Child Benefit.

However, rather than tailoring such social security initiatives, the Government of Canada is still generalising these initiatives by applying them to all low-income Canadians. Indeed, the government's reliable Internet access, adequate digital literacy skills, and data privacy and protection should be available to all of the most vulnerable residents, such as the elders, lower-income, new immigrants and indigenous First Nations peoples.

Moreover, rural and remote broadband services provision are critical to expanded coverage of digital social assistance services and electronic health and care services, in order to reach communities in need and leave no one behind.

### Digital Health system in Ontario

The Province of Ontario started their Digital health strategy in 2021-22, which allows citizens to book appointments online, control their health record better and use video visits to healthcare professionals, as well as providing better access to professional patient information. A core part of a new care coordination system, it will allow professionals to collect, share and use information, but at the same to protect patients' personal health information.

However, at the same time as this, digital health technologies are noting considerable access among new immigrants and immigrant communities. The Canadian government commits to accepting over 400,000 new immigrants per year from 2021 to 2023 to assist with economic recovery, so it is especially important for the country to create inclusive, accessible, and robust digital health services. Expanding understanding of digital health accessibility can strengthen health service delivery in Ontario and build trust in an increasingly common form of health-care communication. Inclusive digital health technologies and services for new immigrants should be a social and public health priority and will assist in achieving the pillars of universal health coverage that promote equity and equality, improve health care for immigrants, and reduce health risks.

**Source:** Global News, November 13, 2019; Allison A., Mohammed AlKhaldi, Sara Ahmed, Canada's New Immigrants and the Path to Digital Health Dividends <https://www.thinkglobalhealth.org/article/canadas-new-immigrants-and-path-digital-health-dividends>

As the Government of Canada strives to become a leader in digital inclusion and equity, it is important to better understand people's relationship with technology in order to reduce the risk of disconnecting users more than expanding coverage. However, the Government of Canada is currently failing to collect data and lacks visibility of how specific groups perform for digital equity. Canada lacks a view of how it compares to other countries, in reducing the digital divide and fostering digital equality.

## 9. LESSONS LEARNED

To summarise the Canadian experience and current state of affairs of digital transformation for public sector services, and social security in particular, this case study finds that:

- The Government of Canada is a pioneer of digital transformation.
- Central Government remains an important component of service delivery. Canada is a federal country where most social service delivery is realised at the Provincial level. Some service delivery is covered by the Federal Government.
- Digital transformation for social assistance and social security is driven by cost reduction and productivity.
- Early adoption and integration of a citizen-centric perspective that has been reviewed and improved progressively helped Canada to reach the level of success it enjoys today.
- Social security services in Canada face several challenges that trigger digital transformation as a survival need for the Canadian Government:
  - An ageing population and immigration increase demand for social services and security.
  - Increasingly diminished level of resources, due to Federal and Provincial Government policies.
  - Covid-19 impacted Canadian society, increasing poverty and social assistance requests.
- Digital transformation of social security and social assistance services faces the greatest challenges due to Governance and integration. The interviewee confirmed and insisted on prioritizing Governance, and considered it one of the most important lessons to be learned in digital transformation (CA1, CA2). *“The most important lesson to be learned is Governance. If you don’t get governance right, you are building a sand castle that will not stay standing. Governance is something for the long-term”* (CA1).
- Canada has been moving to a consolidated vision at the federal level, supported by strategies and action plans. Social security digitalisation is fully integrated into the National Digital Strategy, based on strong Provincial models with Service Canada.
- Canada has developed its policies under the strong influence of UN charters and international standards, consideration of EU standards and regulations. Canada has designed several collaborations and partnerships with Estonia to align its standards and policies.
- Canada also adopted voluntary opt-in approaches to eID/eSignature, digital post, and use of e-Service, but managed these independently at the provincial level and therefore with different speeds of progress and advancement.

- Important focus on IOP and data exchange within social assistance and social security to link different levels, which helped manage the pandemic period and the difficulties it presented.
- Government of Canada recently migrated to an integrated whole-of-Government approach. This new vision and its supporting architecture integrate social assurance and security services to facilitate improvement and create value for citizens.
- At the front-end service level, the Government of Canada modernised multi-channel offerings and invested in technology to improve access for a diversity of citizens and improve inclusiveness.
- Skills and capacities were considered one of the important challenges for the Government of Canada, as it was difficult to attract ICT and innovation skills. An important training and capabilities development programme for public services involves partnering and collaborating with different stakeholders to foster motivation, continuous development, and innovation in the public sector and public services.
- Furthermore, strong leadership involvement, a consensus toward a citizen-centric perspective on the digital definition of the social security service.

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# Case studies on digital transformation of social security administration and services

**Reference Project:** CHN/18/01/EUR - Improving China's Institutional Capacity towards Universal Social Protection

**CASE STUDY**  
**DENMARK**



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## 1. INTRODUCTION

This case study on digital transformation of social security administration and services in Denmark consists of seven parts:

- The context of Denmark, digitisation and social security.
- Governance, intergovernmental collaboration and coordination in relation to technology for the digital transformation of social security and social assistance.
- Legal and regulatory framework, standards relating to digital transformation of social security and social assistance.
- Front-end service delivery ecosystem for social security administration and services in Denmark.
- Back-end service production ecosystem of social security administration and services in Denmark.
- Skills and capacities within social security entities and for social security clients and customers.
- Expanding Inclusion and coverage.

The case study concludes by summarising lessons learned from the Danish experience.

Specific links to core research questions and draft questions to guide the case survey and /or interviews are outlined for each section of the case study.

## 2. CASE CONTEXT

Denmark is a relatively small country with roughly 5.9 million citizens, but a considerably higher population density and level of urbanisation. Danish is the official language, and the country is considered a nation-state with a relatively small number of immigrants (or decedents thereof). While Greenland and the Faroe Islands are part of the Danish Commonwealth, this case study does not cover these. Denmark is a high-income country, with a corresponding standard of living and a more consistent GDP growth rate (Ozols & Meyerhoff Nielsen, 2018a). Denmark has also been a member of OECD since 1961, the EU since 1973, and of NATO since 1949.

Population (July 2021 est.)	5,894,687
Territory (km <sup>2</sup> )	43,094
Population density (2020) <sup>1</sup>	146
Official language	Danish
Life expectancy / median age (2021 est.)	81.45 / 42
Urbanisation (%) of total population (2021)	88.2 % (2019)
GDP (PPP) (USD, 2020 est.)	326,2 billion
GDP per capita (PPP) (USD, 2020 est.)	55,900
GDP growth rate (%) (2019 est.)	2.85%
Unemployment (2019 est.)	3.05%
Imports (billion USD (2020 est.))	170.33 billion
Exports (billion USD (2020 est.))	191.53 billion

**Table 1: Socio-economic data** (CIA - Central Intelligence Agency, 2021)

Although various forms of social security have existed in Denmark for centuries, more structured approaches to alleviating poverty resulting from a series of reforms in the 1780's were sporadic, heavily dependent on charities and religious institutions. With industrialization and urbanization in the 1860s onwards, social benefits were expanded by industrialists, but as in earlier times these tended to focus on food aid for the extremely poor, homeless, orphans and the like. The expansion of the public sector provided social security and welfare services started in earnest in the 1930s, with the so-called "welfare state" – covering education, health, welfare and social security services - emerging more seriously during the 1960s.

Social security benefits in the Danish context cover a multitude of areas. Key areas and services include:

- Family, e.g. child benefits, child care, maternity/parental benefit.
- Health, e.g. public healthcare, sickness benefit, home care service, benefits to care for close relatives.

<sup>1</sup> The World Bank (2021). Accessed 1-15 November 2021:  
[https://data.worldbank.org/indicator/EN.POP.DNST?end=2020&locations=AU-CA-DK-FR&name\\_deforsc=false&start=1961&view=chart](https://data.worldbank.org/indicator/EN.POP.DNST?end=2020&locations=AU-CA-DK-FR&name_deforsc=false&start=1961&view=chart)

- Incapacity, e.g. industrial injuries (accidents at work and occupational diseases), disability pension, senior pension and flexi-job.
- Old-age and survivors, specifically old-age pension, early retirement and survivors.
- Social assistance benefits.
- Unemployment benefits.

As a rule, citizens and permanent residents are eligible to social security benefits, however additional qualifying conditions may apply. Nationals of any EU country as well as of the European Economic Area (i.e. Iceland, Norway, Liechtenstein and Switzerland) as well as the territories of Greenland and the Faroe Islands are covered if residing in Denmark, or if they lived here and gained entitlements in the past (e.g. pension).

Social security benefits are generally financed through income taxes, employers' and employee contributions. Set minimum benefits are established for potential recipients with top-ups often applied to help out low-income or marginalised recipients (e.g. single parents, low-income pensioners etc.).

In terms of organisation, specialised authorities at central government level set the parameters for a given area of social security, including legal, regulatory and operational parameters. These include eligibility, type of benefit (financial or non-financial), strategic and operational key performance indicators, and who is responsible for managing a given benefit. Two key principles of assessing eligibility are applied in the Danish social security context. Subjective assessment (i.e. based on an individual assessment of personal circumstances, context and preference within a framework of qualitative and quantifiable criteria), and objective assessment (i.e. based on a set of defined, quantifiable and binary criteria). With respect to digital transformation of social security, the assessment principle is of particular relevance, as objective assessment often requires in-person consultation to identify the most appropriate combination of financial and non-financial benefits for a given individual and their context. Subjective assessments are sooner binary, and may often be automated to a greater extent (DK1; DK2; DK3; DK4).

At an operational level, most high-volume, frequently requested social security services are managed by single centralised government agencies. These include many family benefits (e.g. child support, maternity/parental leave), various pensions, unemployment benefits which are managed by e.g. ATP and Udbetaling Danmark (UDK, Payment Denmark). These are often based on subjective assessment and eligibility criteria. Benefits based on objective assessment and eligibility criteria are generally provided in collaboration with other specialised agencies, authorities, or local authorities. These include non-financial benefits for e.g. seniors and incapacitated people, where ATP and UDK often work hand in glove with local authorities, or unemployment benefits provided by Styrelsen for Arbejdsmarked og Rekruttering (STAR, Danish Agency for Labour Market and Recruitment) in collaboration with the national network of government job centers and local authorities for non-financial jobs and career development. Similarly, a number of health benefit payments are managed by ATP and UDK, but in close coordination with non-financial benefits provided in collaboration with e.g. local home care provision managed by local authorities, and medical professionals (e.g. family doctors and hospitals) (DK1, DK2, DK3, DK4).

Internet access and a minimum level of digital literacy and competencies are essential pre-conditions for online service delivery to succeed. (Meyerhoff Nielsen, 2017b) Investment in the internet and communications infrastructure ensures that Denmark offers widely accessible online government services, by way of comparison. Denmark is among the most connected countries globally, with high rates of internet use and good availability of high-speed infrastructure.

Population covered by a mobile-cellular network (2020)	100%
Population covered by at least 3G mobile network (2020)	100%
Population covered by at least 4G mobile network (2020)	100%
Households with Internet access at home (2020)	93%
Mobile-cellular subscriptions per 100 inhabitants (2020)	123
Active mobile broadband subscriptions per 100 inhabitants (2020)	137
Fixed broadband subscriptions per 100 inhabitants (2020)	44
Individuals using the Internet (% of the population) (2020)	97%

**Table 2: Connectivity and use of the Internet by households and Individuals (ITU, 2021)**

Another essential element for the high online service take-up is the country's general ICT skills. Data shows that 65% of the population in Denmark possess basic ICT skills, while 56% have standard ICT skills. This gives government the opportunity to move towards the digital-by-default principle for public service delivery.

Basic ICT skills	65%
Standard ICT skills	56%
Advanced ICT skills	14%

**Table 3: Basic, Standard, and Advanced ICT skills 2019 (ITU, 2021)**

Denmark leads the world in providing government services and information over the Internet, according to 2018 and 2020 EGDI surveys (UNDESA, 2018, 2020). Denmark, the country occupying first place on EGDI (E-Government Development Index) in 2020, has consistently been amongst the Top-10 countries assessed by UNDESA EGDI, except for in 2014, when the country ranked 16<sup>th</sup>.

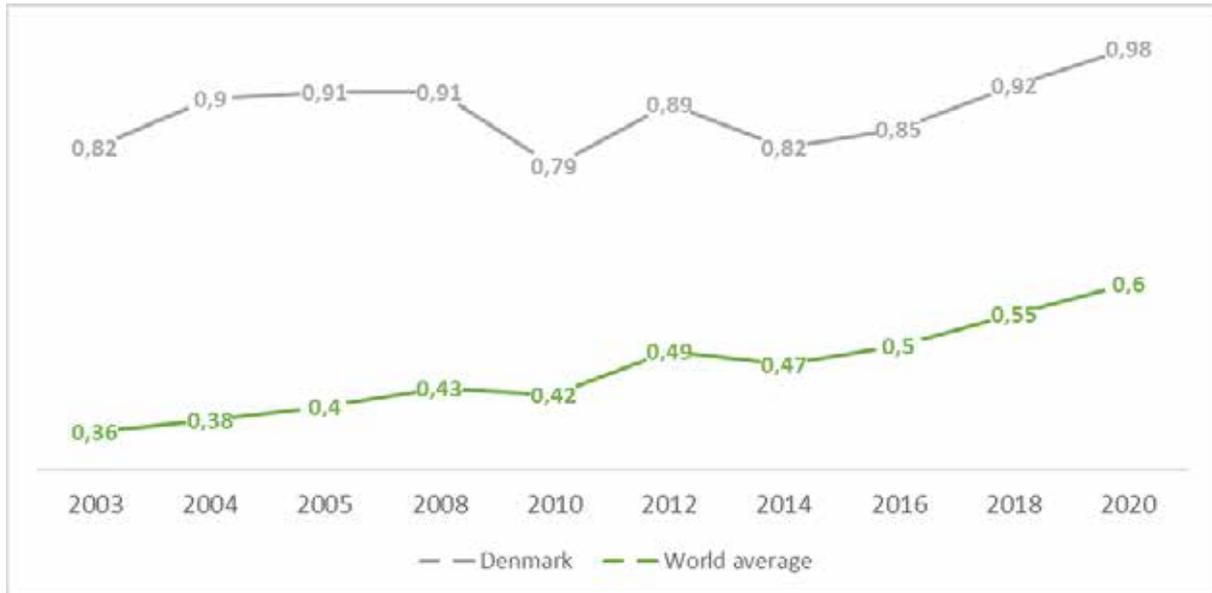


Figure 1: EGD scores from 2003 to 2020 for Denmark and the World average (UNDESA, 2021)

While Denmark observed significant drops in their OSI scores between 2010 and 2014, it has consistently high OSI scores, as shown in Figure 2.



Figure 2: OSI scores from 2003 to 2020 for Denmark and the World average (UNDESA, 2021)

Digital transformation of social security in Denmark has evolved over time, but specifically. The potential of technology in service production and service delivery is closely linked to productivity and cost efficiency in the Danish context, not least with respect to social security, welfare and health care provisions. This has been especially evident as a result of an ageing population since the early 2000's, and the financial crisis of 2008. While the primary driver has been to drive efficiency within the public sector, service effectiveness and quality are key considerations (DIGST, 2010, Meyerhoff Nielsen, 2019; DK1; DK2; DK3; DK4).

There is a broad political and administrative consensus on the need, benefits and limitations of digital transformation and ICT as an enabling tool for public sector innovation. The use of technology is predominantly a non-political issue and to a large extent is driven by the public sector itself, with a high degree of strategic guidance by DIGST [or *Agency for Digital Government*] (DK1; D2; DK3; DK4; Meyerhoff Nielsen, 2020). With the strategic drive for digital-by-default and to eliminate “paper” channels during the 2011-2015 strategic period (DIGST, 20112), the political discourse centred around digital inclusion to ensure universal access to public services by potentially marginalised users, seniors and other end-users with no or limited digital skills. The levels of concern with respect to social security and welfare services were particularly profound. Close stakeholder consultation and collaboration with representatives of seniors, persons with disabilities, minority and immigrant communities, and local authorities expanded and strengthened communication and reinforced initiatives to raise awareness, digital skills activities etc. These were driven by local authorities, public libraries, run in retirement homes and the like. Entities such as ATP, UDK, STAR and job centers were also key drivers, with the first two of these also driving the online useability agenda ahead, including the first Danish usability standards in 2012. Over the last decade, primary political concerns were related to privacy and cyber security issues, although digital inclusion continues to be discussed and of interest, often in the context of unintended consequences of policy decisions or specific IT solutions or consequences (DK1; DK3; Meyerhoff Nielsen, 2021; Meyerhoff Nielsen 2020).

Denmark is an early mover for application of ICTs and coordination of eGovernment development, with a continuous and consistent focus on ICT investments in the public sector. Digital strategies have followed a trajectory similar to that of global leaders: starting with implementation of the base infrastructure (internal digitalisation and digital signature), the development phase of shared infrastructure, such as national portals *borger.dk* for citizens and *virksomheder.dk* for businesses, as the digital entrance to the public sector), eID solutions, and communication platforms (Digital Post) (Ozols & Meyerhoff Nielsen, 2018b). The 2011-2015 strategy period focused on digital-by-default – termed mandatory online self-service for pedagogical and communicative purposes, to realise the potential benefits of digital infrastructures and the channels created. The cross-governmental strategy kicked off phased transition to digital self-service and communication, with a strategic goal of 80% of Danish citizens, and 100% of entrepreneurs’ communication with public authorities moving to digitally based by 2015. More than one hundred central and local government procedures are now more or less mandatory as online provisions, 90+ per cent of all communication with citizens and businesses is now electronic – including for most social security services such as pensions, unemployment benefit, maternity/parental leave, child and family support which are now essentially completely digital (Ozols & Meyerhoff Nielsen, 2018c).

The fifth strategy “A stronger and more secure Digital Denmark”, builds on past strategy and continues to focus on public sector productivity and efficiency, user-friendliness, and security. Themes include: automation of public administrative procedures; improved usability; welfare and primary care; data sharing and reuse (incl. the once only principle); a more coherent eGovernment framework (i.e. fewer silos); maintaining and improving the IT infrastructure; privacy and data protection (incl. cybersecurity); and improving the management of IT projects and common public programmes and efforts (incl. minimising the risk of failed IT projects, joint development and use of common infrastructures, components and data) (Meyerhoff

Nielsen, 2016). The sixth strategy, launched on 5 May 2022, builds on past strategies with nine strategic objectives including: Enhanced cyber and information security; Developing coherent services for citizens and companies; Increased productivity to enable more time for the core task through increased use of technology; Increased growth and creating digital SMEs and addressing skills and labour shortages; Building a digital healthcare system of the future; Accelerating green transition through digital solutions; Creating a strong, ethical and responsible digital foundation; Putting Denmark at the centre of international digitisation, and; Equipping Danes for a digital future (DIGST, 2022).

The sixth strategy for 2022-2025 continues to focus on the efficiency and effectiveness of the public and private sectors and society at large. The challenges of the global climate crisis and the role of Denmark in supporting and setting standards for digital transformation globally are emphasised for the first time, but also optimising the country's global position and competitive advantage in technology and services for green and digital transitions. A unique feature of the Danish strategies and action plans is the cross-governmental focus, i.e. the focus on central, regional and local government, and its continued strategic focus on inter-governmental cooperation and efficient management. The Danish approach and business case following the digital-by-default and once-only principle to reduce administrative burdens are widely recognised, and have become the basis for many EU and OECD countries.

### 3. GOVERNANCE

Denmark has a three-tier public sector consisting of five regions and 98 municipalities, with a high level of local government autonomy, decision-making, and service delivery responsibilities (Ozols & Meyerhoff Nielsen, 2018c). To strengthen regional and local government capabilities, the 15 counties and 274 municipalities were merged into the current five regions and 98 municipalities as of 1 January 2007. Service responsibilities were decentralised with this structural reform. The regions are now responsible for hospitals, emergency services and some infrastructure projects (e.g. highways), whilst municipalities have responsibility for approximately 70-80% of the citizen services they deliver, including primary care, most primary services, primary and secondary care, urban planning and maintenance services, and act as service access points for central authorities, e.g. for obtaining passports, driving licences, national health insurance cards, for issuing eID's etc. A degree of central control is exercised via annual budget negotiations between the Ministry of Finance and ministries, the Danish Regions (DR), the umbrella organisation representing all five regions, and Local Government Denmark (LGDK) representing all 98 municipalities (Meyerhoff Nielsen, 2016).

Two key factors drove the digital transformation of social insurance administration and services in Denmark: First, an ageing population, and second the push for increased productivity within the public sector, including social security.

Central government is responsible for setting most of the parameters for social security and welfare services such as assisted living. Actual delivery is often distributed to either specialized shared service centres or the local authorities as summarised in Table 4.

Social Programs	Governance and mandated level	Service production and delivery
Healthcare	Central government Ministry of Health Hospitals implemented by regions	Hospitals implemented by regions Primary care by local authorities
Education	Central government Ministry of Education and associated agencies	Tertiary education delivered by self-governing bodies. Student grants and loans managed by specialised agency but managed by ATP/UDK Secondary and primary education managed by local authorities
Social Housing	Central government, local authorities	Public and private providers within the national framework. Social security payments related services such as rent and heating subsidies managed by ATP/UDK. Non-financial home assistance managed by local authorities in cooperation with ATP/UDK
Unemployment benefits	Central government (SM) and specialised agency (STAR)	Unemployment benefits and non-financial support managed by STAR, Job Centers and local authorities. Payments centralised in ATP/UDK. Job support for persons with disabilities etc managed in a similar way.
Low-income support	Central government (SM) and specialised agencies.	Social security payments related services such as rent, heating subsidies, income and pension supplements, child support, family support are

		managed by ATP/UDK. Non-financial home assistance is managed by local authorities in cooperation with ATP/UDK
Seniors	Central government and specialist agencies.	Various pension (senior, early retirement, disability etc) payments managed by ATP/UDK.
Children and families	Central government (SM) and specialised agencies.	Social security payments related services such as rent, heating subsidies, income and pension supplement, child support, family support are managed by ATP/UDK. Non-financial home assistance managed by local authorities in cooperation with ATP/UDK
Disabilities	Central government and specialised agencies.	Social security payments to people with disabilities are managed by ATP/UDK. Non-financial home assistance managed by local authorities in cooperation with ATP/UDK

**Table 4: Governance of social service programmes** (Sources: atp.dk, sm.dk, star.dk)

With respect to key social security payments, two key actors dominate. The ATP Group is Denmark's largest pension and processing company, and administers the national public pensions systems and its investment portfolio. ATP acts as the pension provider, investor and administrator of welfare benefits for almost all citizens and companies in Denmark. In short, ATP manages Denmark's universal Lifelong Pension system, also managing the investment portfolio to maximise returns on pension funds (including investments in bonds, equities, property and infrastructure). As a result, a public procurement process led to the establishment of a new centralized service entity (ATP, 2022; DK1; DK2).

Between 1 October 2012 and 1 March 2013, Udbetaling Danmark (Payment Denmark, or UDK) managed by the ATP Processing Business, assumed responsibility for five municipal areas: Family benefits (for low-income families), maternity/paternity benefits, lifelong state pension, disability pensions and housing benefit (for low-income households). The responsibility for international pensions and social security tasks transferred from the former Danish Pensions Agency to UDK on 1 June 2013. On 1 May 2015, five additional social security areas were transferred from the municipalities to UDK, including labour market exit benefits and international health tasks (i.e. the European health insurance card). As of 1 October 2016, UDK has managed the administration of repayment of student loans (or Statens Uddannelsesstøtte og lån), payment of civil service pensions, sickness benefit insurance as well as a number of government subsidies, loans and guarantees which were previously the responsibility of the State Administration's Financial Services Center (ATP, 2021b). As a shared services centre concept, municipalities and central government agencies pay the costs incurred by ATP for running UDK – although these are capped as per the agreement for each contractual cycle. The consolidation of financial social security and welfare benefits is anchored in a cost-benefit and outcomes analysis highlighting that unit costs and decisions varied substantially in municipalities, despite operating within the same legal and regulatory framework, but also with vastly different operating costs (i.e. unit costs). Currently, two-thirds of all welfare payments (by volume and amount) are conducted by ATP and UDK [2]. (DK1; DK2)

Local government is generally responsible for non-financial welfare and assisted living (DK2; D4). Similarly, the national network of Job Centers are responsible for promoting work and employment, and vocational training associated with unemployment or underemployment (DK3; D4). In practice this means there are formal processes for collaboration, coordination, and data sharing between both specialized national agencies such as STAR with Job Centers and local authorities (DK2; DK3; DK4). Similarly, between the centralised payment authorities of ATP and UDK with local authorities managing the non-financial welfare and assisted living services (DK1; DK2).

The digital transformation of social security is governed by the national strategic focus. Social security is viewed as services on a par with any other public sector service. Social security organisations must align their initiatives to the national strategic focus, comply with national standards and reuse key infrastructure components. The key enabler of digital transformation nationally is the Danish Agency for Digitization (DIGST, or Digitaliseringsstyrelsen in Danish). Since 2010, DIGST has been responsible for the Danish vision, associated strategies and action plans for eGovernment and digital transformation, including daily coordination of strategic initiatives. In practice this includes setting the overall strategic direction of digital transformation social security, e.g. digital-by-default, use of common standards and components. DIGST's mandate included initiating and ensuring benefit realization not just with the strategic success criteria and key performance indicators, but also compliance with national vision and objectives and also with standards (e.g. interoperability, usability, web accessibility, data protection, privacy, security), and reusing key infrastructure components (e.g. eID, single sign-on, service bus, national portals, digital post, single bank account, single sms notification system, single registries) [9], [13].

DIGST was created by a merger of key government players, including the Digital Taskforce (est. in 2005) in the Ministry of Finance, the Agency for Governmental Management, and the National IT and Telecom Agency departments responsible for standards, infrastructure and platforms relating to eGovernment. Policy documents and past research highlighted that the aim was to improve the efficiency and effectiveness of the governance model [10], [13], [14]. The merger also appears to be linked to the OECD 2010 recommendations, to strengthen the strategic focus to ensure a higher level of ambition and a more clearly defined driver and leader of Danish digitisation efforts, including defined mandates and responsibilities [15].

Between 2010 and 2015, decision making was primarily carried out at the Steering Committee for eGovernment strategy (SC). To strengthen the mandate, the new Portfolio Steering Committee (PSC) (i.e. Portføjlestyregruppe in Danish) replaced the SC in 2016. The overall responsibility for executing the eGovernment strategy and its initiatives, previously held by the Joint Committee for Cross-Government Cooperation (STS), was incorporated in

the mandate of PCS [13].<sup>2</sup> This means that the PSC is also responsible for realigning the strategic direction of joint government use of ICT and digitisation, e.g. due to technological developments. The PCS members include key agencies responsible for social security, specifically ATP / UDK, but also STAR and Local Government Denmark (LGDK) and Region Denmark (RD), which represent the 98 municipalities and 5 regions respectively [13] (DK1; DK3).

Compared to its predecessors, the mandate of DIGST has been strengthened and enjoys wider recognition, in part helped by being an agency within the Ministry of Finance, hosting and chairing the joint, cross-governmental steering committee. The strength and recognition of the responsibility and mandate of DIGST are important when collaboration breaks down, or consensus cannot be reached either on a strategic or on an operational level [9], [17].

For each eGovernment action plan initiative, a programme or project steering committee or workgroup is established by PSC to ensure successful implementation. The aim is to ensure proper coordination of individual elements in a given programme or project, ensuring ownership across partners, and minimising the risk of unsuccessful completion through decentralised decision-making [9], [13]. The official organigram of the eGovernment strategy and action plan set up is illustrated in Figure 3.

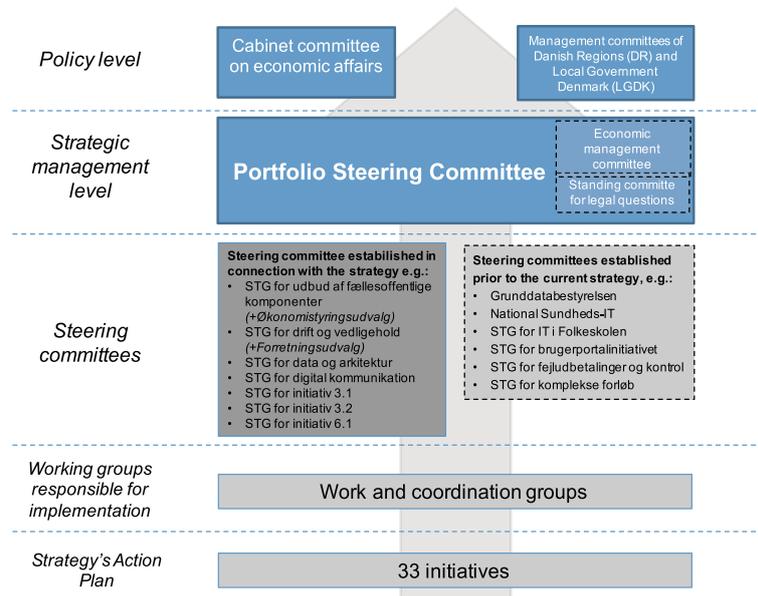


Figure 3: Organigram of the eGovernment strategy, Portfolio Steering Committee and project steering committee in Denmark 2016-2020 [11], [13]

<sup>2</sup> The Joint Committee for Cross Government Cooperation (STS) operated from 2010-2015, when its mandate was incorporated into the PSC DIGST (Digitaliseringsstyrelsen, 2016). Chaired by the Ministry of Finance, the STS met ca. four times annually and consisted of permanent secretaries sitting in cabinet committees for coordination and economic affairs and management committees of Danish Regions (DR) and Local Government Denmark (LGDK). The STS advised individual ministers in the cabinet before eGovernment strategy was presented to parliament for approval by the Minister of Finance, on behalf of the government.

In practice, quarterly and annual status reports on progress, effect, and agreed goals for the digitisation strategy are prepared by individual initiatives and submitted to the PSC for approval. Like its predecessor, the PSC convene 10-12 times annually. The changes are seen to strengthen operational and daily coordination and efficiency of the governance model [9], [13]. The role of DIGST to set the strategic direction and of the PSC as an operational coordination forum is considered as being a key driver of digital transformation by social security stakeholders, and of great benefit to their own initiatives, not least establishing and maintaining key standards and enabling the infrastructure of electronic identity management, data exchange, digitisation-ready-legislation (DK1; DK2; DK3; DK4).

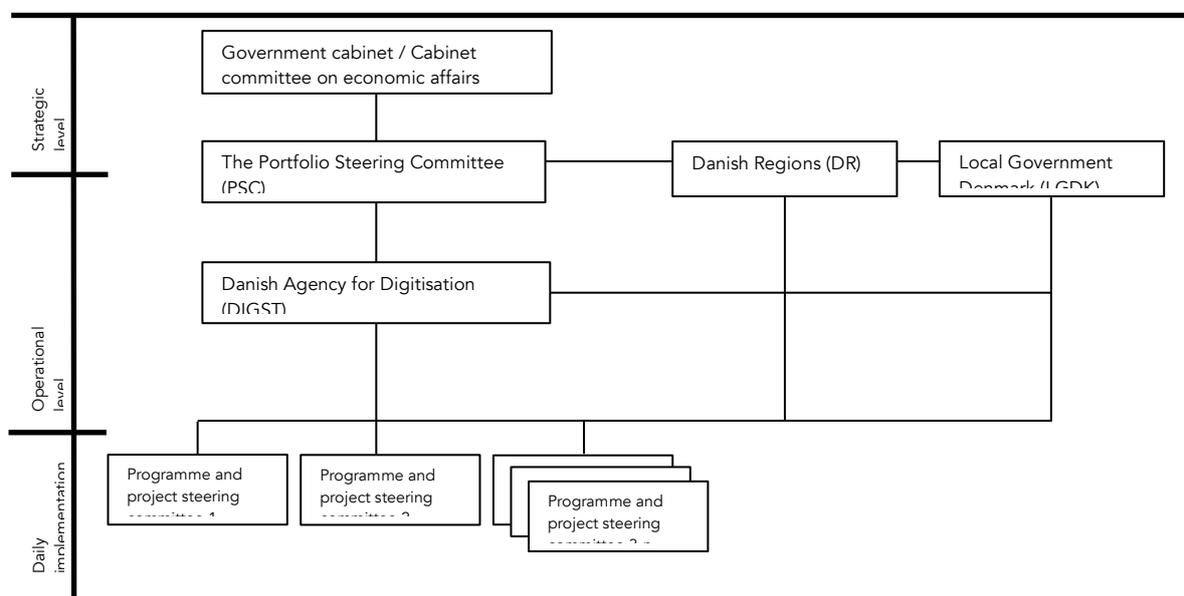
The collaborative and consensus-seeking approach can be time-consuming and resource-intensive. For instance, the greater frequency of steering group meetings may be positive, but the increasing number of meetings and reporting requirements may become disproportionately resource intensive. To balance the need for daily and strategic management, individual programme and project steering committees and working groups report to PSC monthly and escalate issues to the forum if needed. That change is a continuous process is illustrated by the ex-ante, ex post-assessment at the end of each strategic cycle to establish what to focus on next. Notably, improved governance, intergovernmental cooperation, and management of ICT initiatives is a recurrent strategic theme now, in over two decades of Danish eGovernment strategies [9], [33] – and emphasised as positive by a number of social security actors (DK2; DK3).

For horizontal and whole-of-strategy issues, the PSC is supported by two standing committees: One for legal matters (i.e. Stående udvalg om juridisk spørgsmål in Danish), and one for financial and budgetary (i.e. Økonomiudvalg) issues. The legal committee provides suggestions for regulatory and legal realignment to facilitate increased value creation of increased use of ICT solutions and data within the public sector and society. The financial and budgetary committee is tasked with overall financial management of the eGovernment strategy and action plan, including management of underspending and over-spending at the initiative level and spending proposals – in part underpinned by use of the joint-governmental IT programme and project model. The committees are generally asked to provide input by the PSC, often proposed by individual initiatives or identified as potential holistic issues to be addressed [9], [13], [15], [16].

In addition to the whole-of-government approach to governance and eGovernment strategies, there is the Danish tradition for broad parliamentary support for a national strategy and reform programmes. This includes support from both sides of the parliament to ensure continuity in the strategic direction of the country and prevents stop-starts and major zig-zag's in the strategic vision of digital transformation [9], [10], [14], [17]. With respect to social security services, these are regarded as being part of the larger public sector ecosystem by other the government and social security actors (DK2; DK3; DK4). The Danish governance

model's decision-making flow structure is illustrated in Figure 4 and is summarized in Table 5.

**Figure 4. Denmark's eGovernance and coordination model since 2016 (Meyerhoff Nielsen & Jordanoski, 2020)**



	Co-ordination of strategy implementation	Wider co-ordination for the development of information society
Vision	DIGST and the PSC	DIGST facilitated consultation
Strategy	DIGST and the PSC	DIGST facilitated consultation
Implementation of action plans	DIGST Programme and project steering committees PSC for escalation	DIGST Programme and project steering committees
Implementation of individual initiatives	Programme and project steering committees Individual Ministries and authorities	Programme and project steering committees
Monitoring and measurement	Individual Ministries and authorities but reporting to DIGST and the PSC on key operational and strategic objectives and pre-defined key performance indicators.	Individual Ministries and authorities but reporting to DIGST and the PSC on key operational and strategic objectives and pre-defined key performance indicators.

**Table 5. Denmark's eGovernance and coordination model since 2016 (Meyerhoff Nielsen, 2017a)**

Like a majority of countries, key Danish central government actors are responsible for social security services (incl. ATP / UDK), tax, interior, education, health, core registers, cadastral data and contribute to a central eGovernment decision-making body, i.e. the PSC. A unique feature of the Danish approach is the inclusion of management committees of umbrella organisations of DR and LGDK in the PSC [17], [35]. Umbrella organisations representing local and regional governments exist in multiple countries worldwide. Many of these local and regional stakeholder organisations have eGovernment strategies for the specific level of

government, such as the Association of Netherlands Municipalities [36] and Sveriges Kommuner och Landsting (*in Sweden*) [37].

Local government is particularly interesting in relation to the strategic direction as it is close to citizens and businesses and often provides more than just public services. Danish municipalities are no different and provide roughly 80% of all citizen and business services (including passports, health insurance cards and drivers' licences, e.g. national authorities). What is unique, is neither the LGDK nor the LGDK and 98 Danish municipalities adopted a local government eGovernment Strategy and action plan, but that they did this prior to consultation on a national equivalent. While ATP / UDK took over a number of social security areas from municipalities and central government agencies, this has not changed the significance of local authorities in relation to digitisation. Combined with direct representation in the PSC, this enables local authorities to directly influence the country's strategic direction in a number of areas. For instance, municipalities spearheaded active channel strategies and digital-by-default initiatives prior to national authorities, setting the tone for the national eGovernment strategy in 2012-2015, including the national business case for this. Local authorities have actively pushed for new legal frameworks for application of disruptive technologies, eliminating paper in favour of online delivery, adjusting regulatory frameworks for user-centric life events as well as smart cities initiatives, but also improving usability of existing infrastructure components such as eID and digital post as they are the front line for complaints and feedback [9]. Similarly, individual social security organisations have their internal strategies, but these are guided by the national strategic focus with respect to ICT and digital transformation. Generally, these individual social security strategies incorporate the targets set by DIGST and PSC, and complementary targets relating to the individual organisations mandate and priorities (DK1; DK2; DK3).

The creation of UDK, led ATP to take a more proactive role in relation to digitisation, including strengthening the role of single one-stop portals, as the existing borger.dk and virk.dk actively support a more ambitious approach to user-centric standards for service design and usability, and promote online service channels to increase the quality of online service offerings and technology-enabled productivity through data exchange and automation (Meyerhoff Nielsen, n.d.) (DK1). In short, Danish government levels are coordinated and integrate spheres forming a whole (rather than isolated strategic spheres), with municipality-level initiatives being elevated to national strategy and at times expended to regional and central government actors, and vice-versa (Meyerhoff Nielsen, 2019; Meyerhoff Nielsen & Jordanoski, 2020), with similar observations being made by social security actors (DK1; DK2; DK3; DK4).

Confirmed by policy documents [11]–[13] and previous research [10], [15], [17], [18], citizens, businesses or academia are nonetheless not directly represented in any aspects of the formal governance model. That said, DIGST carries out formal and informal consultation prior to each new eGovernment strategy. Both the IT sector (e.g. *Dansk ITs politiske udvalg for IT i*

*den offentlige* sector and the Danish IT industry's political committee for IT in the public sector), the private sector (e.g. Danish Industry), and citizen groups (e.g. senior citizen representatives) are allowed to provide suggestions and comments. Similarly, private vendors contracted to implement individual initiatives generally participate in relevant programme and project steering committees and working groups and indirectly provide input [9].

## 4. LEGAL AND REGULATORY FRAMEWORK, STANDARDS

In Denmark, central government is responsible for enacting relevant legal parameters, regulations and standards. Denmark's EU membership means that central government is required to enact relevant EU laws and regulations. EU level recommendations and rules influence the Denmark's legal and regulatory framework with respect to digitisation. For instance eIDAS for eID, EIF for IOP, once-only for data reuse plus TOOP pilot for cross-border services, GDPR for privacy, WCAG AA for web accessibility. However, Denmark may adopt its own model and approach as long as it is aligned to EU recommendations. In terms of standards, the Danish Government integrates international standards. Laws, regulations and standards are applicable at all levels of government and for all service areas including social security (DK1; DK3; DK4).

Denmark deviates from many of its European and global peers by having a strong focus on whole-of-government approaches to key infrastructure and components, also shared with the private sector (e.g. eID/eSignature, digital post, data sharing). This focus has benefitted social security actors in a number of ways. Specifically, the legal and regulatory framework establishes a common reference context for all public sector actors and associated services. Internal standards do not need to be maintained, as national standards are adopted. For instance, common usability, EA and IOP standards means that challenges with respect to front-end design are minimised for end-users as there is a common look-and-feel across government websites and online services (incl. style of communication and language use), that technical, semantic and organisational interoperability is streamlined, therefore minimising the complexity of systems integration and data exchange and reuse (DK2; DK3). The value of the consolidated and coordinated approach is acknowledged by the majority of social security actors (DK1; DK2; DK3; DK4). The table provides more details on Danish legal and regulatory frameworks.

	yes/no	Name of acts and regulations	Description
<b>General eGovernment legislation</b>	no	n/a	<p>There is no general eGovernment legislation. However, there are several acts and regulations for <i>digital-by-default</i> foundations, such as:</p> <ul style="list-style-type: none"> <li> <b>Mandatory digital self-service Regulation (2012)</b>            The first piece of legislation for digital self-service was adopted In June 2012, which made the first set of digital self-service solutions mandatory. Since then, additional legislation has been passed to make second and third sets of solutions mandatory. A fourth and final set of digital self-service solutions became mandatory in December 2015, resulting in more than 100 different service areas that must only be used in an online context (eGovernment in Denmark, 2018).         </li> <li> <b>Public Digital Post Act (2012)</b>            The Act was adopted in 2012 and requires citizens and businesses to have a digital mailbox to receive digital messages, letters, documents, etc., from public sector authorities, rather than paper-based letters by traditional post. The act also states that digital messages transmitted via the Digital Post solution have equal status and validity as paper-based letters,         </li> </ul>

			<p>messages, documents, etc. The act covers all citizens over the age of 15, and all businesses. The act came into effect for citizens on 1 November 2014, while it became effective for businesses on 1 November 2013 (eGovernment in Denmark, 2018).</p>
<b>eID and PKI legislation</b>	yes	<ul style="list-style-type: none"> <li>• EU Regulation No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) 2014</li> <li>• Act on Electronic Signature (2000)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>EU Regulation 910/2014</b> Regulation (EU) No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) is a legal framework providing mandatory unified legal rules within the EU for electronic identification (eID) and for electronic trust services (such as electronic signatures, seals, time stamping, delivery services and website authentication).</li> <li>• <b>Act on Electronic Signature (2000)</b> This act regulates issuing and validity of digital signatures and their functional equivalence with handwritten signatures. The Danish Government launched an official digital signature scheme - NemID, which can receive free software-based digital signatures.</li> </ul>
<b>Access to Public Sector Information</b>	yes	<ul style="list-style-type: none"> <li>• Access to Public Administration Documents Act (2014)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Access to Public Administration Documents Act (2014)</b> The Act applies to central, regional and municipal authorities and companies in which the government has a substantial interest in ownership, for companies making decisions on behalf of the government, for Local Government ('KL' the association of municipalities) and Danish Regions ('Danske Regioner', the association of regions) and allows any person to request documents for administrative files (eGovernment in Denmark, 2018).</li> </ul>
<b>Security, Data Protection and Privacy legislation</b>	yes	<ul style="list-style-type: none"> <li>• General Data Protection Regulation (EU) 2016/679</li> <li>• Act on Processing of Personal Data (2018)</li> <li>• Public Administration Act (1985)</li> <li>• Publicity and Freedom of Information Act (1985)</li> <li>• Public Records Act of (1992)</li> <li>• National Registers Act of (2000)</li> <li>• Act on Electronic Communications Networks and Services (2014)</li> <li>• Act on Marketing Practices (2013)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>General Data Protection Regulation (EU) 2016/679</b> GDPR replaces the Data Protection Directive 95/46/EC, and its goal is to harmonize data privacy rules in the EU, protecting EU citizens' privacy and to harbour a new approach to data privacy and impose new rules and standards, relating especially to the territorial scope, data subjects' rights, consent standards, fines, etc. Notably, the GDPR strengthens data subjects' rights by establishing clear rules and standards, such as the rights to information, access, rectification, to withdraw consent, to object (in general), to object to automated processing, to erasure (Right to be forgotten) and data portability. Also, notification of breaches is one of the new aspects but is a key improvement to this regulation.</li> <li>• <b>Act on Processing of Personal Data (2018)</b> The Act is a complementary law and provides provisions for the sections and areas that the Regulation leaves up to countries, to adopt specific national rules.</li> </ul>
<b>Re-use of Public Sector Information</b>	yes	<ul style="list-style-type: none"> <li>• Act on the re-use of public sector information (2014)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Act on the re-use of public sector information (2014)</b> The Act established uniform rules for using and re-using public sector information. The Act fully replaces Directive /2013/37/EU of 26 June 2013, which amends Directive 2003/98/EC on the re-use of public sector information.</li> </ul>
<b>eCommerce legislation</b>	yes	<ul style="list-style-type: none"> <li>• Act on Information Society Services and Electronic Commerce (2002)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Act on Information Society Services and Electronic Commerce (2002)</b> The Act implements Directive 2000/31/EC of 8 June 2000 on certain legal aspects of information society services, in particular, electronic commerce in the Internal Market (also known as the "eCommerce Act") (eGovernment in Denmark, 2018).</li> </ul>

<b>eCommunication legislation</b>	yes	<ul style="list-style-type: none"> <li>Act on Electronic Communications Networks and Services (2011)</li> <li>Public Digital Post Act (2012)</li> </ul>	<ul style="list-style-type: none"> <li><b>Act on Electronic Communications Networks and Services (2011)</b> The Act came into force on 25 May 2011, and it replaces most of the EU regulatory framework for electronic communications, namely: Directive 2002/21/EC ('Framework' Directive); 2002/20/EC ('Authorisation' Directive); 2002/19/EC (Access and Interconnection Directive); 2002/22/EC ('Universal service and user's rights Directive); and 2002/58/EC ('ePrivacy' Directive).</li> </ul>
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**Table 6: Denmark eGovernment related legal acts**

	yes/no	Solution	Description
<b>Electronic ID</b>	yes	NemID	Denmark has had a common eID solution since 2003 called NemID (EasyID), used by public and private sectors alike. While physical picture and image identification is not legally mandatory in Denmark, and no national ID-card exists, eID and digital signatures (i.e. NemID) have been mandatory since 2012 for companies and since 2013 for citizens and residents for interactions with the public sector. The model is based on mandatory specifications, active opt-out, a model used for online service provision.
<b>Public Key Infrastructure (PKI)</b>	yes	NemLog-in	The Danish scheme was developed and is being used across the public and private sectors alike, thereby providing a unified user-experience for citizens, and boosting take-up levels as a result. Since 2013, all Danes are, by default, issued a digital identity.
<b>Single Sign-On (SSO)</b>	yes	NemLog-in	NemLog-in has a central role in the digital infrastructure, including the SSO for all government platforms and portals.
<b>National data exchange platform</b>	yes	Danish Basic Data Programme	The Danish Basic Data Programme has established a centralised data distributor to facilitate the once-only principle.
<b>Once-only principle</b>	yes	Danish Basic Data Programme	The once-only principle is realised through the Basic Data Programme
<b>Digital post</b>	yes	Digital Mail Box	All government entities must be able to send and receive digital posts via the national infrastructure, but may divert away from digital communications. Where physical letters are issued, this happens through a remote print and post shared service solution allowing for a digital back-office and cost-savings, even if the end-user should receive a paper-based message. This enables businesses and citizens to access their electronic posts from both private companies and public authorities in a single digital mailbox on borger.dk and virk.dk (eGovernment in Denmark, 2018). The digital mailbox became mandatory for businesses in 2012 and for citizens in 2013. Like the eID, there is an opt-out for the digital post if a user is in a unique position, lacks access to the internet or digital skills and competency.
<b>Usability service standards</b>	yes	Usability Guide (Udviklingsvejledning for god selvbetjening)	Denmark developed a usability guide titled Udviklingsvejledning for god selvbetjening, loosely translated as 'the development guide for good online self-service'. The guide contains 25 measurable minimum requirements and is mandatory for the approximately 70 high-frequency, high-volume government websites and eServices created in the digital-by-default initiative; but remains voluntary for other service areas. Guidelines include process recommendations, usability criteria, coding examples, tools and templates; there is also a practitioners' community, including vendors. Stylesheets, wireframes and code are developed in open HTML code and bootstrap, APIs to call up stylesheets for visual integration to citizen and business portals are available to unify the service experience, even if an eService is relevant for both businesses and citizens. All relevant central, regional and local authorities are responsible for ensuring compliance, but the portals have a screening and escalation process in place to identify and action cases of non-compliance. Where non-compliance remains challenging, portals may escalate these issues to the PSC. Currently, Denmark is developing a new usability guide, but published the new mandatory design for the business portal virk.dk and the citizen portal borger.dk requirements in April 2019.
<b>Personalized and proactive services</b>	yes	Through borger.dk, virk.dk and any other specialized portal	The national one-stop platforms allow for increasing levels of personalization through the "my page" sections.

**Table 7: Availability of the major key enablers and standards in Denmark**

## 5. BACK-END SERVICE PRODUCTION ECOSYSTEM

In the Danish context, each public sector entity is responsible for its own service portfolio. While regional and local authorities enjoy a large degree of local autonomy and decision making power, this must be conducted within the framework and parameters defined by the relevant central government ministry or agency. This includes legal and regulatory framework, strategic direction and performance objectives etc. including in the areas of digitisation, social security and welfare services managed (by regional and local authorities or sub-contractors and partners from the private sector).

Denmark has established an ecosystem of specialized portals and complimentary service or entity-specific websites. Key here for government services, including social security, are:

- Borger.dk, the citizen portal covering all levels of government. All relevant content, data and transactional services must be accessible from the portal and must comply with relevant technical, usability and web-accessible standards, including visual integration and single sign-on. Still, they may also be accessible from other websites.
- Virk.dk, the business portal covering all levels of government. All relevant content, data and transactional services must be accessible from the portal and must comply with relevant technical, usability and web-accessible standards, including visual integration and single sign-on. Still, they may also be accessible from other websites.

Both portals are based on similar conceptual and technical approaches: a content management system, a common information architecture, design and style guides for language use, form and functionality, reuse of standards and components, and web accessibility compliance and responsive web design. This is supported by service catalogues containing all information, data and transactional services. Meta tagging is applied for service area, responsible authority, vendor, single contact points, target audience, etc. This is based on the unique meta tag taxonomy of unique service, authority, vendor and service IDs for management and mashing up content on the portals.

Interestingly, with the creation of UDK, ATP chose a channel strategy, meaning that their service portfolio is only available from the national portals and nowhere else. The channel strategic decision by ATP / UDK has been a key driver for both portals becoming actual national one-stop portals, thus indicating the strategic role social security service providers may play in driving digital transformation of the entire public sector service portfolio (DK1; Meyerhoff Nielsen 2017; Meyerhoff Nielsen, 2020). A number of common national standards and infrastructure components underpin the portals.

**Digital design and web-accessible** guides, requirements and toolkits plus “digital user journey guides” for the eleven most common life events for citizens, and ten for businesses as well as a **reference architecture** for implementation published in December 2018 as part of the White Paper on a Common Public-Sector Digital Architecture ([https://arkitektur.digst.dk/sites/default/files/white\\_paper\\_on\\_a\\_common\\_public-sector\\_digital\\_architecture\\_pdfa.pdf](https://arkitektur.digst.dk/sites/default/files/white_paper_on_a_common_public-sector_digital_architecture_pdfa.pdf)) published in June 2017. ATP and UDK were both key

stakeholders involved in the development process, but also in the subsequent updates (DK1). Social security actors in Denmark actively apply the design and web-accessibility guide across their websites, apps, and online services (DK1; DK2; DK3). Similarly, co-creation, user testing and feedback principles recommended by the guide (DK2; DK3)

The **eID and digital signatures infrastructure** are key for identity management, including validation, security, trust, privacy and fraud prevention. Since 1 July 2010, **NemID** (<https://www.nemid.nu/dk-da/>), the national digital identity and digital signature, has provided easy and safe access to a wide range of public and private self-service solutions on the web, including eBanking, tax forms, insurance and pension funds. With this digital signature, citizens use the same user ID and password for online banking, government websites and a wide range of private services online. NemID resulted from collaboration between the state, municipalities and regions, the financial sector, and a private contractor. Some 5.4 million personal NemIDs have been issued to citizens from the age of 15 upwards, and are actively used by some 95% of the eligible population, with an average of some 50 million monthly transactions being conducted with the public sector alone (similarly in future for banking) in 2021 (up from an average 40 million per month for banking and 25-30 million for public services in 2018-2019)<sup>3</sup>. In addition, NemID can now be used by business owners in more than half a million companies as a way to log in to digital self-service solutions (for example, borger.dk, virk.dk and Digital Post) on behalf of the business entity, making reporting to the public sector easier, especially for SMEs. Previously, a NemID Employee Certificate was the only electronic key to digital self-service solutions. In cooperation with the Danish Association of the Blind, a special solution was also developed for blind and partially sighted people. The Agency for Digitisation is responsible for developing an efficient and secure infrastructure for digital signatures, continuously supporting the demand for a safe and leading knowledge society in Denmark. The replacement of NemID was launched as MitID (MyID) in October 2021, following some delays (approximately two months). As a soft launch, the roll-out will be completed by the middle of 2022<sup>4</sup>. All public sector social security providers use the national IDM infrastructure for end-users identity management and digital signatures (DK1; DK2; DK3; DK4), including as employee signatures for internal processes (DK2; DK3).

**NemLog-in** is a central part of the public infrastructure, and consists of different components. First, NemLog-in<sup>5</sup> ensures that users can access all public self-service solutions across all levels of the Danish public sector with a single login (WebSSO). When logging in to a public website such as borger.dk, users will be redirected to the NemLog-in login page and returned to the website after login. NemLog-in also enables citizens and employees to sign legally binding documents by digital means. Furthermore, NemLog-in ensures that organisations can delegate rights to their employees and powers of attorney to external users, to ensure that the right people can access digital public self-service solutions. In addition, if help is needed in digital self-service solutions, e.g., accessing digital health information or changing address digitally, citizens can also give a power of attorney to, for example, a relative. Lastly, NemLog-

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<sup>3</sup> <https://digst.dk/it-loesninger/nemid/tal-og-statistik-om-nemid/>

<sup>4</sup> [https://itwatch.dk/article13108987\\_ece](https://itwatch.dk/article13108987_ece), <https://digst.dk/it-loesninger/mitid/>

<sup>5</sup> <https://en.digst.dk/digitisation/nemlog-in/>

in includes a component where public authorities and their IT vendors can manage the connection of self-service solutions to NemLog-in.

The **Danish eIDAS infrastructure**, also known as the eID-Gateway, went into production on 28 August 2019. The eID-Gateway consists of the DK eIDAS Connector and the DK eIDAS Service. Currently, 69 eServices are connected to the DK eIDAS Connector, integrating other notified eIDs. Five countries by the end of 2019, but more are being integrated (status unknown at present). In January 2020, Denmark finished notifying the Danish eID, NemID, in accordance with Article 9 of Regulation (EU) No 910/2014 on electronic identification and trust services for electronic transactions in the internal market. Once the Official Journal of the European Union (OJEU) has published the official opinion, and Denmark has finalised implementation of the technical changes required for the NemID infrastructure, EU Member States will start work to integrate NemID into their respective eIDAS nodes. Like other key joint-governmental infrastructures, social security organisations make active use of the data distributor. It is a key enabler for organisations like ATP, UDK and STAR to access data from core registries but also to exchange data with other government partners (at all levels). Plugging in to a shared trusted service infrastructure helps minimize costs for social security organisations and partners. Similarly, a broader base of IT vendors have the skills to provide assistance, as a single national standard and technical set-up exists (DK1; DK2; DK3).

**Electronic payments** (ePayment) are based on two components. First, DIGST is responsible for the **NemKonto**<sup>6</sup> (EasyAccount) solution, supporting secure payments from public authorities to citizens and businesses. That is, all citizens, residents and organisations must have a single bank account registered with the NemKonto (domestic or foreign accounts are allowed). This is maintained in a single register, with the end-user able to change the details at any given time however, on the personal pages of borger.dk, virk.dk or the tax agency portal skat.dk (single solution accessible from all three portals). All public entities making a payment will use the registered NemKonto account as a shared service. Second, as the majority of government services do not have a service fee, payments to/from the government rely on the commercial banking system. Service fees for passports, social security cards, tax and social security contributions are made by the end-user through their commercial bank accounts, including single or automatic payments, or by using debit and credit cards, mobile pay etc. Income tax and social security contributions by individual employees or employers are made by similar means. All employers make tax and social security contributions for permanent and long-term employees. Self-employed individuals (incl. the gig economy) and seasonal workers do so directly. All social security organisations responsible for financial transfers make use of the NemKonto infrastructure. By mandating all individuals and all organisations (public and private) to register and maintain an account number lowers the administrative burden, and increases the cost efficiency and productivity of organisations such as ATP, UDK and STAR, as a single shared and trusted source of bank account information can be accessed (DK1; DK2; DK3).

**Coordination of Interoperability** is the responsibility of DIGST. Various initiatives exist to improve coordination of interoperability in different fields related to digitisation-. As a result

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<sup>6</sup> <https://en.digst.dk/digitisation/nemkonto/>

of the Digitisation Strategy and Digitisation Pact, DIGST hosts three specific steering committees for Digital Infrastructure, Digital Communication, and Technology and Data. The steering committees, including different authorities (central, regional and local government), ensure interoperability and coherence in public digitisation. The three main committees are complemented by different topic-specific steering committees, e.g., cyber and information security, basic data, etc. As DIGST is represented in all these steering committees, the agency works to ensure efficiency and interoperability across all sectors. Social security entities partake in relevant steering committee meetings, and is particularly active is ATP and UDK as well as LGDK and DR (DK2). Coordination and collaboration is also occurs on a sectorial and service level. For instance, STAR coordinates formally with its local government partners and Job Centers. Similarly ATP and UDK coordinate with their local government and regional partners, although LGDK and DR often coordinate on the strategic level, and for operational issues with individual entities. (DK1; DK2; DK3).

**Base registry coordination** is completed through the central **Data Distributor**<sup>7</sup>, to distribute core data. Basic Data (i.e. the centralized service bus and data exchange infrastructure)<sup>8</sup> was established as part of the Basic Data Programme. While the **Basic Data Programme** covers the most frequently used data required for service production and delivery, at present no government-wide data network exists in Denmark. In practice, processes for quality assurance and data governance are applied by most government entities, when it comes to data received from base registries. That is, that formal data quality assurance and analysis exists on an internal level and when potential errors or incorrect data is identified, this is communicated to the base registries for clarification. For example, ATP, UDK and STAR all have formalized internal process for quality assurance and for communicating with base registries.

The national **Reference Architecture** facilitates data and documents electronically for data exchange. The reference architecture revolves around describing the disclosure of data by transmission. Disclosure by transmission focuses on the actual action of passing on data. By contrast, the interpretation of sharing of data is broader and includes making data available for potential reuse, even if data may never be accessed. The main purpose of this reference architecture is to provide guidance, and assist in the choice between two fundamental business patterns for the disclosure of data by transmission:

- Transmission on request: typically, system-to-system integrations using an API, and;
- Transmission by message: typically, legally binding communication of data (possibly in the form of documents) from public authorities to citizens and businesses, but also a classic pattern in the system-to-system integrations.

The fundamental difference between these two scenarios is the actor transmitting data or the actor receiving data being responsible for concrete data process flow. The national **Guidelines and Rules for Data Modelling** ensure that concepts and data are thoroughly and correctly described and documented. Guidelines on REST-based Webservices and APIs

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<sup>7</sup> Datafordeler, <https://datafordeler.dk/>

<sup>8</sup> <https://digst.dk/data/grunddata/>

describe best practices for designing, specifying and documenting web services in public sector IT solutions. These standards are applied across social security entities, with a majority confirming that national guidelines are of value to the efficiency and effectiveness of internal data governance processes. Still, the national guidelines are complimented by internal processes. A number of social security entities also highlighted that the combination of legal and regulatory frameworks, standards and guidelines, the quality of base registries and shared infrastructure are key enablers for digital transformation of social security and the public sector as such (DK1; DK2; DK3; DK4).

The **Data Distributor and reference architecture**, guidelines, and rules for data modelling are complemented by the **Catalogue of Base Registries**. DIGST established a Dataset Catalogue to facilitate a consistent manner in dataset descriptions and metadata while providing an overview of public sector datasets and base registries. The two catalogues do not distribute the datasets themselves but contain links, contact information, etc. Data users can contact the data custodians for additional information. The data contained in any public dataset can be shared through the Data Distributor if this is in line with national legislation (e.g. for security, data protection, privacy) and complement the interoperability standards, reference architecture, data modelling guidelines and rules. **Base Registry Data** from the following base registries have been made available via the Data Distributor: the Danish Address Register (DAR), the Central Business Register (CVR), Danish Place Names Register (Danske Stednavne), Danish Administrative Geographical Division (DAGI) Register, the Civil Registry of Personal Data (CPR), the Register of Buildings and Dwellings (BBR), the Cadastral Register, GeoDanmark, the Register of Property Valuation (VUR), the Register of Owners of Real Property (EJF) and the Register of Property Location (EBR). The existence of core base registries since the 1960's has been emphasized as a key enabler of efficient and effective data governance, and digital transformation of both back-end and front-end ecosystems – both by social security organisations, the public sector, international experts and organisations such as the EU, OECD, UNDESA and the World Bank – the value created by base registries has been furthered by the data distributor, but also allows social security organisations to take advantage of big data analytics and reduces the barriers obstructing application of AI and Machine Learning technologies, as large volumes of high quality and trustworthy data exist (DK1; DK2; DK3; Ozlos & Meyerhoff Nielsen, 2017). Key enabling factors, particularly with respect to data include the quality of individual datasets and registries. Still, quality assurance is considered essential, not least semantic IOP (esp. key terms in legal and regulatory issues) and alignment of legal concepts and data. IOP and semantic alignment allow for data-based automatization of key decisions, including calculations based on changing circumstances of individual beneficiaries and legislation, but mainly for objective criteria and where the legal and regulatory framework is digitisation-ready (DK1).

### STAR's DATA GOVERNANCE MODEL

For improved productivity, efficiency of decision making, and more predictive, proactive and personalised services, the ability to merge and mash quality data is key! Appropriate legal limitations, such as GDPR exist, to ensure privacy and facilitate public trust in the public sector use and management of sensitive data.

Following the creation of UDK, in 2021, more data sharing and merging was allowed. Digitisation-ready legislation was helpful in creating more binary legislation and processes. For STAR and its beneficiaries. this means that end-users are no longer required to "self-report". This improved the administrative burden faced by both individuals and employers. It increased productivity in STAR by errors and minimised the risk of fraud.

STARs data governance model consists of three levels:

- Level 1 of "control" (kontroltrin 1) focuses on automated processes to avoid fraud, minimise error, and ensure standardised and objective processes for assessment and decision making. Legislation plays a key role here.
- Level 2 (kontroltrin 2) consists of the automated exchange of data (e.g. income changes, marital status, children). In practice this captures changes to circumstances on an individual level. Internal systems provide pop-up advice to cases handlers. This also allows STAR to share and exchange patters with partners like UDK or the Job Centers, but also data. Similarly, it allows STAR to act as a data distributor with its local government and Job Center partners, that is distributing and sharing base registry data enriched with data collected and managed by STAR.
- Level 3 (kontroltrin 3) focus on the analysis of operational trends and patterns (e.g. claim benefit back, fine, legal case). Level 3 is the least digital level and have more manual process to as it encompasses both subjective assessment criteria but also strategic decision making.

All levels are based on standardised processes but are regularly assessed for optimisation.

Source: STAR, 2022.

### UDK SERVICE IMPROVEMENT PROCESSES

UDK has established a set of well-functioning functional processes and collaborative partnerships with data providers, including base registries. Internal support functions are established support dialogue with key data provision to agencies, covering interoperability, reporting and action process when dirty or corrupt practice is suspected or identified. A specialised data unit under UDK further supports data governance and continuous improvement and innovation processes.

UDK focuses on two key improvement areas: Internal efficiency and quality improvement for end-users. In doing so UDK takes an the whole-of-government and user-centric approach. The larger the number of service areas covered, the greater the improvement potential is found to be (as a result of scale and complexity).

Data use is governed by legal limitations in existence. Data may only be combined within the parameters of the GDPR, legal, and ethical restrictions. Benefits and challenges with respect to use of technology and data persist. Legal limitations help build trust but can lead to constraints or more expensive innovations. Any requests for new ways of using data for service delivery and decision making must be holistic, i.e. consider security, privacy, ethics, benefits, challenges. For instance, the use of personal data results must be anonymised, which increases costs, before data is used to identify patterns for decision making, fraud or error detection.

In addition to data, internal feedback loops between service delivery channels are key as insights on end-user preferences, their behaviour and pain points can be identified and addressed. It allows UDK to identify what to subject for automatization, and also cases where this is not possible e.g. due to missing data, information info, end-user behaviour, or legal and regulatory limitations.

The focus in on business and end-user understanding and comprehension, rather than the technology itself! Centralisation, continuous improvement have allowed UDK to rationalised 33% of all service areas and increase cost efficiency though automation since 2012. Over the last decade, UDK has completely replaced all internal systems, while lowing operational costs by 30% (compared to 2012) after financing the new systems. Key success factors and enablers are the centralised registers established over the last 50 years, plus the centralised approach to data distribution and the once-only principle. UDK will continue to focus on joint-collaboration around data quality and data capture as these can always be strengthened and should form the key future focus.

Source: ATP / UDK, 2022.

## 6. FRONT-END SERVICE DELIVERY ECOSYSTEM

The digital transformation of the front-end service delivery ecosystem in Denmark is centred on a number of specialized national portals and standards. Social security is part of this national ecosystem and is not treated any differently than other service areas. While the mandated social security organisations are responsible for their own service portfolio at both the strategic, organisational and operational level, they must do so within the national strategic framework for digital transformation managed by DIGST. This implies that their service delivery choices must also operate within the parameters specified. This includes digital-by-default, service design and aligning with national portals. The national portals in Denmark cover all levels of government. These are in turn interlinked, creating a digital ecosystem which in turn links out to non-digital channels such as call centres and physical service centres. Key for social security and welfare services are the citizen ([borger.dk](https://www.borger.dk)) and business ([virk.dk](https://virk.dk)) portals, as well as the specialized health portal ([sundhed.dk](https://www.sundhed.dk) for users and health professionals) and the public sector job portal ([jobnet.dk](https://job.jobnet.dk)) (DK2; DK3). Table 8 summarises key service delivery portals.

	yes/no	Portal
Citizen and business portal(s)	yes	<a href="https://www.borger.dk">https://www.borger.dk</a> <a href="https://virk.dk">https://virk.dk</a>
Health	yes	<a href="https://www.sundhed.dk">https://www.sundhed.dk</a> <a href="https://lifeindenmark.borger.dk">https://lifeindenmark.borger.dk</a>
Jobs and vacancies	yes	<a href="https://job.jobnet.dk">https://job.jobnet.dk</a>
Legal repository, consultation, government gazette	yes	<a href="https://hoeringsportalen.dk">https://hoeringsportalen.dk</a> <a href="http://statstidne.dk">http://statstidne.dk</a>
Participation, engagement, consultation portal	yes	<a href="https://hoeringsportalen.dk">https://hoeringsportalen.dk</a>

**Table 8: Specialised portal ecosystem in Denmark**

Similar to the general governance model, the national portals are managed by specialised agencies, but with a cross-governmental steering committee, ATP/UDK, DR and LGDK are generally all members. The portals are funded by all three levels of government and from the national budget (i.e. specialized budget items for e.g. [borger.dk](https://www.borger.dk), [virk.dk](https://virk.dk) and [sundhed.dk](https://www.sundhed.dk)). The portals are considered critical infrastructure.

With respect to social security benefits, these are accessed through the national citizen and business portals, [borger.dk](https://www.borger.dk) and [virk.dk](https://virk.dk). Although the portals have been successful in terms of unique and repeat visitor numbers, the creation of UDK in 2012 and the digital-by-default strategy in 2011-2025 was a marked shift. ATP and UDK took the strategic decision to host their service portals on the national portals and only on national portals in 2011. Together with the strategic targets of all high-frequency, high-volume services being digital-by default and used by 80% of all end-users for 80% of all service requests, this led to a dramatic increase of online service usage. Social security, due to the number of services and frequency of use, in practice has been a key driver of behavioural change in Denmark. As a first mover, ATP/UDK have played a key role by inspiring other service providers – also within social

security. By consolidating all the information and self-service functions on portals, ease of use, and digital inclusion have improved (DK1; DK2; DK3; DK4, Meyerhoff Nielsen, 2021).

**DIGITAL BY DEFAULT 2011-2015**

When it comes to the digital-by-default principle, Denmark is a frontrunner. As a part of the Danish eGovernment Strategy for 2011-2015, 80% of all written communication between citizens and the public sector must be completed via the digital channel, Digital Post. By end of 2015, some 88.9% of all Danes had signed up for Digital Post.

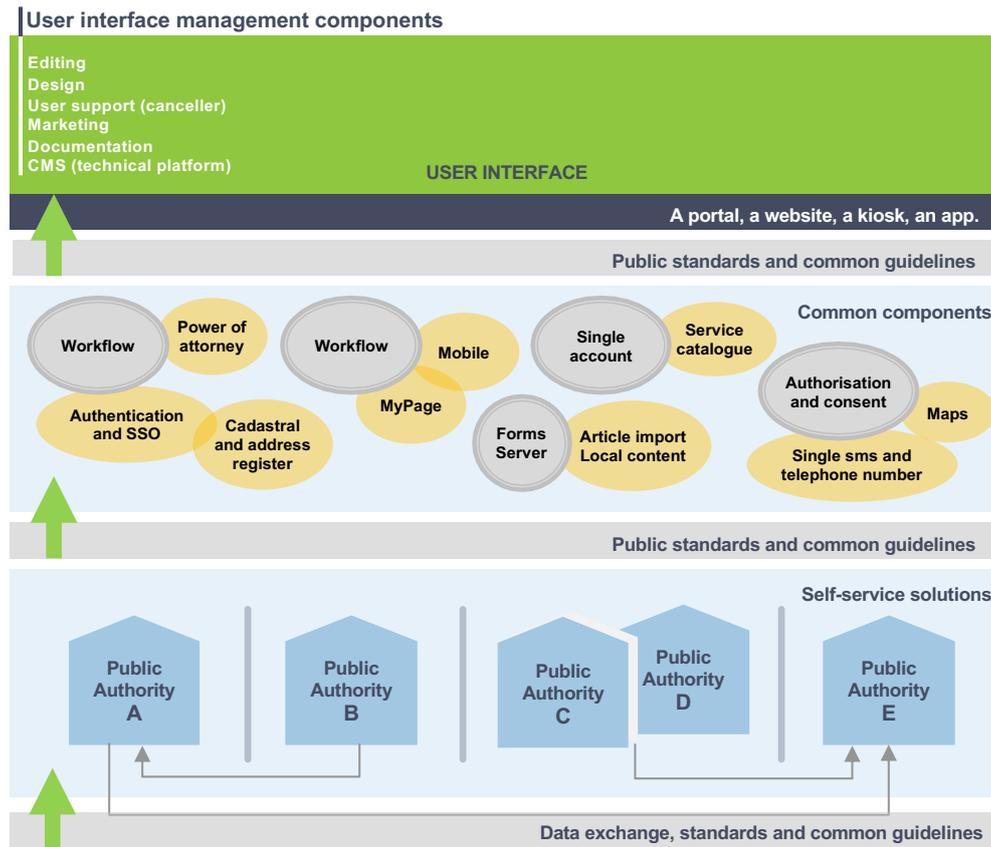
As part of the digital-by-default strategy, Denmark has made the “Mandatory Self-Service” obligatory and enforceable by law. For instance, applications for state pensions, housing support and payments, building permits, child support and applications for divorce are now all being handled via online self-service solutions. These online services have been available for many years, but have now become mandatory. UDK alone is responsible for collecting disbursement, and control of a number of social benefits. Some €30 billion, for some 2.2 million beneficiaries are handled annually.

According to research carried out by Boston Consulting Group, it is expected that net benefits will reach over €120 million by 2017.

Source: DIGST.

The portals concepts and structures build on similar principles and standards (incl. technical, usability and legal standards), as illustrated by the citizen portal [borger.dk](http://borger.dk) in Figure 4 below. It includes the incorporation of key infrastructure components such as digital post, national eID and identity management infrastructure and single sign-on (SSO) for all public websites and online services, in order to improve the user-journey. The result is a federated ecosystem based on a common look-and-feel, across all levels of government and all service areas, including social security.

**Figure 4. Borger.dk portal concept and structure** (Source: adapted by the authors from [borger.dk](http://borger.dk))



For service design, continual, ongoing analysis of user-experience and user-journeys identifies pain points (based on indirect feedback loops and statistics). User interviews, focus groups and user testing is conducted by many social security agencies in Denmark including ATP, UDK and STAR. Agile development principles and continual improvement cycles are applied to various extents and direct user-engagements are often applied (more so, during design and development, or where pain points are identified). Service design is based on individual subjects and parsonas, use-cases, and service situations. These in turn are linked to the internal business objectives. Some co-creation and co-design (with end-users) prior to testing is seen across social security services, and makes use of the national design guides and tools managed by DIGST (DK1; DK2; DK3; DK4).

## 7. SKILLS AND CAPABILITIES

The Danish government continues to invest in development of civil servants' skills and capabilities, including for social security. One significant challenge the government faces, remains the public sector's ability to attract and retain talented workers. It was necessary to mimic private sector practices and establish an innovation culture, as pertains to personal development. In this sense, several activities were established for the government, and the social security organisation and staff:

Activity	Description
Attracting and retaining ICT professionals	A challenge, as they are in short supply. Flexible contractual practices aligned to private sector principles applied across the public sector, i.e. no guarantee of lifetime employment – you can be fired, demoted, promoted, rewarded. Annual performance assessments linked to annual salary, career development and training. Note, many specialists are on "consultancy" type contracts within the public sector, top management can receive bonuses.
Establishing a culture of innovation	Innovation and continuous improvement have been in focus over the last two decades, not least linked to improvements of productivity, cost efficiency and the use of technology as an enabler. Ensuring multi-disciplinary teams within organisations has been a key factor. MindLab was the first public sector innovation lab globally in 2002. Closed in 2018, as most entities by now had internal innovation capacities or had enough awareness to contract specialists for innovation tasks when required.
Involving the ecosystem	Denmark has unique collaboration between local governments, regions, central government, voluntary organisations, and increasingly also the business community. All these players are strongly committed to improving IT competences of the population. This collaboration will continue and expand.
Providing Digital skills for children and young people	The Government conducts Information campaigns about competent and safe navigation in the digital society, and developing Teaching programs and material for pupils in primary and lower secondary schools and in upper secondary education will provide them with digital skills to interact digitally with society.
Improving awareness of information security	Information campaigns and initiatives are launched concerning good digital behaviour. This campaign and initiatives will generate knowledge about threats and prepare individuals and businesses for exploiting digital possibilities safely and securely.
Informing and helping citizens	Initiatives aimed at targeted groups are launched on a regular basis to ensure that as many people as possible benefit from the digital opportunities. This includes young people, elderly people, people from non-western countries and businesses.

**Table 9: Specialised portal ecosystem in Denmark**

In relation to social security, ATP / UDK have a more diverse and more private sector inspired approach to service production and service delivery, by way of comparison to the majority of Danish central government authority. Their approach to process optimisation and service innovation is different and is heavily influenced by ATPs six decades of managing the national lifelong pension scheme. ATP is amongst the most professionally managed pension investment portfolios globally, with pre-tax returns exceeding 22% annually over the last five years.<sup>9</sup>

<sup>9</sup> <https://view.news.eu.nasdaq.com/view?id=b266e40bee77f21170e35825403807ef4&lang=da>

Social security organisations emphasise the need for multi-competence sets, to successfully apply technology and data in the back-end and front-end. Key here are understanding technology and processes. In particular, the link between business processes, the legal and regulatory framework, as well as subjective vs. objective decision-making criteria are important in social security, welfare and health services. Similarly, an understanding of, and ability to identify and proactively address end-user and internal pain points is key. The focus must be on value creation for the end-user and the organisation as such, not just on internal optimisation, individual service silo or on technology as such. With respect to innovation, there are still some organisations which are regarded as being too risk averse, too “siloes” or too focused on existing business processes, services and organisational settings. For instance, the personalisation of services and data overviews (e.g. MyPage and MyOverview) initiatives have been considered since 2010, but have not as yet lived up to their conceptual potential. The role of DIGST and organisational leadership is therefore key to further embracing the potential of digital transformation of social security and other government services (DK1; DK2; DK3; DK4; Krimmer & Meyerhoff Nielsen, 2014; Meyerhoff Nielsen; 2011).

On an operational level, public procurement requirements require both specialized skills including a degree of technical understanding. In the Danish context (incl. social security), cooperation and collaboration with private sector vendors is essential. Skills and capacities in contract and ongoing management, technical requirements of SSO, IOP, GDPR, usability etc. is needed internally, but also the expertise vendors must possess, for optimising the value-added by innovation, technology, data while minimising problems and risks. When ICT projects failed in the past, it was often due to a lack of constructive cooperation with vendors or lack of an optimal balance between technology and internal and external end-users – e.g. utilising the wrong technology in the wrong situation. It is key, to have a sound business understanding and not digitise, where this is not beneficial to the organisation and/or the end-users (DK1; DK2; DK3).

ATP and UDK have driven the level of ambition of both borger.dk and virk.dk through active contribution and collaboration in co-design, co-production, user testing. Both by contributing with in-house expertise, externally sourced skills and financial contributions to strategic initiatives, through daily operation, but also as an integral part of multiple steering committees and working groups. The competences and skills mix of ATP/UDK staff is highlighted by experts and has apparently influenced other agencies informally, including DIGST, as to their approach to technology-enabled innovation (DK1; DK2).

## 8. EXPANDING INCLUSION AND COVERAGE

Denmark essentially has universal coverage with respect to social security and welfare services, both financial and non-financial. As a rule, citizens and permanent residents are eligible for social security benefits, but additional qualifying conditions may apply. Citizens and residents with permanent residency status are covered, as are individuals from the European Economic Area, Greenland and the Faroe Islands. Specific rules and criteria apply to the length of residency (including for citizens) and minimum number of years of contributions to social security and this varies for pensions, child and family support, maternity and parental leave. Contributions are usually made through employee and employer contributions, and are topped up by the government (e.g. from income tax). Special rules (preferential) apply to Nordic and EU citizens.

The reduction of social expenditure, in particular since the 1980's has led to an increased number of social challenges in Denmark. This included the growth of relative poverty amongst marginalised socio-economic groups such as low-income seniors, single unemployed or underemployed individuals, single parents, people on disability pensions etc. The ageing population requires more assistance and care. Consequently, an increasing need to expand old age security adds financial pressures to the government and public sector.

The Covid-19 pandemic has added a layer of complexities and challenges to the current social security assistance as an initial result of the lockdown, access to health and educational services, and a depressed economy. This contrasts 2022 which has seen full employment, labour shortages and excess demand for housing.

Digital transformation of public sector services in general and social security in particular have also led to specific challenges around digital inclusion (and exclusion). While digital inclusion and digital divides have been a strategic focus in Denmark since the 1990's, past policies and initiatives have resulted in highly connected and a digitally literate population. Since the strategic shift to digital-by-default in 2011-2015, the public sector and social security organisations differentiate between three broad groups of end-users:

1. Individuals who can, but do not want to.
2. Individuals who want to, but cannot
3. Individuals who do not want to, and who cannot.

For all three groups a combination of communication, usability and "force" is applied through mandatory self-service, channel strategic tools and incentives, in particular for the first group. Communication, usability, assistance and free digital literacy training is offered for the second group. Call centres, and municipal service centres are key alternatives to online self-service, but also for help and assistance providing digital skills training. As are municipal libraries and Job Centers. The availability of training for senior citizens and free IT and internet access is rapidly decreasing, as most seniors are now online on a regular basis. For the third group, communication and help to access social security and government services via call centres and physical service centres are being promoted, as are power-of-attorney so family or trusted third-party agents may act on their behalf (DIGST, 2011; DK1; DK3).

As the majority of financial social security benefits are consolidated in specialist agencies (e.g. ATP, UDK or STAR) and are largely based on objective eligibility and assessment criteria, these are now only available online and with call centre support. These are also increasingly automated. By way of contrast, most non-financial social security and welfare services are based on subjective assessment criteria and anchored in holistic decision-making process. This also permits entities such as ATP, UDK and STAR to collaborate with municipalities or Job Centers, which provide specific support to municipalities to help and guide individual beneficiaries on their behalf – i.e. acting as a first level hotline for joint provision and tailoring of services. Similarly, ATP and UDK work with social housing associations, seniors, disability organisations. By way of comparison, STAR works with Job Centers, disability, employer and employee organisations etc. The result is an increasingly whole-of-government and user-centric approach (DK1; DK3; DK4).

## 9. LESSONS LEARNED

Denmark is a strong welfare state where digital transformation is driven by an ageing population, and pressure on efficiency and productivity. It is defined by a specific model based on a central government component, but remains open to participation of the ecosystem including the private sector.

Denmark is a leader in government and public service IT adoption, and digital transformation. The country has successfully implemented electronic and digital government and continuously ranked among the Top-10 in the EGDI ranking. It is also considered as an innovator for digital service delivery and citizen participation.

Social service digital transformation is formulated at state level, in the national digital transformation strategy. In the most recent strategy, the government is working on consolidating social services and increasing transparency for citizens. It also establishes the foundation of data sharing and collaboration through sectors. This evident across central government, the regional and municipality levels.

The advanced state and globally leading position of Denmark is in part due to early take-up of digital transformation, but more importantly it is the result of a coordinated and cross-governmental, coordinated approach, including a high degree of specialisation and consolidation of key functions and services areas – including both financial and non-financial social security and welfare services. A key enabling factor is the adoption of relevant tools for monitoring, compliance, troubleshooting/escalation, solving cross-sectorial challenges through steering committees and working groups.

At legal and regulatory level, Denmark is also more advanced with its early implementation of relevant standards and digital services regulations. These regulations are strongly influenced by EU recommendations and regulations (e.g. eIDAS for eID, EIF for IOP, once-only for data reuse plus TOOP pilot for cross-border services, GDPR for privacy, WCAG AA for web accessibility), but also aligned to the international standards (e.g. IOP, WCAG AA) and UN charter. Denmark also focuses strongly on whole-of-government approaches to key infrastructure, and components are shared with the private sector (e.g. eID/eSignature, digital post, data sharing).

Regarding back-end services and front-end services, all services including social security are centred on a centralised approach. This includes IDM with single national identifiers for citizens/residents, businesses, base registries, data distributors, service portals, standards etc. The state also proposes basic registers more consolidated around single source and once-only principles. Social security as a service area is not regarded as unique, but as an integral part of the service production and delivery ecosystem. Similarly, social security organisations align with both strategic objectives set by DIGST and actively use and contribute key enabling and shared infrastructures and standards, including those for usability, portals, data distribution, digital post, eID etc. Internal solid data governance and quality assurance processes are in place. Denmark has successfully adopted a real cross-government

implementation to date, with mandated shared enablers (e.g. eID), platforms (portals), strategies, standards. It also recently looked at cross-border relationships within the EU context. The Danish government is implementing a centralised approach concerning data distribution and shared expansion of it to new datasets. At the front desk level, Denmark's approach is a unique model of the whole-of-government case with design and web accessibility standards (WCAG AA), including indirect co-creation, but has mandated user-tests and integrated user-journeys. Denmark has historically discouraged apps while promoting responsive web-design for cost efficiency and minimising the need for downloads. This has nonetheless changed since early 2019, when apps for the national driver's licence, health insurance card, Covid-19 track-and-trace, testing and vaccinations were launched – although based on the same back-end infrastructure and standards. The Danish approach has had a significant impact with its pedagogically “compulsory” active opt-out approach to eID/eSignature, digital post, online self-service for those who can, which led to greater usage, take-up and return on investment and for specific services (e.g. social security, taxation, business services).

Finally, the Denmark case illustrates that an innovation culture can be facilitated through strategic pilot-projects, partnerships (e.g. in strategies), and shared innovation facilities (e.g. innovation labs) or teams. Skill and capacity developments imbed as a focal area in both digital and non-digital strategies across the public sector. This is further supported by a mixed-method approach toward internal and external end-users, including starting with primary school children receiving digital education, but also continuing and vocational education being promoted by employers (public and private), as well as through job centres for the unemployed, and by civil society and social security organisations working with seniors and people with disabilities.

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# Case studies on digital transformation of social security administration and services

**Reference Project:** CHN/18/01/EUR - Improving China's Institutional Capacity towards Universal Social Protection

**CASE STUDY**  
**FRANCE**



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## 1. INTRODUCTION

This case study on the digital transformation of social security administration and services in France consists of seven parts:

- The context of France, digitisation and social security.
- Governance, intergovernmental collaboration and coordination in relation to technology in the digital transformation of social security and social assistance.
- Legal and regulatory framework, standards relating to the digital transformation of the social security and social assistance.
- Front-end service delivery ecosystem for social security administration and services in France.
- Back-end service production ecosystem for social security administration and services in France.
- Skills and capabilities within social security entities and for social security clients and customers.
- Expanding coverage.

The case concludes by summarising lessons learned from the French experience.

The specific aim links to core research questions and draft questions to guide the case survey and /or interviews are outlined for each section of the case study.

## 2. CASE CONTEXT

France, in a European context, is a relatively large country by landmass. With some 68 million citizens, France has a high population density and a high degree of urbanization. French is the official language, and the country is considered a nation-state with a significant number of immigrants (8-10% of the total population in 2018 (INED - French Institute for Demographic Studies 2020)). France is a high-income country with a corresponding standard of living and a more consistent GDP growth rate.

Population (July 2021 est.)	68,084,217
Territory (km <sup>2</sup> )	643,801
Population density (2020) <sup>1</sup>	123
Official language	French
Life expectancy / median age (2021 est.)	82.39 / 41.7
Urbanisation (%) of total population (2021)	81.2%
GDP (PPP) (USD, 2020 est.)	2,832 trillion
GDP per capita (PPP) (USD, 2020 est.)	42,000
GDP growth rate (%) (2019 est.)	1.49%
Unemployment (2019 est.)	8.12%
Imports (billion USD (2020 est.))	803.66 billion
Exports (billion USD (2020 est.))	746.91 billion

**Table 1: Socio-economic data** (CIA - Central Intelligence Agency, 2021)

Social welfare in France is managed and services are provided, under primary jurisdiction of the Department's<sup>2</sup> allowances and education system (high schools). Local service delivery of state administration is organised on a departmental level. However, most social and welfare services have been moved to regional level since reforms of the 2000s, as shown in Figure 1.

<sup>1</sup> The World Bank (2021). Accessed 1-15 November 2021:  
[https://data.worldbank.org/indicator/EN.POP.DNST?end=2020&locations=AU-CA-DK-FR&name\\_desc=false&start=1961&view=chart](https://data.worldbank.org/indicator/EN.POP.DNST?end=2020&locations=AU-CA-DK-FR&name_desc=false&start=1961&view=chart)

<sup>2</sup> France has a three-tier public sector consisting of 18 administrative regions (13 in Metropolitan Europe), each further divided into from 2 to 13 departments, resulting in a total of 101 departments (96 in Metropolitan Europe).

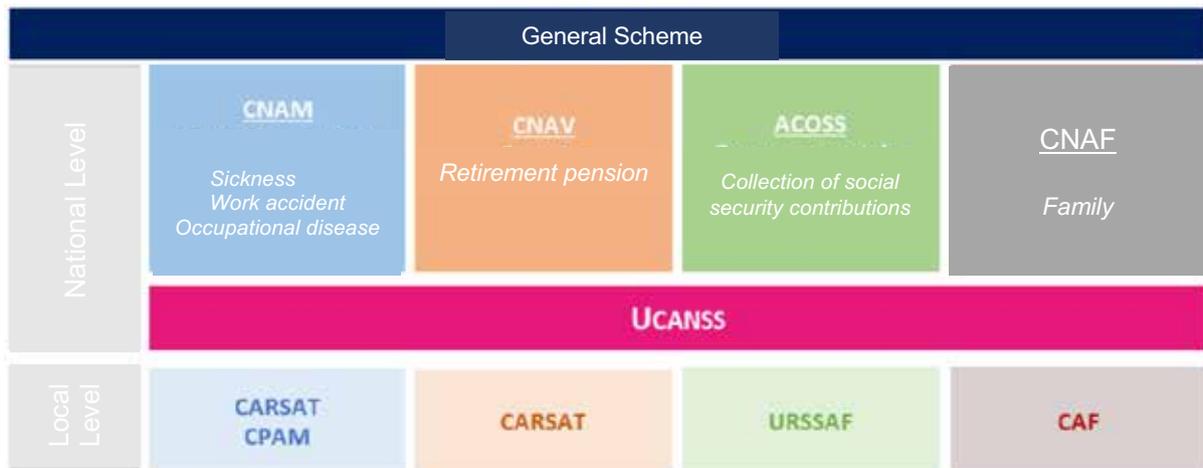


Figure 1. Social security organisations in France<sup>3</sup>

The general social security scheme is managed by a network of national, regional, and local institutions. Social security is organised according to social risks and is administered by representatives of employers and employees under the supervision of different ministries in charge of social security (the Ministry for Solidarity and Health and the Ministry of Economy, Finance, and Economic Recovery). Approximately 80% of the general scheme's total revenue comes from contributions and taxes deducted from earnings.

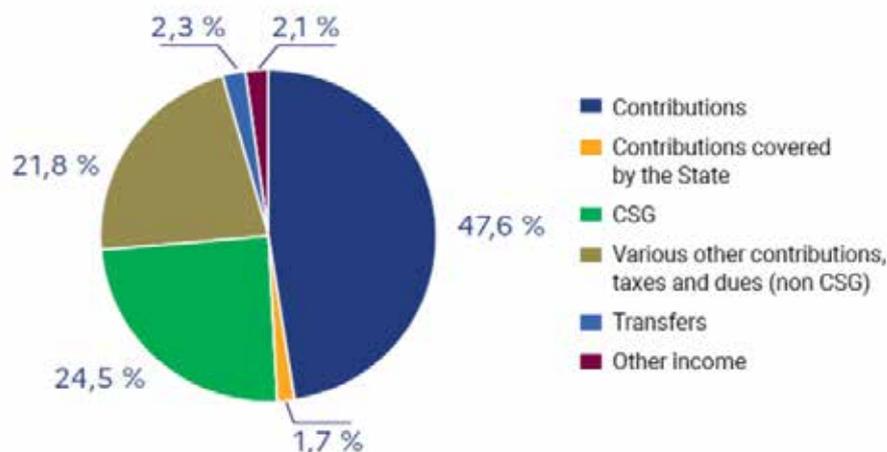


Figure 2. Social security accounts committee<sup>4</sup>

The compulsory general scheme covers private industry, trade, and service sector wage earners. As of 2018, its scope has been extended to include social risks for self-employed workers (e.g. tradespeople, manufacturers, merchants, and members of unregulated private-practice professions).

<sup>3</sup> [https://www.sia-partners.com/system/files/document\\_download/file/2020-08/insight2020\\_automatisation\\_et\\_digitalisation\\_des\\_services\\_des\\_organismes\\_de\\_protection\\_sociale\\_verite\\_et\\_idees\\_recues\\_0.pdf](https://www.sia-partners.com/system/files/document_download/file/2020-08/insight2020_automatisation_et_digitalisation_des_services_des_organismes_de_protection_sociale_verite_et_idees_recues_0.pdf)

<sup>4</sup> [https://www.cleiss.fr/docs/regimes/regime\\_france/an\\_0.html](https://www.cleiss.fr/docs/regimes/regime_france/an_0.html)

Eligibility and coverage vary depending on the specific branch of social security and welfare benefits, as summarised in in Table 2.

<p><b>Health, maternity, paternity, disability, and death branch</b></p>	<p>Health, maternity and paternity insurance benefits are provided by:</p> <ul style="list-style-type: none"> <li>• The local Health Insurance Funds (Caisses Primaires d'Assurance Maladie/ CPAM) in metropolitan France and by the General Social Security Funds (Caisses générales de sécurité sociale/ CGSS) in France's Overseas Departments;</li> <li>• France's universal healthcare system (PUMa – <i>Protection Universelle Maladie</i>) guarantees covering healthcare expenses for all individuals who are working, or have been residing in France (including Guadeloupe, French Guiana, Martinique, Reunion Island, Saint Barthelemy and Saint Martin) on a continuous basis for a minimum of three months.</li> </ul> <p>The French health insurance system covers health expenses (i.e. reimbursement of healthcare costs) for insured persons and their minor dependents and cash benefits (e.g. daily medical leave benefits for temporary incapacity for work).</p>
<p><b>Industrial accident and occupational illness branches are managed separately by the National Health Insurance Fund (Caisse Nationale d'Assurance Maladie)</b></p>	<p>Benefits for accidents at work and occupational diseases are paid by the local Health Insurance Fund (in the case of Metropolitan France) or the General Social Security Fund (in the case of the Overseas Departments ('départements' in French).</p>
<p><b>Old-age branch, managed by the National Old-Age Insurance Fund (Caisse Nationale d'Assurance Vieillesse/ CNAV),</b></p>	<p>In France, private-sector employees' basic pensions are topped up by the compulsory supplementary pension scheme ARRCO-AGIRC, which is also financed on a pay-as-you-go basis</p> <p>Basic allowances under the general plan are awarded by:</p> <ul style="list-style-type: none"> <li>• The (regional) retirement and occupational health funds (Caisses d'Assurance Retraite et de Santé au Travail/ CARSAT).</li> <li>• The Île-de-France national old-age insurance fund (Caisse Nationale d'Assurance Vieillesse d'Île-de-France) for the Paris region.</li> <li>• The general social security funds (Caisses Générales de Sécurité Sociale/ CGSS) for the overseas Departments.</li> <li>• The CSS in Mayotte.</li> </ul> <p>Eligibility in view of France's statutory minimum retirement age is 62 for people born on or after 1 January 1955.</p>
<p><b>Family branch managed by the National Family Benefits Fund (Caisse Nationale d'Allocations Familiales/ CNAF)</b></p>	<p>The Social Security system's Family branch is organised into a network of 101 Department-level funds and one national fund.</p> <p>The Family Benefit Funds (Caisses d'Allocations Familiales/ CAF) pay family benefits to:</p> <ul style="list-style-type: none"> <li>• Employees and comparable categories in all professions.</li> <li>• Non-agricultural self-employed workers.</li> <li>• All residents of France with children even if they are not employed.</li> </ul> <p>For eligibility, the social security code stipulates that: "...any French or foreign person residing in France with one or more dependent children also residing in France is entitled to family benefits for those children." Family benefits are awarded to persons acting as the real and ongoing custodians (food, housing, clothes) for legitimate, illegitimate, adopted, or foster children up to the age of 20 years old (general rule).</p>
<p><b>Social security contributions collections branch, managed by Urssaf National Fund (Urssaf Caisse nationale)</b></p>	<ul style="list-style-type: none"> <li>• This branch collects employers' and employees' social security contributions through local Urssaf funds.</li> </ul>

<b>Social security contributions collections branch, managed by Urssaf National Fund (Urssaf Caisse nationale)</b>	<ul style="list-style-type: none"> <li>• This branch collects employers' and employees' social security contributions through local Urssaf funds.</li> </ul>
<b>Unemployment scheme</b>	<ul style="list-style-type: none"> <li>• Covers all employees who come under the general and agricultural schemes.</li> <li>• The Unemployment insurance system applies to metropolitan France and overseas Departments, except for Mayotte.</li> <li>• The unemployment insurance scheme is financed from contributions paid relating to earnings</li> <li>• The scheme applies to all companies' employees in geographical areas covered by the agreement. However, the eligibility for unemployment benefits is contingent on a certain number of conditions.</li> </ul>

**Table 2. The French Social security system<sup>5</sup>**

Internet access and a minimum level of digital literacy and competencies are essential pre-conditions for online service delivery to succeed (Meyerhoff Nielsen 2017). Investments in internet and communications infrastructure ensure that France offers widely accessible online government services. France is among the most connected countries globally, with high internet usage rates and high-speed infrastructure availability.

Population covered by a mobile-cellular network (2020)	99%
Population covered by at least a 3G mobile network (2020)	99%
Population covered by at least 4G mobile network (2020)	99%
Households with Internet access at home (2019)	84%
Mobile-cellular subscriptions per 100 inhabitants (2020)	111%
Active mobile broadband subscriptions per 100 inhabitants (2020)	99%
Fixed broadband subscriptions per 100 inhabitants (2020)	47%
Individuals using the Internet (% of the population) (2019)	83%

**Table 3: Connectivity and use of the Internet by households and Individuals (ITU, 2021)**

Another essential element for social security and online protection services take-up is the country's general ICT skills. Data shows that 53% of the population in France possess basic ICT skills, while only 33% have standard levels of ICT skills.

<b>Basic ICT skills</b>	53%
<b>Standard ICT skills</b>	33%
<b>Advanced ICT skills</b>	6%

**Table 4: Basic, Standard, and Advanced ICT skills 2019 (ITU, 2021)**

The French government was also an early follower (and *early adopter*) of digital transformation. Social protection has an acknowledged history of innovation in information systems and data management.

<sup>5</sup> [https://www.cleiss.fr/docs/regimes/regime\\_france/an\\_5.html](https://www.cleiss.fr/docs/regimes/regime_france/an_5.html)

### 3. GOVERNANCE

Social security governance is defined under dual supervision by the Department of Social Security (DSS) and the Ministry of Economy and Finance. Since 1996, they have been piloting the objective and management agreements considered as main roadmaps for social protection organisations. In the context of increasing control of public expenditure, these agreements relate as much to the means as to the objectives of social security and to be exact, the digital lever as a source of savings and productivity gains. The restitution of positions in each agreement has only become possible with accelerated integration of new digital processes.

At the same time, the General Secretariat for the Modernization of Public Action (SGMAP) has supported social security transformation projects since 2012, including the open data approach in family and health branches very recently. Organisational arrangements of social security in France are complex, all aspects with respect the digital transformation of social security in its multiple forms and actions are outlined in Table 5 below.

Governance	Social Programmes, roles and responsibilities
<b>Ministry for Solidarity and Health</b>	The Ministry for Solidarity and Health is responsible for the formulation of policies and strategies as a key driver for the social security system transformation in France.
<b>Ministry of Labour, Employment, Vocational Training, and Social Dialogue</b>	Regulation of unemployment benefits is taken on by Ministry of Labour, Employment, Vocational Training, and Social Dialogue.
<b>Ministry of Economy and Finance</b>	Ministry of Economy and Finance supervises implementation of social security regulations and controls the budget funds.
<b>Central Agency of Social Security Institutions (ACOSS)</b>	Collects general and specific contributions at the operational level.
<b>Network of collection agencies (URSSAF)</b>	Collects general and specific contributions on an operational level. Key role is financing the social model by collecting all social subscriptions and contributions.
<b>National Old-Age Insurance Fund (CNAV)</b>	Administers social insurance, old-age pensions, and survivor allowances for employees in the private sector.
<b>Federation Agric-Arrco</b>	Manages occupational pensions for salaried employees and managers in the private sector.
<b>Deposits and Consignments Fund (IRCANTEC)</b>	Administers occupational pensions for private-sector employees working under contract in the public sector.
<b>National Health Insurance Fund (CNAM)</b>	Administers the programme for salaried employees and manages sickness and maternity leave benefits and benefits for accidents, workplace and occupational disease. Supported by numerous Primary Sickness Insurance Funds and four Overseas General Sickness Insurance Funds responsible for registering insured people, paying cash benefits, and managing reimbursements of medical expenses
<b>Allowance Fund (CNAF)</b>	Manages the local funds and ensures financial equalisation for the family and household benefits. Supported by 102 Local Family Allowances Funds responsible for payment of benefits.
<b>National Inter-occupational Union for Employment in Industry and Commerce</b>	Administers and provides oversight for the social insurance programme. Responsible for collecting contributions, registering job seekers, and paying benefits. As of December 2021, the centre provides its services through 845 regional agencies in Metropolitan France and 56 overseas agencies.

**Table 5. Governance of social security in France**

In terms of the digital agenda, roles and responsibilities are decentralised and are managed directly within each entity presented. However, the **Ministry for Solidarity and Health and the DINUM and DITP, responsible for formulating strategies and policies**, make efforts to prioritise digital transformation of the social and health sectors and so transforming public services. A number of strategic activities have been instrumental initiatives for supporting digital transformation of social services related to the assisted living and healthcare, including:

- Creation of a ministerial delegation for digital health (“DNS”) and transformation of ASIP Santé into a digital health agency (“ANS”)
- Nominating the “Digital Health Council” as a consultation body for the digital shift in health and creation of a digital health ethics unit

Like social security, digital transformation in France is also managed de-centrally. The key development and implementation of sectoral ICT strategies are summarized in Table 6.

Year	Coordination of social security implementation	Wider coordination for developing the information society
<b>Vision</b>	Ministry for Solidarity and Health Ministry of Labor, Employment, Vocational Training, and Social Dialogue	Prime Minister, Ministry of Economic and Finance
<b>Strategy</b>	Ministry for Solidarity and Health Ministry of Labor, Employment, Vocational Training, and Social Dialogue	Prime Minister, Ministry of Economic and Finance, DINUM, DITP, ACOSS, URSSAF
<b>Implementation of action plans</b>	ACOSS, URSSAF, CNAV, CNAF, National Inter-occupational Union for Employment in Industry and Commerce	DINUM, DITP
<b>Implementation of individual initiatives</b>	Primary Sickness Insurance Funds, Local Family Allowances Funds, Regional employment agencies, etc.	ACOSS, URSSAF, DINUM, DITP

**Table 6. France's approach to social security since 2020**

On an operational level, two crucial directorates are mandated with coordinating public administration reforms and digital transformation of government services. First, the Inter-Ministerial Directorate for Digital Affairs (DINUM) plays an essential role in coordinating all Digital initiatives and the actions of all Directorates for Digital Affairs in Social security-related entities (FR1). It is responsible for ensuring the high quality, efficiency and reliability of services provided and the ICT systems. In order to do so, DINUM directs, coordinates, and supports digital transformation of social security authorities, providing advice and developing shared services and resources, such as the Inter-Ministerial State Network (RIE), FranceConnect and api.gouv.fr (European Commission 2021). Second, the Inter-Ministerial Directorate for Public Transformation (DITP) is mandated with coordinating implementation of the Public Action Program 2022 and provides support to all government authorities in transforming their services. DITP provides expertise, supports cross-department projects, and coordinates initiatives with a high impact. It also leads and supports innovative ideas and projects. DITP operates under the Minister of State Reform and is led by the Inter-Ministerial Delegate for Public Transformation (European Commission 2021).

Apart from the formal governance structures and coordinating digital transformation of social security in France, other institutions play a significant role and impact the quality of digital transformation. Some of these institutions or forums are formally part of the general governance structure, while others are independent authorities or non-governmental. These supporting elements are summarized in Table 7.

Organisations	Coordination of digital transformation of social security
<b>French Network and Information Security Agency (ANSSI)</b>	ANSSI is mandated with prompt reaction and responses to cyber-attacks, surveillance of sensitive governmental networks, preventing threats through trusted products and services from French operators, implementation of appropriate defence mechanisms and measures, and providing support to governmental entities and operators of critical infrastructure.
<b>Directorate of Legal and Administrative Information (DILA)</b>	DILA is mandated with disseminating laws, regulations and administrative information.
<b>National Digital Council (CNNum)</b>	CNNum's primary role is to advise government on the digital economy and digital technology issues. As part of the legislative process, CNNum is consulted on any new proposed law or regulation that might impact digital transformation of public services.
<b>Public Interest Group 'Modernisation of Social Declarations' (GIP-MDS)</b>	GIP-MDS bring together different social security institutions and business federations, to develop joint services enabling businesses to file their social declarations electronically.
<b>Computer Security Incident Report Team (CERTA)</b>	CERTA is France's primary point of contact for all computer-related security incidents.
<b>National Commission for Informatics and Liberties (CNIL)</b>	CNIL is an independent body responsible for overseeing implementation of the EU General Data Protection Regulation (GDPR) in France, the French Personal Data Protection Act of 2018, and the Law on Informatics and Liberties.

**Table 7. Other institutions impacting the digital transformation of Social security in France**

With respect to services provided by local authorities, digital transformation is supported by two government entities:

- **National Agency for Territorial Cohesion (ANCT):** aimed at tightening links between state and local governments to facilitate implementation of various projects (for example, broadband coverage and Wi-Fi installation in public places).
- **National Centre for the Management of Territorial Service (CNFPT):** mandated with providing training and career support to local government executives, to speed up digital transformation of local public services.

The development and implementation of digital policies and strategies, including wider coordination, is presented in Table 8.

	Coordination of strategy implementation	Wider coordination for the development of information society
<b>Vision</b>	Prime Minister and Secretary of the State for Digital Sector	Ministry for Transformation and Public Service, DINUM, DITP, CNNum
<b>Strategy</b>	Prime Minister, Secretary of the State for Digital Sector DINUM and DITP	ANSSI, DILA, CNNum
<b>Implementation of action plans</b>	DINUM and DITP	ANSSI, CNIL
<b>Implementation of individual initiatives</b>	Central Government Departments, Regional and Local Administrations	DINUM, DITP, ANSSI, and CNIL

**Table 8. France's eGovernance and coordination model since 2020**

The governance of social security is an important topic in France and is increasingly politically sensitive, and subject to public debate in recent years. To maintain citizen trust while attempting to reform social security for future economic sustainability, while minimising potentially adverse socio-economic impacts remain key challenges. Increasing use of IT and digitalisation in France is defined under the umbrella of social security reforms.

Social security governance remains fragmented. For each branch and each individual service scheme, the national fund negotiates the COG bilaterally with the Social Security Department (DSS). DSS may adopt a different position on similar issues as a result, with respect to different individual organisations or even with respect to individual service areas under the auspices of the same organisation. Fragmentation is a key risk, developing synergies becomes more problematic, conflicting timelines are often observed. The key challenge in the context of digital transformation of social security is thus how to improve a coordinated approach. For individual social security organisations, a shared common vision of digital transformation and implementation of a system of governance, management and action plans in order to support social security organisations' adapting to the digital society, will go some way towards providing a coordinated approach, as seen in the case of CNAF and CNAV.

However, some guiding principles in governance of social security and digital transformation of the French public sector would facilitate greater continuity and sustainability of trust, and the tacit agreement of the social security system and citizens that are sometimes considered constraints to innovation. It would also facilitate greater efficiency and more effective use and impacts of ICT projects, and digital transformation of the public sector at large. Past recommendations for improving governance of the digital transformation of social security included:

- Reviewing the role and responsibilities of social security.
- Broadening the focus from productivity and short-term management goals for a more whole-of-government and user-centric strategic vision.
- Reviewing the role of social security as a financial support role but also supporting citizens in their development and growth and ensuring more autonomy.
- Refocusing digitalisation to extend beyond cost-saving and productivity gains to service improvements and user-centred governance (FR1).
- Involving more researchers and universities in the process of innovating social security.

- Increasing the level of collaboration and improving the transverse relationships among social security entities with respect to innovation and digitalisation, increasing the exchange of knowledge and experience, data exchange, improving accessibility, fighting corruption and fraud, improving productivity and reducing the administrative burden.

Recently, central government has launched a number of key initiatives aimed at modernising public service delivery. In this context, DINUM is coordinating digital transformation of social security services and facilitating collaboration, integration and is trying to foster digital transition and innovation among social security organisations (FR1). A centralised dashboard system has been implemented to monitor digital services from a number of perspectives including the back-end, front-end, accessibility, compliance with standards and the legal and regulatory framework, service quality, user satisfaction etc. (FR1).

## 4. LEGAL AND REGULATORY FRAMEWORK, STANDARDS

Successful digital transformation of government and public service delivery requires more than merely applying technology and moving services from offline to online scenarios. Digitisation-ready legislation is essential to achieve the full potential of digitalisation and adoption of technologies. It must establish the legal basis for key enablers, reengineering and integrating administrative processes, and re-thinking the overall concept for service production and delivery to take full advantage of new digital platforms.

The legal social security framework regarding use of digital technology is aligned to the national regulatory framework and implementation of key enablers of digital transformation. The French regulatory, social security framework is heavily influenced by mandatory and unified EU supranational rules. A more uniform legal framework across EU member states is key, for facilitating single European markets, including the movement of labour. This includes deepening and strengthening the EU Digital Single Market. Thus, the EU legal framework regulates many key aspects of digital transformation, such as re-use of Public Sector Information (PSI) and data protection and privacy through GDPR etc. EU legal acts are adopted as Regulations or as Directives. This requires transposing EU acts into the national legal system by each EU member state, but a nation's implementation may vary as long as the stated aims of EU acts is achieved.

In addition to EU regulations applying directly in all member states, social security complies with several pieces of legislation to enable large-scale digitisation. Table 9 summarises the most important legal acts that are in use across France.

	yes/no	Name of acts and regulations	Description
General Digital transformation legislation	yes	<ul style="list-style-type: none"> <li>• Law for a State in the Service of a Society based on Trust (2018)</li> <li>• Law for a Digital Republic (Digital Bill) (2016)</li> <li>• Ordinance on the Right of Users to Communicate with the Administration via Electronic Means (2014)</li> <li>• Decree on the Exchange of Information and Data between Administrations within the Context of Administrative Procedures (2019)</li> <li>• Ordinance on Electronic Interactions between Public Service Users and Public Authorities and among Public Authorities (2005)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Law for a State in the Service of a Society based on Trust (2018)</b> The Law establishes the principle of the right to make errors and includes a series of measures to simplify administrative formalities.</li> <li>• <b>Law for a Digital Republic (Digital Bill) (2016).</b> The Law promotes innovation and development of the digital economy and an open, reliable digital society, while protecting the rights of citizens. It also aims to ensure access for all, in all territories, for all opportunities relating to digital technology.</li> <li>• <b>Ordinance on the Right of Users to Communicate with the Administration via Electronic Means (2014)</b> The Ordinance effectively defines the conditions and procedures for users to exercise the right to communicate electronically with different administrations, simplifying the relationship between the administration and users.</li> <li>• <b>Decree on the Exchange of Information and Data between Administrations within the Context of Administrative Procedures (2019)</b> The objective of the Decree is to organise the exchange of information or data between administrations wherever necessary, to process declarations or requests submitted by the public. The Decree determines the fields and procedures concerned by exchange of information or</li> </ul>

			<p>data, the list of administrations by which the demand for communication is made according to the type of information or data, and security and confidentiality criteria necessary to guarantee the quality and reliability of exchange, as well as the retention period for information and data which applies for each exchange system.</p> <ul style="list-style-type: none"> <li>• <b>Ordinance on Electronic Interactions between Public Service Users and Public Authorities and among Public Authorities (2005)</b> This Ordinance establishes a comprehensive legal framework for shifting to 'electronic administration', creating simple and secure electronic interactions between citizens and public authorities.</li> </ul>
eID and PKI legislation	yes	<ul style="list-style-type: none"> <li>• EU Regulation No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) (2014)</li> <li>• Law for a State in the Service of a Society based on Trust (2018)</li> <li>• Law on Electronic Signatures (2000)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>EU Regulation 910/2014</b> Legal Framework provides mandatory unified legal rules within the EU for electronic identification (eID) and electronic trust services (such as electronic signatures, seals, time stamping, delivery services, and website authentication).</li> <li>• <b>Law for a State in the Service of a Society based on Trust</b> The Law establishes the 'Tell Us Once' principle to simplify the French administrative formalities based on trust and simplicity, aimed at all users in their daily dealings with administrations. Its implementation is operationalised through two decrees. The Decree on Exchange of Information and Data between Administrations introduced a major change in relationships between users and administrations. Users are no longer required to provide certain information or supporting documents if the administration already holds the information.</li> <li>• <b>Law on Electronic Signature.</b> The Law of 2000 was the first to grant legal effect to electronic signatures and electronically signed documents, transposing EU Directive 1999/93/EC on a Community framework for electronic signatures into French law. The Law was abrogated by a new decree in September 2017, following the adoption on 23 July 2014 of Regulation (EU) No 910/2014 on electronic identification and trust services for electronic transactions in the internal market (repealing EU Directive 1999/93/EC).</li> </ul>
Access to Public Sector Information	yes	<ul style="list-style-type: none"> <li>• Law on Access to Administrative Documents (1978)</li> <li>• Disability Act (2005)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Law on Access to Administrative Documents</b> The Law grants everyone access to administrative documents held by public entities. Public entities must respond to requests for documents within one month. A Commission for Access to Administrative Documents (CADA) is tasked with supervising implementation of the Law.</li> <li>• <b>Disability Act (2005)</b> The Act repeals the European Directive on digital accessibility of websites and mobile applications for public sector bodies into French law.</li> </ul>
Security, Data Protection and Privacy legislation	yes	<ul style="list-style-type: none"> <li>• General Data Protection Regulation (EU) 2016/679</li> <li>• Personal Data Protection Act (2018)</li> <li>• Law No. 2018-133 of 26 February 2018 on Various Provisions for Adapting to European Union Law in the field of security (2018)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>General Data Protection Regulation (EU) 2016/679</b> GDPR replaces the Data Protection Directive 95/46/EC, and its goal is to harmonise data privacy rules in the EU, protect EU citizens' privacy by bringing a new approach to data privacy and imposing new regulations and standards, especially relating to the territorial scope, data subjects' rights, consent standards, fines, etc. GDPR strengthens data subjects' rights by establishing clear rules and standards, such as the rights to information, access, rectification, on withdrawing consent, to object (in</li> </ul>

		<ul style="list-style-type: none"> <li>• Law on Informatics and Liberties (1978)</li> </ul>	<p>general), to object to automated processing, erasure (Right to be forgotten) and data portability.</p> <ul style="list-style-type: none"> <li>• <b>Personal Data Protection Act (2018)</b> The Personal Data Protection Act adopted in 2018 amended EU legislation on data protection packages, including GDPR and Directive (EU) 2016/680 (so-called Police Directive).</li> <li>• <b>Law No. 2018-133 of 26 February 2018 on Various Provisions for Adapting to European Union Law in the field of security (2018)</b> The Law contains a series of provisions to amend Directive 2016/1148 to implement measures for common high-level security of network and information systems.</li> <li>• <b>Law on Informatics and Liberties (1978)</b> Adopted in 1978, the Law provides a legal framework for using identifiers in databases and processing personal data by public and private sector organisations. The mandate of the data protection regulator (National Commission for Informatics and Liberties (CNIL)) was established through this Law. In addition, the Law created a National Commission for Informatics and Liberties (CNIL). The Law was amended several times to transpose the new data protection legislation in the EU into French Law.</li> </ul>
Re-use of Public Sector Information	yes	<ul style="list-style-type: none"> <li>• Law on Modalities of Re-use of Public Sector Information (2015)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Law on Modalities of Re-use of Public Sector Information (2015)</b> The Law supports the re-use of public data, promoting free access for opening and re-using public data, known as open data. This principle applies to state and local authorities.</li> </ul>
eCommerce legislation	yes	<ul style="list-style-type: none"> <li>• Law For Trust In Digital Economy (2004)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Law For Trust In Digital Economy (2011)</b> The Law implements the EU Directive on electronic commerce (2000/31/EC) and sets the legal framework for developing eCommerce services in France.</li> </ul>
eCommunication legislation	yes	<ul style="list-style-type: none"> <li>• Law On Electronic Communications and Audio-visual Communication Services (2004)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Law On Electronic Communications and Audio-visual Communication Services (2004)</b> This Law sets the basis for digital communications in France and implements the EU regulatory framework for electronic communications, namely: Directive 2002/21/EC (Framework Directive); 2002/20/EC (Authorisation Directive); 2002/19/EC (Access Directive); 2002/22/EC (Universal Service Directive); and 2002/58/EC (Directive on privacy and electronic communications).</li> </ul>

**Table 9: eGovernment Legal Framework in France** (Source: Adapted by authors from European Commission, 2021)

France has successfully rolled out all major key enablers regarding technical infrastructure, such as Digital ID, national Public Key Infrastructure (PKI) schemes, Single-Sign-On (SSO) etc. Key information and social security services are available online, the once-only principle is increasingly applied and the supporting infrastructure and data exchange platforms are also in place. In order to align user interfaces and create a monolithic brand experience, social security in France has adopted a usability guide and standards. This builds on a tradition of providing user-friendly, personalised and proactive services. Table 10 summarises the availability of key enablers in France.

	yes/no	Solution	Description
<b>Electronic ID</b>	yes	Multiple providers FranceConnect	FranceConnect federates multiple identity providers and offers an identification scheme for online public services and 30 private organisations (banks, insurance, utilities, etc.). It currently unifies six identity providers that users can choose from when logging in to a social security service, such as AMELI (social security) or La MSA (social security). FranceConnect also allows France to implement the European eIDAS Regulation (Electronic Identification and Signature).
<b>Public Key Infrastructure (PKI)</b>	yes	FranceConnect and Common eSignature solution	The social security scheme was developed and used for various services. The online services are supported by one standard electronic signature solution. Moreover, FranceConnect allows users to connect to various government online services with simple authentication, using the authentication page.
<b>Single Sign-On (SSO)</b>	yes	FranceConnect	The FranceConnect Platform is a Single Sign-On (SSO) solution, providing users of social security services with a certified identification mechanism.
<b>National data exchange platform</b>	yes	Inter-ministerial Network of the State (RIE) and Secure Inter- ministerial Intranet for Governmental Synergies (ISIS).	Data exchange within and between government Ministries is carried out through the Inter-ministerial Network (RIE) and the Secure Inter-ministerial Intranet for Governmental Synergies (ISIS).
<b>Once-only principle</b>	yes	Tell-Us-Once: API catalogue and Etat platform	The once-only principle is realised through the API catalogue and the government platforms. The API catalogue is a unique point of access to all public APIs. The catalogue is intended for service creators and API consumers. It consists of two main hubs: API Enterprise (business hubs) and API Particulier (citizen hub). The Etat platform (State as a Platform) is an architecture of social security services to simplify the relationship with citizens through opening of APIs by large public providers of data, free flow of data between social security, and flow control by users through FranceConnect.
<b>Digital post</b>	yes	FranceConnect+	The upgraded FranceConnect+ enables safe and secure two-way communication between government authorities and citizens or businesses.
<b>Usability service standards</b>	yes	General Interoperability Repository  General Accessibility Improvement Framework - RGAA Version 4.1  General Safety Reference System (RGS)	<b>General Interoperability Repository (RGS)</b> RGS sets out technical rules to ensure interoperability of information systems. In particular, it determines the data directories, norms and standards that administrative authorities must use.  <b>General Accessibility Improvement Framework - RGAA Version 4.1</b> Standards for general accessibility for people with disabilities.  <b>General Safety Reference System (RGS)</b> Sets the security rules imposed on administrative authorities for securing their information systems.
<b>Personalised and proactive services</b>	yes	Through Service- Public.fr and any other specialised portal	'Service-Public.fr' as a national one-stop platform allows users to increase personalisation levels through the "my page" section.

**Table 10: Availability of the major key enablers and standards in France**

The legal and regulatory framework in France had an important impact on digital transformation of social security. Some key examples include:

- Services complying with regulations, particularly authentication of social security contributors and recipients. However, there are still risks associated with the

authentication method and online services in relation to fraud, identity manipulation, privacy, data protection and compliance with the law on computing and freedom. The old age and retirement branch engages by using the FranceConnect solution. However, other social security branches are not yet compliant due to perceived security issues and have developed alternative secure digital services.

- The degree of changes in the social security regulatory framework is a key barrier and obstruction to digital transformation of social security, particularly if the frequency of changes increases and if this contradicts the mid-term social security digital strategy (FR1).
- The regulation framework on personal data usage ensures security and protects confidentiality and privacy. However, it is one of the main barriers to the expansion of digitalisation in social security organisations.<sup>6</sup>
- Regulation rigidity is also at the root of the current delays in social security service delivery, as automated services can cope with processing up to 30,000 services per day (FR1).

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<sup>6</sup> EU regulation of 2018 could be a solution to simplify some elements and harmonize rules applied in the EU. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.

## 5. BACK-END SERVICE PRODUCTION ECOSYSTEM

Although organisational responsibility for service provision is decentralised, France has established a centralised model for back-end service production by adopting general frameworks and standards, mandatory for all public bodies. The national one-stop-shop portal **service-public.fr** provides information about all services provided by the national government (only), life journeys and events, the procedures and all relevant information for the services, including information, forms and links to the social security services. However, each entity is responsible for service production and delivery within its mandate and jurisdiction.

A specific social security portal **mesdroitssociaux.gouv.fr** centralises all the information about the members and facilitates procedures undertaken with social protection bodies. Using digital ID and FranceConnect, users can access numerous social security services or simulate scenarios and determine their rights and obligations. Another important integrated portal for social security contributors (employers, individuals, businesses) is the **urssaf.fr** portal, where users can find calculations for contributions and payment information. Lastly, **pole-emploi.fr** is the centralised portal for employment services where citizens can register for a job, training, or can apply for benefits.

Several key elements are essential in terms of social security service delivery. The provision of social security services is strictly connected to the NIR (National Membership Registry number), commonly known in France as a social security number. All people born in France must be registered in the National Directory for the Identification of Natural Persons (RNIPP) and are automatically assigned an NIR by INSEE (France's National Institute of Statistics and Economic Studies). Foreign nationals moving to France must apply for an NIR before starting work in France. The NIR is also equivalent to and is used as a National Health Number (INS). The NIR (or INS) is a permanent number and can only be modified in very limited circumstances. Apart from the NIR, each administrator of the schemes (CANV, CANM and CANF) established internal identifiers to facilitate identification and prevent fraud and mistakes.

The other important national portals that include social security services includes:

- **API Platform (api.gouv.fr)** - Portal that references public service APIs, and is made available to communities, ministries and businesses to build IT services for everyone. It includes [Individual API](#) and [Enterprise API](#) to enable exchanging information between the different departments and agencies.
- **FranceConnect (franceconnect.gouv.fr)** - Single-Sign-On Platform
- **Open Data Portal (data.gouv.fr)**.

The **eID and digital signatures infrastructure** are key for identity management, including validation, security, trust, privacy and fraud prevention. The FranceConnect is the **Single Sign-On (SSO)** solution in France allowing users to use one of the six different certified digital ID solutions. Launched in June 2016, the platform counts around 21 million users as of January 2021 (of a population of some 68 million). In order to use the FranceConnect service, individual users should be registered on the national identification register of natural persons

(RNIPP) of INSEE, and should be registered with the social security providers, [ameli.fr](http://ameli.fr) or [msa.fr](http://msa.fr).

The FranceConnect solution does not aim to replace public identities suppliers, but federates the various social security accounts. Users have open access to their medical files with the newly upgraded platform, FranceConnect+. FranceConnect allows France to implement the European eIDAS Regulation (Electronic Identification and Signature), requiring interoperability of identification systems used by Member States to access their online services.

A number of relevant **standards** governing the back-end ecosystem, including interoperability and data exchange, web accessibility, security, and most social security branches have been adopted and are presented in Table 11.

Back-end Standards	Name of acts, regulations or standards	Description
Interoperability	General Interoperability Framework (RGI)	<p>RGI regulates data exchange on various interoperability levels (political, legal, organisational, semantic and technical) and defines three main interoperability use-cases (exchange between administrative authorities, interaction between an administrative authority and a company or a citizen). (European Commission 2016):</p> <ul style="list-style-type: none"> <li>• RGI 2.0 version was approved in 2016.</li> <li>• Applied in all administrative authorities. The basis for adopting the RGI is the Ordinance on electronic interactions between public services users and public authorities, and among public authorities.</li> <li>• Provisions on both the security of exchanges and interoperability of information systems.</li> </ul>
Data Exchange	General Repository for archive Management (R2GA)	<p>R2GA regulates issues concerning archive storage, communication, re-use and related roles &amp; responsibilities. Increasing Data exchange between social security branches and other public services prevents citizens from entering the data more than once and may avoid fraud and errors, regarding realisation of the once-only principle (FR1).</p>
Web accessibility	General Repository for Administration Accessibility (RGAA);  Charter for Ergonomics of Public Websites	<p>RGAA regulates citizens' access to social security services and content provided, regardless of possible disabilities. The current version 3.0 was approved in 2015 to include international standards for web accessibility, including recommendations for using modern web technologies (ex. HTML5) and improved tools for testing accessibility (European Commission 2016).</p> <p>Charter for Ergonomics of Public Websites in 2008 aimed at regulating the minimum standards of the World Wide Web Consortium (W3C) and the principles of interoperability, accessibility and safety of general guidelines.</p> <p>The Charter is mandatory and applies to all government entities or bodies providing public services. More specifically, the Charter regulates the information and content on social security websites and online services (online processes and requirements).</p>
Security	General Security Repository (RGS)	<p>RGS was adopted in 2014 to define minimum security rules applied in Social security information systems and to provide best practices in the area of security of public administration.</p>

Table 11. General standards for back-end services in social security

**Coordination of Interoperability** is the responsibility of DINUM. As an Inter-Ministerial Directorate, it provides guidance and assists ministries, other government bodies, and local

authorities in implementing the General Interoperability Framework (RGI). This includes directing, leading, supporting and implementing frameworks and actions to ensure data exchange and interoperability across all sectors.

**Electronic payments** (ePayment) are realised through the unified payment platform PayFiP ([payfip.gouv.fr](http://payfip.gouv.fr)) established by the General Directorate of Public Finance (DGFIP). The platform provides public authorities with an enhanced, secure and modern online payment service. It allows citizens and businesses to pay all invoices (excluding taxes) issued by national and local authorities (state, regions, municipalities) or Health services and hospitals using bank cards or bank deposits. According to interviewees, this platform accelerates the workflow for paying benefits at the back-end. It improves productivity by removing a significant part of manual activities (FR1).

The back-end is considered the weak point for digital transformation of social security services in the French context. To improve the back-end, an important shift in mindset and a more holistic and whole-of-government approach should be cultivated (FR1). Key challenges currently include:

- Obsolescence of technology used in the back office. The most advanced branches (CAF) still rely on 1990's versions of Cobol coding, which limits flexibility, openness and inter-connectivity of systems. As a result, processing and calculating benefits and simulations are at times repeated and this happens in parallel with existing workflows for work, reducing productivity and increasing costs.
- Social security legislation and regulation limit automated processing. Regulatory and organisational silos and fragmentation limit the exchange and reuse of data while subjective and non-binary assessment criteria result in more resource-consuming manual processing.
- Internal processes and consensus between operational, technical, and financial departments increase the length and cost of internal decision making, with control, reporting and auditing requirements, slowing down the phase of back-end innovations and technical developments (FR1).

Changing the back-end is considered a significant challenge. Back-end transformation projects have been initiated, and interviewees comment on difficulties realising these changes while maintaining the full potential activities of branches of social security (FR1). In parallel, significant investment has been made to modernise the front-end of social security branches (FR1), as described in the upcoming section. Several changes are proposed to transform and align the back-end to expectations.

Branches	Objectives for back-end
Health insurance	Health insurance is planning to change the back-end system with a more agile and performant IS, reinforcing the IT function, better alignment of tasks performed by CNAM and the Networks department, capitalising on the network initiatives to support the new developments, as well as the proposed new service such as: <ul style="list-style-type: none"> <li>• Health insurance extension.</li> <li>• Leverage E-Santé platform.</li> <li>• Development of online services for business.</li> <li>• Increasing the number of services on the Ameli platform.</li> <li>• Leveraging the Vital card (Carte Vitale in French)/</li> </ul>

	<ul style="list-style-type: none"> <li>• Generalisation of the shared medical file.</li> <li>• Better governance of IT centres of Health insurance for coordinating IT and IS projects by deploying adequate tools.</li> </ul>
<b>Old age</b>	<ul style="list-style-type: none"> <li>• The old-age branch faces several back-end challenges such as improved processing for beneficiaries, partners and collaborators, managing systems, identifying the key performance drivers to meet the goals of activities, and improving productivity. Changes will notably include IS, HR and organisation at the back-end, which are required.</li> <li>• Redesigning IS and integrating inter-schemes dimensions, ranges of services for all front office communication channels, including career management tools, and reengineering the liquidation management tools based on the retirement benefits calculation engine.</li> <li>• Redefining the methods for managing IS projects, to add efficiency and gain agility, including tools for measuring and monitoring.</li> <li>• Establish an application and technical architecture to guarantee both the agility and robustness of IS.</li> </ul>
<b>Family</b>	<p>Family branch of French social security is acknowledged as being the most advanced regarding digital transformation (FR1).</p> <p>During the 2013-2017 COG, the DSI of the family branch was able to develop its application architecture, modernise its hardware infrastructure and unify its execution model by integrating IT sites within a national DSI.</p> <p>For COG 2018-2022, the DSI will need to overcome three major challenges:</p> <ul style="list-style-type: none"> <li>• IT departments' ability to respond to organisational requirements of ICT capacities and maintain the quality of processing (security, speed, etc.), facilitating interactions with both internal and external end-users (business needs, workflows and external customer digital journeys) and integrating new regulations, changes and amendments.</li> <li>• Current information architecture of systems does not meet business requirements and has only limited capacity to handle increased user volumes (FR1). Complex back-office processing limits the development of an integrated and interactive 24/7 digital system, standard applications (workflow management, customer management, etc.). Support functions are explicitly developed for a specific scenario and not for more scalable software packages, while a "family" oriented data model makes it very complex to manage benefits for the individual (FR1).</li> <li>• Current investments in skills development and staff within IT departments limits the digital transformation phase, holding it back.</li> </ul>
<b>Social security contributions collections branch</b>	<p>ACOSS is aimed at significant changes and back-end redesign, to reduce costs through ICT enabled innovation. COG 2018-2022 encompasses an important number of changes, including:</p> <ul style="list-style-type: none"> <li>• Establishing a new, more flexible technical infrastructure.</li> <li>• Developing a more service-oriented architecture capable of handling regulatory changes and business requirements.</li> <li>• Redesigning or replacing the national treasury system with a software solution.</li> <li>• Harmonising the IT department's plan to better match actual workflows and practices, and increase the capacity to carry out all projects (digital/reengineering/regulatory) in a logical, efficient and effective manner.</li> </ul>

**Table 12. Transformations of Digital services of social security**

## 6. FRONT-END SERVICE DELIVERY ECOSYSTEM

Social security has had a problematic relationship with all customer groups in France. Investing in front-end service improvements is considered by many to be the most successful aspect of digital transformation of French social security provision. To foster innovation, competition between branches is encouraged, with branches providing online service quality, and the highest levels of user satisfaction being rewarded, and their solutions and experiences widely communicated to their peers (FR1).

France has established an ecosystem of specialised portals for service delivery, as summarised in Table 13. Three important milestones in digital transformation of the social security services in France include (FR1):

- The 2013 implementation of interactive digital portals for users with full information to improve their autonomy and avoid multi-channel use of information.
- In 2016, the digital front-end was completely redesigned and reengineered.
- In 2021, a more security and citizen-centric front-end enriched with personalised service was launched.

	yes/no	Portal
Citizen and business portal(s)	Yes	<a href="https://www.service-public.fr/">https://www.service-public.fr/</a>
Health	Yes	<a href="https://www.service-public.fr/dmp.fr">https://www.service-public.fr/dmp.fr</a> (personal medical accounts) <a href="https://www.ameli.fr/">https://www.ameli.fr/</a> (reimbursement of medical costs)
Jobs and vacancies	Yes	<a href="https://www.fonction-publique.gouv.fr/">https://www.fonction-publique.gouv.fr/</a> <a href="https://www.pole-emploi.fr/">https://www.pole-emploi.fr/</a> (plus unemployment benefits) <a href="https://labonneboite.pole-emploi.fr/">https://labonneboite.pole-emploi.fr/</a> <a href="https://administration-etrangers-en-https://www.net-entreprises.fr/">https://www.net-entreprises.fr/</a> (social security contributions) <a href="https://www.france.interieur.gouv.fr/particuliers">https://www.france.interieur.gouv.fr/particuliers</a> (work permits for foreigners)
Legal repository, consultation, government gazette	Yes	<a href="https://www.legifrance.gouv.fr/">https://www.legifrance.gouv.fr/</a> <a href="https://www.journal-officiel.gouv.fr/">https://www.journal-officiel.gouv.fr/</a>
Participation, engagement, consultation portal	yes	<a href="https://www.vie-publique.fr/">https://www.vie-publique.fr/</a> <a href="https://observatoire.numerique.gouv.fr/">https://observatoire.numerique.gouv.fr/</a> (dashboard for the quality of public services) <a href="https://www.data.gouv.fr/">https://www.data.gouv.fr/</a> (open data) <a href="https://www.api.gouv.fr">https://www.api.gouv.fr</a>

Table 13: Specialised portal ecosystem in France

In terms of social services, citizens can find helpful information on the national portal, [service-public.fr](https://www.service-public.fr). However, organisational fragmentation has led the French government to establish three key portals:

- [mesdroitssociaux.gouv.fr](https://www.mesdroitssociaux.gouv.fr) contains relevant information and services for insured persons and facilitates the procedures undertaken with social protection bodies.
- [urssaf.fr](https://www.urssaf.fr) contains relevant information and services for contributors to social security such as employers, individuals, businesses.
- [pole-emploi.fr](https://www.pole-emploi.fr) focuses on information and services for job seekers including registering for a job, training, or applying for benefits.
- [caf.fr](https://www.caf.fr) contains information and services relating to family allowances.

- **info-retraite.fr** [*Practical Pension Information*] contains information relevant for retirement, and access to the personal retirement account.
- **ameli.fr** focuses on reimbursement or direct settlement of medical costs.

In addition to online service delivery, France offers social services for citizens through local and regional branches (e.g. employment centres).

While the front-end service delivery ecosystem for social security in France is undergoing digital transformation, and important investments have been made, there is still room for improvement. Social security organisations are increasingly seen to be working on continuous improvement. Such initiatives focus on

- Websites and portals where statistics are collected, systematised and analysed. Data mining is a key tool. Both to identify user behaviour, user needs, patterns and trends and for fraud detection (FR1). Data is also used for measuring and monitoring service delivery and user satisfaction (FR1).
- Data exchange between social security branches and other public services, which is on the rise, both for internal decision-making processes but also for reducing administrative burdens for customers by sourcing existing data from base registries or other social security organisations or branches, via the data exchange infrastructure (using the once-only principle) (FR1).
- Service accessibility and usability, which is improved through application of RGA standards and of frequently used and newly launched services, which are audited and improved in continuous improvements cycles (FR1). This is enabled by a toolkit for monitoring and measurement, incl. dashboards with key performance indicators on costs, operations, user satisfaction etc. For instance, DNUM has developed a specialised platform and portfolio of tools for user engagement and feedback (rating, commenting, surveys, analysis of sentiment) (FR1).

## 7. SKILLS AND CAPABILITIES

The French public sector and social security organisations have difficulty recruiting and retaining qualified ICT expertise. This is compounded by a shortage of IT skills in general. The Covid-19 pandemic accelerated the demand for ICT skills in both the public and private sector and it is increasingly difficult to recruit and retain highly skilled experts within the public sector and across social security organisations (FR1).

Continuous investment in Human Resources and their skills and capacities is crucial for an efficient and effective public sector and successful digital transformation. Appropriate policies and initiatives are required to attract and retain highly skilled professionals to work in the public sector and to direct and channel investments for current staff, to update and re-skill their capabilities. However, besides highly qualified and experienced IT professionals, digitalisation requires minimum ICT skills for any job, including for civil servants (OECD 2016).

The “Administration Publique 2022” programme and its target of improving public administration and to offer 100% digital services by 2022, will require adapted infrastructure and improved readiness of the civil service. One of the key pillars of Administration Publique 2022 is Human Resources Management (HRM). The objective of this pillar is to transform public administration into a modern and skilled entity, ready to adapt to new trends and challenges. The Strategy for HR renewal 2022 (SIRH) looks at the potential of digitalisation to improve management, transform public professions into a digital environment and improve the employee experience (OECD 2019). Table 14 summarises key skills and capacity development activities.

Activities	Description
Training	Within the scope of its mandate, DINUM (formerly known as a DINSIC) implements training for senior civil servants, including the social services.
Community of practices	Facilitate a community of practice of Information System Directors (DPSI), to increase their potential to manage and communicate about the projects.
Skills and capacity development	A particular focus of the Administration Publique 2022, is increasing the skills and capacities of senior civil servants, as detected by DINUM as a key requirement for speeding up digital transformation. Several initiatives, such as 'Digital Mentors' and ENA's initial training curriculum through the Public Innovation Chair (CIP) on public innovations, addressed the challenges to public administration skills and capacities, especially for senior civil servants.
Continuous development programme	Public institutions in France invest in continuous training programmes to improve civil servants' digital skills and capacities. These programmes are available to all levels of public administration (including senior civil servants) at the central or territorial level.

**Table 14. Skills and capacities activities**

Social security in France is fully aware of the potential of digital transformation and the need for a highly skilled, efficient and effective civil service. As a result, digital skills and competences related to digital transformation (e.g. technical, innovation, change and risk management skills) are at the centre of modernisation of social security administration. The different branches are defining for the digital transformation of the public sector, as part of modernisation processes, aimed at increasing productivity, effectiveness and transparency. Multiple programmes and initiatives have been used over the last five years to provide

technical and financial support for capacity building, and to promote innovations across branches of social security. Despite having access to highly skilled people, staff retention and career development remain challenging.

As a result of skills shortages, and a complement to existing national skills and capacity development programmes, social security branches have created different initiatives to attract and retain IT skills, such as recruiting more interns, in order to train and recruit them while they are studying (FR1).

## 8. EXPANDING INCLUSION AND COVERAGE

Digital transformation of public services modifies the relationship with the user by requiring him to actively participate in service delivery via the internet. It requires a connection to the internet and requisite digital literacy and skills required to manipulate the tools and access the contents of digital information, and understand it. While internet access (fixed and mobile broadband coverage) has improved over the years, 16% of the population does not use the internet, and 13% only use the internet occasionally, due to a lack of the skills required.<sup>7</sup> The risk of exclusion continues to be a risk in relation to social security in France, but also in terms of the digital divide in general. This risk is accentuated for beneficiaries of social security services who tend to be more vulnerable or marginalised than mainstream society.

Digital inclusion with respect to social security has only recently gained traction in political deliberations. The government launched a plan for inclusive digital technology in 2018. For social security, the challenges of digital inclusion are considered in management agreements between operators (social security funds and “pole emploi” [*Employment Centre*]) and social security organisations, however no measurable objectives and performance indicators are outlined. Interestingly CNAF and CNAV were key in bringing digital inclusion in social security to the attention of the International Social Security Association.

Despite a relatively recent focus area, social security branches have initiated a number of internal policies to complement agreements with operators. All social security organisations in France now have digital inclusion activities organised around four areas: simplification of user interfaces, providing non-digital alternatives, support for such people who need it, ensuring that users know their rights and obligations. Table 15 summarises the key actions and achievements to date.

Actions	Descriptions	Results
<b>Simplifying digital services for the user as much as possible</b>	<ul style="list-style-type: none"> <li>• User experience approach to the development of digital UX experts (User Experience).</li> <li>• User-friendly and ergonomic apps.</li> <li>• Once-only principle.</li> <li>• Integrated workflow with exchange of data to facilitate service to users' full access rights (RSA/CMU-C).</li> </ul>	<ul style="list-style-type: none"> <li>• Significant improvement of accessibility for users with special needs. Only digital services comply with RGAA standards.</li> <li>• Limited compliance of teleservices to CERFA standards for ideal-type online services prescribed by DINUM (51%).</li> <li>• Multiple and repeat entering of information remain high, particularly for resource declaration.</li> <li>• The regulation requires systematic entry of unknown information.</li> </ul>
<b>Maintaining a provision combining traditional and digital channels</b>	<ul style="list-style-type: none"> <li>• Dominance of digital as the privileged channel for service delivery (80% for CNAF, 64% for MSA).</li> <li>• Face-to-face service require an appointment and justification.</li> <li>• Abolition of a certain number of old-age insurance funds.</li> </ul>	<ul style="list-style-type: none"> <li>• Using traditional channels is important for social security services.</li> <li>• Paper-based services remain dominant for retirement services (&gt;65 years), 58% Vital card, RSA 37%.</li> <li>• Reduction of access to social security services (-27% Family branch, -39% healthcare, -50% old age).</li> </ul>

<sup>7</sup> [https://www.igas.gouv.fr/IMG/pdf/2019-033r-tome\\_1\\_rapport.pdf](https://www.igas.gouv.fr/IMG/pdf/2019-033r-tome_1_rapport.pdf)

<b>Identifying and supporting people with difficulties</b>	<ul style="list-style-type: none"> <li>• Reduction of social service operators.</li> <li>• Developing tools to identify non-user of digital services.</li> <li>• Digital pass service.</li> <li>• PIMMS.</li> <li>• France Service.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of support or training for non-users of Internet services.</li> <li>• Limited access to operator increases the charges for 1<sup>st</sup> line of social services.</li> </ul>
<b>Developing proactive actions to improve the use of rights</b>	<ul style="list-style-type: none"> <li>• CNAV and CNAF developed proactive services using Data mining to identify potential beneficiaries of rights.</li> </ul>	<ul style="list-style-type: none"> <li>• This approach remains limited and experimental, not diffused.</li> <li>• Important improvements relating to exchange of data between branches through RNCPS or Monthly Database of resources (BRM).</li> </ul>

**Table 15. Digital services inclusion policies<sup>8</sup>**

Current activities are critical for improving social security coverage in an increasingly digital society. However, results summarised in Table 15 above, indicate that more can be done to improve digital inclusion with respect to French social security. While simplification has played an essential role in facilitating access to digital services for all users and has ensured greater digital inclusion (FR1), further simplification of regulations would be beneficial. If combined with improved accessibility and usability for people with special needs, this would also help increase the level of independence of an important group of recipients of social security. An enhanced and coordinated multi-channel strategy for all types of financial and non-financial social security services would help ensure a common message and could be aligned with a whole-of-government strategy. Partners and networks such as Maison de France or social action community centres could play a significant role in promoting the digital service channel but also for communicating non-digital alternatives, support and digital skills courses, thus facilitating improvements in digital inclusion. Additional support and training is also required, with CAF is already introducing workshops and individual follow-up calls.

<sup>8</sup> [https://www.igas.gouv.fr/IMG/pdf/2019-033r-tome\\_1\\_rapport.pdf](https://www.igas.gouv.fr/IMG/pdf/2019-033r-tome_1_rapport.pdf)

## 9. LESSONS LEARNED

France is well-known for being a strong welfare state with robust and highly centralised government components. France began digital transformation of government early, with the “Electronic Administration” strategy.

Digital transformation of social protection and social security in France is driven by increasing demand for social security services. An ageing population, increasing immigration and an urgent need to improve productivity and efficiency of the public sector are key drivers. France has accelerated its digital transformation progressively over the last couple of years. Progress was made in respect to the integration of emerging technology.

Digital transformation of social security is incorporated into the national digital strategy. Governance of social security and the digital transformation is nonetheless fragmented. Some aspects are defined by the central government strategy, while other aspects are covered in strategies specifically for social security. Several ministries are involved in digital transformation of social security, including the Ministry for Solidarity and Health, DINUM and DITP. The French government does indeed facilitate, and ensure that regional and local government authorities align their strategies and policies with national policy and EU recommendations. While the autonomy of social security branches to develop their own digital strategies and services allows for greater contextualisation, creativity and innovation, this also limits whole-of-government thinking, hampers integration and often results in fragmented and duplicated solutions and costs. A more uniform approach to service design across social security silos and platforms would benefit users by offering more recognisable and common look-and-feel services (FR1). Whole-of-government and user-centric thinking both limit the effect, unless social security is considered as a whole. While the social security system adheres to a logic of salaried employment or self-employed status, and is based around a multiplicity of organisations and schemes, such compartmentalised and siloed thinking neither favours the design and application of a common and coherent digital strategy, nor does it take full advantage of ICT.

France made significant efforts to define relevant and clear legal and regulatory parameters and standards for national digital transformation, including development of social security services. EU regulations and recommendations strongly influence it (e.g. eIDAS for eID, EIF for IOP, once-only for data reuse plus TOOP pilot for cross-border services, GDPR for privacy, WCAG AA for web accessibility). The French have also aligned regulations with international standards such as WCAG AA.

Concerning the back-end service production ecosystem, a more centralised and consolidated approach is pursued with respect to IDM, where single national identifiers for citizens/residents, businesses, and various items have been implemented. Back-end systems are developed based on national standards. However, the government allows social security organisations at local and regional level a high degree of operational autonomy to foster innovation though indirect competition. Data distribution is consolidated at central government level and within social security. It also extends across borders for exchanges with EU and other international partners (based on bilateral agreements with non-French social security organisations). France also consolidates social security organisations through a series

of data exchanges and IOP programmes. One of the main challenges for the next five years, is to fully transform the back-end, to alleviate barriers and obstacles to modernisation of service delivery and concretise productivity gains. This is particularly challenging due to the main social security actors and stakeholders. One strategic objective is to automate 30-60% of all processes (FR1), and further the system's agility.

The front-end service delivery ecosystem for social security continues to be fragmented. While several specialised one-stop shop portals have been launched to create a more uniform and consistent user experience, these are numerous and specialised service sites exist for different social security and welfare services. French social security organisations apply web accessibility standards (WCAG AA) and apply design guide recommendations from the International Social Security Association.

The French government and social security organisations have adopted a voluntary opt-in approach to eID/eSignature, digital post, and online service use, including for social security services. This partially explains the relatively slower take-up of social security services online, in comparison to e.g. Denmark.

Finally, the French government invested significantly in skills and capacity development. Their strength lies in the presence of and ability to retain highly qualified and skilled civil servants. The government implemented several training programmes for senior civil servants and to educate people. They also developed pilot projects, partnership capabilities and shared innovation facilities to foster innovation. Furthermore, the government used digital transformation of social security and technology successfully, to increase inclusiveness and diversity in accessing social services and benefits.

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# Case studies on digital transformation of social security administration and services

**Reference Project:** CHN/18/01/EUR - Improving China's Institutional Capacity towards Universal Social Protection

**CASE STUDY**  
**EUROPEAN UNION**



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## 1. INTRODUCTION

The case study on digital transformation of social security in the European Union (EU) consists of seven parts:

- The context of EU digitisation and social security
- Governance, intergovernmental collaboration and coordination in relation to technology for digital transformation of EU social security.
- Legal and regulatory framework, standards relating to digital transformation of EU social security.
- Front-end service production ecosystem for social security in the EU.
- Back-end service delivery ecosystem for social security in the EU.
- Skills and capacities in EU social security entities and for social security clients and customers.
- Expanding Inclusion and coverage.

The specific aim is linked to core research questions for guiding the case, which are outlined for each of the seven sections below.

## 2. CASE CONTEXT

The European Union (EU) is a political and economic union of 27 member states with more than 450 million citizens<sup>1</sup> and 24 official languages, of which three – English, French and German – adopt an elevated status as ‘procedural’ languages of the EU administrative body, i.e. the European Commission (EC). This contrasts with the Council of the European Union (i.e. representative forum for ministers responsible from each member states, collegially often known as the Council of Ministers) and the European Parliament (EP) which accept all official languages as working languages.<sup>2</sup>

Powers of the EU and its institutions (esp. the EC and EP) have evolved over the years, with more authority being transferred from member states to the EU. Currently, the EU is a mix of supranational organisations and a federal country element where the legislative power is shared among the Institutions of the EU and its member states. The Treaty on European Union and the Treaty on the Functioning of the European Union (Lisbon Treaty, or TFEU) sets the rules and powers of EU institutions as opposed to those of the member states.

The EU has a surface area landmass of 4 million km<sup>2</sup>, Germany is the largest country by population and GDP, France by size of territory, and Malta has the smallest population and smallest territorial landmass.<sup>3</sup> The population density of the EU in 2021 was 112 people per km<sup>2</sup>. The overall figures for immigrants in European society on 1 January 2021 showed that 23.7 million were non-EU citizens (5.3% of EU’s total population), and 37.5 million people were born outside the EU (8.4% of all EU inhabitants)<sup>4</sup>

Population (July 2021 est.)	450,131,902
Territory (km <sup>2</sup> )	4,236,351
Population density (2021 est.) <sup>5</sup>	112
Official languages	24 official languages: Bulgarian, Croatian, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Irish, Italian, Latvian, Lithuanian, Maltese, Polish, Portuguese, Romanian, Slovak, Slovene ( <i>Slovenian</i> ), Spanish, Swedish.  Note: a number of regional minority languages enjoy official recognition and protection e.g. Basque, Catalan, Sami, Roma, Yiddish, etc.
Life expectancy / median age (2021 est.)	77.63 / 44

<sup>1</sup> The World Bank. Data Bank. 1961-2021. Accessed 15 July 2022: [https://data.worldbank.org/indicator/EN.POP.DNST?end=2021&locations=MT-LU-CY-SI-BE-NL-DK-EE-SK-HR-LV-LT-IE-CZ-AT-PT-HU-BG-GR-RO-IT-PL-FI-DE-SE-ES-FR&name\\_desc=false&start=1961&view=chart](https://data.worldbank.org/indicator/EN.POP.DNST?end=2021&locations=MT-LU-CY-SI-BE-NL-DK-EE-SK-HR-LV-LT-IE-CZ-AT-PT-HU-BG-GR-RO-IT-PL-FI-DE-SE-ES-FR&name_desc=false&start=1961&view=chart)

<sup>2</sup> Languages of the European Union - Wikipedia. Accessed 18 July 2022: [https://en.wikipedia.org/wiki/Languages\\_of\\_the\\_European\\_Union](https://en.wikipedia.org/wiki/Languages_of_the_European_Union)

<sup>3</sup> Facts and figures on life in the European Union. Size and population. Accessed 18 July 2022: [https://european-union.europa.eu/principles-countries-history/key-facts-and-figures/life-eu\\_en](https://european-union.europa.eu/principles-countries-history/key-facts-and-figures/life-eu_en)

<sup>4</sup> Statistics on migration to Europe. Accessed 19 July 2022. [https://ec.europa.eu/info/strategy/priorities-2019-2024/promoting-our-european-way-life/statistics-migration-europe\\_en#RefugeesinEurope](https://ec.europa.eu/info/strategy/priorities-2019-2024/promoting-our-european-way-life/statistics-migration-europe_en#RefugeesinEurope)

<sup>5</sup> The World Bank (2021). Data Bank. Population density (people per sq. km of land area) – European Union. Accessed 1-15 July 2022: <https://data.worldbank.org/indicator/EN.POP.DNST?locations=EU>

Urbanisation (%) of total population (2021 est.) <sup>6</sup>	75 %
GDP (PPP) (USD, 2020 est.)	9,885 trillion
GDP per capita (PPP) (USD, 2021 est.)	44,817.4
GDP growth rate (%) (2021 est.)	5.4%
Unemployment (2021 est.)	7%
Imports (USD (2021 est.))	8.01 trillion
Exports (USD (2021 est.))	8.67 trillion

**Table 1: Socio-economic data, average for the EU 27 member states**

(Source: CIA - Central Intelligence Agency, 2022)

The social security system of the EU is a composition of national social security schemes of the 27 EU member states and members of the European Economic Area (EEA) (i.e. Iceland, Liechtenstein, Norway and Switzerland).<sup>7</sup> At present, each member state has exclusive power to decide who will be insured according to its national legislation, which benefits are granted and under what conditions, how these benefits are calculated and what contributions should be paid.

The EU has legislative authority to adopt provisions for coordinating social security, merely to prevent citizens from losing part or all their social security rights when moving from one member state to another. These rules do not seek to replace or harmonise national rules for social security. Currently, Implementing Regulation (EC) No 883/2004 and Regulation No 987/2009 comprise this legislative package called “*modernised coordination*” of social security systems (European Commission, 2022).

The responsibility for employment and social policy lies primarily with national governments of EU member states, whose efforts are supported and complemented by the European Union, especially with policies with a cross-border dimension.

EU action on social security issues in the EU relates closely to implementation of the **European Pillar of Social Rights** as well as labour market developments. The EU helps to promote social cohesion, seeking to foster equality as well as solidarity through adequate, accessible, and financially sustainable social protection systems and social inclusion policies. EU spending on social security is tied to labour market measures. Progress can be observed on issues such as work-life balance and equal opportunities.<sup>8</sup> Over the last 10–15 years, a lot of discussion in Europe has related to changes to social security systems. The debate has been diffuse, and emphasis has shifted over time depending on the specific political, socio-economic and culturally dominant factors in the context of each member state. In some, the debate focused on the overall level of spending and fiscal deficit, in other states and at other times it focused more on centralisation/decentralisation, while others focused on the specific mode of delivery of particular social goods and services (i.e. private or public), or the rights of inter-European migrant workers (e.g. seasonal, short-term and long-term migrants).<sup>9</sup>

<sup>6</sup> The World Bank. Data Bank. Urban population (% of population) – European Union. Accessed 19 July 2022: <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=EU>

<sup>7</sup> For readability the case will refer simply to the EU institutions and EU member states only.

<sup>8</sup> EU policies – Delivering for citizens: Health and social security. Accessed 14 July 2022: [https://www.europarl.europa.eu/thinktank/en/document/EPRS\\_BRI\(2018\)630272](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2018)630272)

<sup>9</sup> Social Security Reforms in Europe. Accessed 17 July 2022. [https://link.springer.com/chapter/10.1007/978-3-540-24780-7\\_15](https://link.springer.com/chapter/10.1007/978-3-540-24780-7_15)

The EC coordinates and monitors national policies and implementation of EU law and promotes sharing of best practice in areas such as workers' rights in the workplace, coordination of social security schemes, training, skills and entrepreneurship (European Commission, 2022).

Four main principles generally apply in the EU for the context of social security. These principles are (European Commission, 2022):

- **Single legislation application:** A citizen can be covered by the legislation of one member state at a time. The decision of which law applies will be made by social security institutions.
- **Equal treatment and non-discrimination:** Every person (citizen or not) has the same legal rights and obligations as nationals of the member state where he/she is covered.
- **Fair treatment and mutual recognition:** When claiming a benefit, all previous periods of insurance, work or residence in other member states must be taken into account.
- **Exportability:** Cash benefits can generally be received, even if citizens live in a different member state.

Member states are exclusively responsible for designing and delivering their social services. The EU does not provide services or benefits directly to EU citizens. The EU takes the lead in digitalising social security coordination for the exchange, access and processing of data requests. So far, the EU has established the **Mutual Information System on Social Protection (MISSOC)** to promote continuous exchange of information on social protection among member states, **Electronic Exchange of Social Security Information (EESSI)** to enable exchange of information between social security institutions across Europe, and launched a pilot project to explore feasibility of a **European Social Security Pass (ESSPASS)** to simplify citizens' interactions with social security institutions, healthcare providers and labour inspectorates.

With regards to digital transformation, the EC and EU institutions have guided digitisation of the public sector, and the socio-economic transformation of Europe. This was particularly focused on the legal and regulatory framework and standards to ensure cross-border compatibility and integration of systems and data exchange, but also on the availability of key infrastructure components (e.g. eID/eSignatures and data exchange platforms), key benchmark services (i.e. 12 for citizens and 8 for businesses), national one-stop portals for citizens, businesses, public procurement etc. The principles guiding the EU with respect to IT, technology and the digital transformation are similar to those outlined for social security.

Internet access and a minimum level of digital literacy and competencies are essential pre-conditions, as regards the terms for online service delivery (Meyerhoff Nielsen, 2017). Investments in internet and communications infrastructures ensure that EU member states offers widely accessible online government services. The EU is among the most connected areas globally, with high internet usage rates and high-speed infrastructure availability.

Population covered by a mobile-cellular network (2020)	99.78%
Population covered by at least a 3G mobile network (2020)	99.37%
Population covered by at least 4G mobile network (2020)	99.04%

Households with Internet access at home (2021)	88.44%
Mobile-cellular subscriptions per 100 inhabitants (2020)	122.52
Active mobile broadband subscriptions per 100 inhabitants (2020)	111.3
Fixed broadband subscriptions per 100 inhabitants (2020)	35.48
Individuals using the Internet (% of the population) (2020)	86.26%

**Table 2: Connectivity and use of the Internet by households and individuals, EU 27 member states average (Source: ITU, 2021)**

Another essential element for social security and take-up of online protection services, is the country's general ICT skills. Data shows that 53% of the population in the EU possess basic or above basic level ICT skills.

Basic digital skills	58.33%
Standard digital skills	38.52%
Advanced digital skills	5.93%

**Table 3: ICT skills 2021, EU 27 member states average (Source: ITU, 2021)**

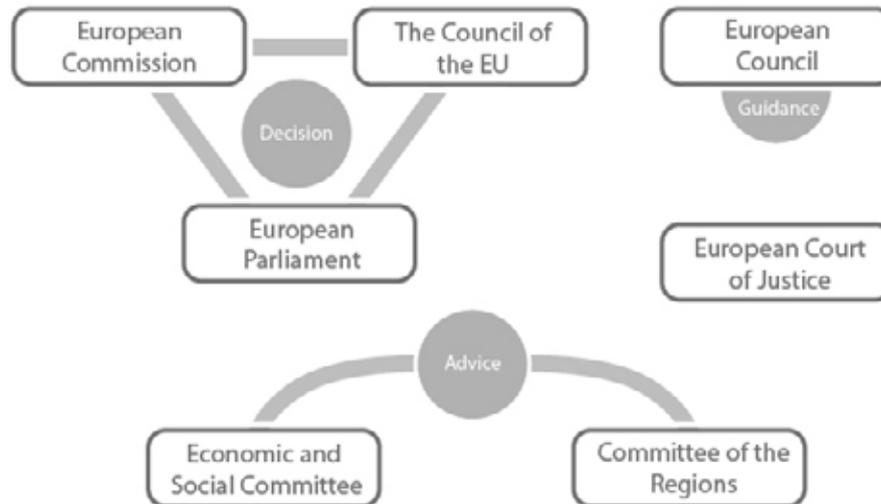
### 3. GOVERNANCE

Mandates of EU institutions are defined in the founding treaties, namely the Treaty on the Functioning of the European Union (1957) and the Treaty on European Union (1992) and the Lisbon Treaty (2007). Four key institutions are:

- **European Council:** The highest political body, whose main role is to determine the EU's political direction. It comprises the heads of state or the EU member states' governments.
- **Council of the European Union:** Legislative body of the EU mandated to adopt decisions on European laws jointly with the European Parliament. It comprises relevant national ministers from each government, and these meet to adopt laws and coordinate policy. The Council of the EU is a single legal entity, but it meets in ten different 'configurations', depending on the subject under discussion. Relevant configurations in terms of social protection issues and the digital agenda are:
  - **Employment, Social Policy, Health and Consumer Affairs Council (EPSCO):** brings together ministers responsible for employment, social affairs, health and consumer policy from all EU member states
  - **Transport, Telecommunications and Energy Council (TTE):** brings together ministers responsible for transport, energy and telecommunications.
  - **Competitiveness Council (COMPET):** brings together ministers responsible for trade, the economy, industry, research and innovation.
- **European Parliament (EP):** Shares legislative power with the Council of the EU and approves the EU budget. It is composed of directly elected representatives of citizens of EU Member States.
- **European Commission (EC):** The main executive body of the EU, with the right and the authority to initiate proposals for new laws. It also manages EU policies and the EU budget, and ensures that countries apply EU law correctly. It is composed of commissioners, each of them covering a specific area.

In practice, EC, Council of the European Union, and EP decide. This is based on strategic guidance of the European Council but also on consultation with and advising the Economic and Social Committee and the Committee of the Regions (i.e. regions within the EU at large and in individual member states). With respect to decisions, the EC may make proposals, but these must be approved by the Council of the European Union and subsequently passed in the EP (both are permitted to suggest amendments). Similarly, the Council of the European Union and the EP may make proposals. These will nonetheless be formulated by the EC before being presented to the Council of the European Union, who may suggest amendments before final decisions are made.

Considering the complex governance and decision-making process in the EU, the focus of interest will be the executive level, which is mandated with proposing new laws and policies and monitoring correct and proper implementation of the current one's by all member states. The EC is organised into Directorates-General (DGs), responsible for different areas of policy. Currently, there are 34 DGs, each covering specific policy areas.



**Figure 1: Major EU institutions and their role**

(Source: EU Commission, adapted by University of Pittsburgh, 2022)

## Social Protection

In terms of social security (or social protection as it is also referred to) issues, the EC has established the **Commissioner for Jobs and Social Rights** and the **Commissioner for Budget and Administration**, which are by and large responsible for developing strategy. Regarding the operational and implementation level, the **Directorate-General for Employment, Social Affairs & Inclusion (DG EMPL)** is key with respect to developing policies, and monitoring implementation for employment and social protection, education and training. However, as employment and social protection falls under the jurisdiction of member states, the work of DG EMPL and the other related EU institutions is limited. Specifically, the role of EU institutions is limited to just coordinating and monitoring national policies, implementation of EU law (i.e. compliance) and sharing and promoting best practices in areas such as rights at work, coordination of social security schemes, training, skills and entrepreneurship (DG EMPL, 2022).

The main platform for coordination and working with member states is through the **Social Protection Committee (SPC)**. The SPC uses the **Open Method of Coordination**<sup>10</sup> in areas of social inclusion, healthcare, long-term care and pensions (i.e. social OMC). The SPC also performs a role acting as an advisor to Ministers in the Employment and Social Affairs Council (EPSCO). The responsibilities of the SPC include:

- Monitoring the social situation and development of social protection policies in member states and the EU.
- Promoting discussion and coordination of policy approaches among national governments and the EC.
- Preparing reports, formulating opinions or undertaking other work within its fields of competence, at the request of either the European Council, the EC or on its own initiative.

<sup>10</sup> EUR-Lex. Access to European Union law. Reinforcing the Open Method of Coordination for social protection and social inclusion. Accessed on 11-15 July 2022: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:em0011>

- Preparing European Council discussions on social protection and country-specific recommendations in the context of the European Semester.

The **social OMC** is a voluntary process for political cooperation based on agreeing common objectives and measuring progress towards these goals using common indicators. The process also involves close cooperation with stakeholders, including social partners and civil society (DG EMPL, 2022).

Another important forum is the **European Social Policy Network (ESPN)**, empowered to support the EC in monitoring progress towards EU social protection and social inclusion objectives set out in the **Europe 2020 strategy**, including the **European Pillar of Social Rights**, and in the **European Semester**.<sup>11</sup> It provides the EC with a comprehensive overview of policies on social protection (i.e. pensions, healthcare and long-term care) and social inclusion in countries covered, including their strengths and weaknesses, and identifies areas most in need of further social investment.

The role of the EU in coordinating social security systems is not limited to regulation. The EC takes a more pragmatic approach to the politically sensitive area of EU-wide social protection. It developed IT projects whose primary role is to facilitate the flow/sharing of information between governments of different countries, to promote free movement of workers within the single EU market (DG EMPL, 2022). Table 4 summarises the EU coordination model for social security.

Year	Coordination of social security implementation	Wider coordination for development of the information society
Vision	Council of the European Union, European Commission (DG EMPL), member states	European Parliament, CPC, ESPN, other stakeholders
Strategy	Council of the European Union, European Commission (DG EMPL), member states	European Parliament, CPC, ESPN, other stakeholders
Implementation of action plans	European Commission (DG EMPL), member states	European Parliament, CPC, ESPN, other stakeholders
Implementation of individual initiatives	European Commission (DG EMPL), member states	European Parliament, CPC, ESPN, other stakeholders
Monitoring and measurements	Council of the European Union, European Commission (DG EMPL), member states	European Parliament, other stakeholders

Table 4: EU coordination model for social security (Source: Authors, 2022)

### Digital Economy and Society

In the EU context, digital transformation of the public sector was incorporated in the broader field of Digital Economy and Society. Issues relating to Digital Economy and Society, research and innovation is the remit of the EC. At the policy and strategy level, the EC created an **Executive Vice-President for a Europe fit for the Digital Age** position, and allocated significant decision-making power to the **Commissioner for Budget and Administration** and the **Commissioner for Internal Market**. However, the main operational and implementation role in terms of the digital agenda is allocated under several DGs, such as the **Directorate-General**

<sup>11</sup> European Commission. The European Semester. Accessed on 11-15 July 2022: [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester\\_en](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester_en)

for Informatics (DG DIGIT), Directorate-General for Communications Networks, Content and Technology (DG CNECT), and the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW).

The mission and aim of DG DIGIT is to deliver digital services, enabling effective implementation of EU policies and to support the internal administration of the EC. DG CNECT’s goal is to conceive and implement policies required to create a digital single market, to foster growth and employment and to help drive digital transformation of European industry and public services through innovative digital technology, including infrastructure and telecommunications issues. Lastly, the mission of DG GROW is to enhance the European business environment by developing and carrying out the EC’s policies relating to business and industry. It is responsible for implementing the Once-Only Principle by the end of 2023. Table 5 summarises the EU coordination model for IT and technology issues relating to the digital transformation of the public sector – including social security services – society, and the wider economy.

Year	Coordination of strategy implementation	Wider coordination for development of the information society
<b>Vision</b>	Council of the European Union, European Parliament, European Commission (DG CNECT)	Member States, other stakeholders
<b>Strategy</b>	Council of the European Union, European Parliament, European Commission (DG CNECT)	Member States, other stakeholders
<b>Implementation of action plans</b>	European Commission (DG CNECT, DG DIGIT and DG GROW)	Member States, other stakeholders
<b>Implementation of individual initiatives</b>	European Commission (DG CNECT, DG DIGIT and DG GROW)	Member States, other stakeholders
<b>Monitoring and measurements</b>	European Commission	Member States, other stakeholders

**Table 5: eGovernance and coordination model** (Source: Authors, 2022)

A monitoring system measures the progress of the EU digital society and digital principles, and also assesses which areas have insufficient development at the level of member states, including, for instance, lack of action or incomplete implementation of key regulatory proposals. The EC is responsible for analysis and overall reporting on progress at a European level. Such reporting will provide an overview and analysis of the situation, and show the remaining distance still to travel to reach digital targets. The final purpose is to identify in which areas progress is lagging behind and how these identified gaps can be addressed through measures and recommendations on a European and/or national level.

The Digital Economy and Society Index (DESI) is a key monitoring and measurement tool in this respect. Since 2014, the DESI has summarised indicators on Europe’s digital performance and tracks the progress of EU member states. Indicators are collected across five thematic areas, and these are: Human capital; Connectivity; Integration of digital technology; Digital public services; Research and development in ICT. The DESI includes country profiles which support member states in identifying areas requiring priority action as well as thematic chapters offering a European-level analysis across key digital areas, essential for underpinning policy decisions on an EU-wide as well as on a national level. Data is provided by statistical

agencies in each member state, and is based on the same methodology. In fact statistical collection and frameworks are part of the so-called *Acquis Communautaire*<sup>12</sup> – essentially the EU's legal and regulatory framework – which all EU member states and potential member country candidates must comply with. In 2020, the International DESI (I-DESI) mirrors and extended DESI by utilising 24 datasets to enable trend analysis and comparison of the digital performance of 45 countries. This analysis includes EU27 member states and 18 non-EU countries. The 18 non-EU countries incl. EEA member states, global leaders including China in order to achieve global cover. The DESI 2021 has been adjusted to reflect the two major policy initiatives set to have an impact on digital transformation in the EU in coming years: the Recovery and Resilience Facility (RRF) and the Digital Decade Compass. The RRF is a response to both the global climate crisis, the digital revolution and COVID-19 pandemic, and a minimum of 37% of funding must be used to address the climate crisis and further environmental sustainability and a minimum of 20% must be used to further digital transformation of the public sector, society and the wider economy.



Figure 2: DESI 2021 (Source: EC, 2022)



Table 3 I-DESI 2020 (Source: EC, 2021)

The policy programme will set up a mechanism to enable EC engagement with member states through close cooperation and coordination, to take joint commitments as well as possible measures at EU and national level, taking implementation of other digital policies and initiatives into account. In addition, the policy programme will allow EC engagement with member states, to launch and shape multi-country Projects.

### Data Governance and AI

The EU's data governance approach currently draws on a range of overarching principles from a set of policy instruments. Critical instruments include the European Strategy for Data, whose core proposal is that "...the EU can become a leading role model for a society empowered by data to make better decisions – in business and the public sector." They also include the upcoming European Declaration on Digital Rights and Principles for the Digital Decade. It focuses on connecting and aligning digital governance with core areas of human rights as established by EU law, EU values (dignity, freedom, democracy, equality, the rule of law and human rights) and the European Pillar of Social Rights. The innovation principle is another underlying principle the EU draws on in its vision for data governance. These ensure that all new EU policies or regulations support innovation and that the regulatory framework in Europe is innovation friendly. Data governance should positively contribute to people's

<sup>12</sup> The *Acquis Communautaire* is a French term referring to the cumulative body of European Community laws. As the legal and regulatory framework of the EU, the *Acquis Communautaire* comprises EC objectives, substantive rules, policies and, in particular, primary and secondary legislation and case law – all of which form part of the legal order of the EU. EU standards are an integral part of the *Acquis Communautaire*.

autonomy and their ability to participate in society, and to make claims about their needs on a more general level.

Artificial intelligence (AI) makes value articulation necessary, because it represents a change in the scale and nature of the data governance challenge. It takes what was often an issue of individual rights and control and adds to its problems of collective rights.

The 2020 European Data Strategy is grounded in finding ways to ensure that society can make better decisions, with greater agency over data. It emphasises that strict protection and controls should be maintained to ensure that the legal framework prioritises data protection, fundamental rights, safety, and security. More detailed laws are already in place in the EU that impact data governance in different ways, such as General Data Protection Regulation (GDPR), Data Protection Law Enforcement Directive, and the Privacy and Electronic Communications Directive (i.e. the ePrivacy Directive) (for details, see section 4).

## 4. LEGAL AND REGULATORY FRAMEWORK, STANDARDS

Successful digital transformation of government and public service delivery requires more than merely applying technology and moving services from offline to online environments. Digitisation-ready legislation is essential to achieve the full potential of digitalisation and technology adoption. It must establish the legal basis for key enablers, reengineering and integration of administrative processes; and it must re-think the overall concept for service production and delivery to take full advantage of new digital platforms.

Currently, the EU has the exclusive power and authority for adopting regulations and mandatory rules, or questions relating to customs union; competition rules for the single market; monetary policy for Eurozone countries; trade and international agreements (under certain circumstances); and marine plants and animals regulated by the common fisheries policy. The EU and member states have shared competencies for adopting regulations in the following areas:

- European single market.
- Employment and social affairs.
- Economic, social and territorial cohesion.

Sectors and topics covered include agriculture, fisheries, the environment, consumer protection, transport, trans-European networks, energy, justice and fundamental rights, migration and home affairs, public health (for aspects defined in Article 168 of the Treaty on Functioning of the European Union (TFEU)), research and space, and development of cooperation and humanitarian aid.

The last category is where member states have exclusive power to regulate, while the EU can only provide support (supporting competencies). These areas include public health, industry, culture, tourism, education and training, youth and sport, civil protection, and administrative cooperation.

**Social security and social protection** (i.e. social security) are a subcategory of social policy, which is a shared competence between the EU and member states under Article 4 [TFEU](#). It is mainly covered under Articles 151-161 TFEU. Article 151 TFEU sets out the EU and member states' objective of promoting 'proper social protection'. Article 153 TFEU states that the EU shall 'support and complement' the activities of member states in the field of social security and social protection of workers by, for instance, encouraging cooperation and best practice.

**Social security systems** may differ significantly from one member state to another. Individual national governments are free to determine features of their own social security systems (benefits provided, conditions for eligibility, calculation of benefits, contributions to be paid). These systems are governed by Regulation ([EC](#)) No 883/2004<sup>13</sup> on the coordination of social security systems with regard to sickness, maternity and paternity, family, invalidity, survivors',

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<sup>13</sup> EUR-Lex. Accessed 11-15 July 2022: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02004R0883-20140101>

unemployment and pre-retirement benefits, and in respect of work-related accidents and diseases, old-age pensions and death grants, as well as [Regulation \(EC\) 987/2009](#)<sup>14</sup> on the process for implementing the former regulation<sup>15</sup>.

Each EU member state has its own social security laws. The obligations and rights under these laws are the same for all workers in that country, whether ‘locals’ or whether they come from abroad.

However, EU rules coordinate national systems to make sure **people moving to another EU country do not lose their social security cover** (for example pension rights and healthcare) and always know which national laws apply to them<sup>16</sup>. In this regard, the Treaty on the Functioning of the European Union defines, that EU has the mandate to provide common rules to protect individuals’ social security rights when moving home within Europe (i.e. EU 27 plus the EEA countries of Iceland, Liechtenstein, Norway and Switzerland). The rules are not intended to replace national systems with a single European one. Rather, all member states have legislation defining which benefits are granted and under what conditions. A more uniform legal framework across EU member states is considered essential to facilitate the single European market, including free movement of labour. This includes deepening and strengthening of the EU Digital Single Market. Thus, the EU legal framework regulates many key aspects of digital transformation, such as the re-use of Public Sector Information(PSI) and data protection and privacy through GDPR etc. EU legal acts are adopted as Regulations or Directives. This requires each EU member state adopting EU acts into the national legal system, but this national implementation may vary as long as the stated aims of the EU acts are achieved.

In addition to EU regulations directly applicable in all member states, social security complies with several pieces of legislation to enable large-scale digitisation. Table 6 summarises the most important legal acts that are used at EU level, with respect to the digital transformation society, the private and public sectors, including social security.

	yes/no	Name of acts and regulations	Description
<b>General Digital transformation legislation</b>	yes	Digital Services Act (proposal)	<b>Digital Services Act (proposal)</b> has been proposed by the European Commission and aims to create a safer and trusted online environment for European citizens and businesses by laying down a set of harmonised EU-wide rules to ensure transparency, accountability and regulatory oversight of the EU online space.
<b>eID and PKI legislation</b>	yes	Regulation (EU) No 910/2014 on Electronic Identification and Trust Services for Electronic Transactions in the Internal Market (eIDAS Regulation)	<b>Regulation (EU) No 910/2014 on Electronic Identification and Trust Services for Electronic Transactions in the Internal Market (eIDAS Regulation)</b> . The Regulation ensures that people and businesses may use their national electronic identification schemes (eIDs) to access public services in other EU countries where eIDs are available and created an internal European market for trust services, by ensuring that these will

<sup>14</sup> EUR-Lex. Accessed 11-15 July 2022: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009R0987>

<sup>15</sup> European Parliament. Briefing. EU Policies – Delivering for citizens. Healthand social security. Accessed 11-15 July 2022: [https://www.what-europe-does-for-me.eu/data/pdf/focus/focus09\\_en.pdf](https://www.what-europe-does-for-me.eu/data/pdf/focus/focus09_en.pdf)

<sup>16</sup> Your Europe. Social Security. Accessed 11-15 July 2022: [https://europa.eu/youreurope/business/human-resources/social-security-health/social-security/index\\_en.htm](https://europa.eu/youreurope/business/human-resources/social-security-health/social-security/index_en.htm)

			work across national borders and will have the same legal status as traditional paper-based processes.
Access to Public Sector Information	yes	<p>Regulation on a Single Digital Gateway to Provide Access to Information, to Procedures, and to Assistance and Problem-Solving Services (Regulation (EU) 2018/1724)</p> <p>Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies (Web Accessibility Directive)</p>	<ul style="list-style-type: none"> <li>• <b>Regulation on a Single Digital Gateway to Provide Access to Information, to Procedures, and to Assistance and Problem-Solving Services (Regulation (EU) 2018/1724)</b> on establishing and operating a single digital gateway to provide citizens and businesses with easy access to high-quality information, the use of procedures by cross-border users, and implementation of the 'once-only' principle.</li> <li>• <b>Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies (Web Accessibility Directive)</b> aims to ensure equal access to public sector information and services for people with disabilities and to harmonise approaches to accessibility, and to reduce technical barriers in the digital single market.</li> </ul>
Security, Data Protection and Privacy legislation	yes	<p>General Data Protection Regulation (EU) 2016/679</p> <p>Directive (EU) 2016/680 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data</p> <p>Regulation (EU) 2018/1725 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data</p> <p>Regulation (EU) 2018/1807 on a Framework for the Free Flow of Non-Personal Data in the EU</p> <p>Directive (EU) 2016/1148 concerning measures for a high common level of security of network and information systems across the Union (NIS Directive)</p>	<ul style="list-style-type: none"> <li>• <b>General Data Protection Regulation (EU) 2016/679</b>, or GDPR, replaces the Data Protection Directive 95/46/EC, and its goal is to harmonise data privacy rules in the EU, protect EU citizens' privacy by bringing a new approach to data privacy and to impose new regulations and standards, especially relating to the territorial scope, data subjects' rights, consent standards, fines, etc. GDPR strengthens data subjects' rights by establishing clear rules and standards, such as the rights to information, access, rectification, withdrawal of consent, objecting (in general), objecting to automated processing, erasure (Right to be forgotten) and data portability.</li> <li>• <b>Directive (EU) 2016/680 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data.</b> The Directive lays down rules relating to the protection of natural persons, with regard to processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or executing and enforcing criminal penalties, including safeguarding against and preventing threats to public security.</li> <li>• <b>Regulation (EU) 2018/1725 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data.</b> The Regulation sets forth rules applicable for processing of personal data by European Union institutions, bodies, offices and agencies. It is aligned with the GDPR and the Data Protection Law Enforcement Directive.</li> <li>• <b>Regulation (EU) 2018/1807 on a Framework for the Free Flow of Non-Personal Data in the EU.</b> The regulation aims to achieve a more competitive and integrated EU market for data storage and/or processing services and activities.</li> <li>• <b>Directive (EU) 2016/1148 concerning measures for a high common level of security of network and information systems across the Union (NIS Directive).</b> The Directive provides legal measures to boost the overall level of cybersecurity in the EU. The European Commission submitted a proposal for a review of the NIS Directive (the NIS 2 Directive).</li> </ul>

<p><b>Re-use of Public Sector Information</b></p>	<p>yes</p>	<p>Directive on open data and the re-use of public sector information Data Governance Act (proposal) Data Act (proposal) AI Act (Proposal)</p>	<ul style="list-style-type: none"> <li>• <b>Directive on open data and the re-use of public sector information (Directive (EU) 2019/1024)</b> establishes a set of minimum rules governing re-use and practical arrangements for facilitating re-use of public sector information.</li> <li>• <b>Data Governance Act (proposal)</b> has been proposed to regulate the data governance mechanism that would facilitate data sharing across the EU and between sectors.</li> <li>• <b>Data Act (proposal)</b> is proposed to create a framework for data sharing.</li> <li>• <b>AI Act</b> proposes horizontal rules for the development, commodification and use of AI-driven products, services and systems</li> </ul>
<p><b>eCommerce legislation</b></p>	<p>yes</p>	<p>Directive 2000/31/EC on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce) Digital Services Act (proposal) Digital Market act</p>	<ul style="list-style-type: none"> <li>• <b>Directive 2000/31/EC on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce).</b> The e-Commerce Directive is the legal framework for the EU's online services. It aims to remove obstacles to cross-border online services.</li> <li>• <b>Digital Services Act (proposal)</b> has been proposed by the European Commission and aims to create a safer and trusted online environment for European citizens and businesses, by laying down a set of harmonised EU-wide rules to ensure transparency, accountability and regulatory oversight of the EU online space (European Commission, 2021).</li> <li>• <b>Digital Market Act</b> seeks to address imbalances in digital markets in the EU arising from dominance of large online platforms (so-called gatekeeper platforms), by setting out harmonised rules that define and prohibit certain unfair practices by gatekeepers and providing an enforcement mechanism based on market investigations.</li> </ul>
<p><b>eCommunication legislation</b></p>	<p>yes</p>	<p>Directive (EU) 2018/1972 establishing the European Electronic Communications Code</p>	<p><b>Directive (EU) 2018/1972 establishing the European Electronic Communications Code</b> The European Electronic Communications Code updates and merges EU telecommunications rules under one regulatory framework designed to boost connectivity and to better protect users throughout Europe. The Law sets the basis for digital communications in the EU (and its member states), and implements the EU regulatory framework for electronic communications, namely: Directive 2002/21/EC (Framework Directive); 2002/20/EC (Authorisation Directive); 2002/19/EC (Access Directive); 2002/22/EC (Universal Service Directive); and 2002/58/EC (Directive on privacy and electronic communications).</p>

**Table 6: eGovernment Legal Framework in the EU** (Source: European Commission, 2021)

With respect to the technical infrastructure, the role of the EU is to establish an appropriate legal basis and standards for harmonisation and re-use of major key enablers used within and between member states, including Digital ID, the national Public Key Infrastructure (PKI) schemes, Single Sign-On (SSO) etc. The objective of the EU legal framework is to establish infrastructure and transform standards enabling the EU to be transformed into a single market, or region, with a legal framework for cross-border use of eID and trust services, particularly those provided by the public sector. Table 10 summarises the key regulations, standards and principles relating to key digital enablers.

	yes/no	Solution	Description
<b>Electronic ID</b>	yes	eIDAS Regulation	The Regulation ensured that people and businesses could use their own national electronic identification schemes (eIDs) to access public services in other EU countries where eIDs are available and created a European internal market for trust services, by ensuring that they will work across borders and have the same legal status as traditional paper-based processes.
<b>Public Key Infrastructure (PKI)</b>	yes	eIDAS Regulation	This Regulation ensured that people and businesses may use their own national electronic identification schemes (eIDs) to access public services in other EU countries where eIDs are available, and created a European internal market for trust services by ensuring that they will work across borders and have the same legal status as traditional paper-based processes.
<b>Single Sign-On (SSO)</b>	yes	EU Login	<b>EU Login</b> authentication service (previously <b>ECAS</b> ). Allows users access to a wide range of European Commission information systems.
<b>National data exchange platform</b>	yes	<ul style="list-style-type: none"> <li>European Interoperability Framework (EIF)</li> <li>Electronic Exchange of Social Security Information (EESSI)</li> <li>European Social Security Pass pilot project</li> </ul>	<ul style="list-style-type: none"> <li><b>European Interoperability Framework (EIF) for cross-border data exchange</b> provides specific guidance and 47 recommendations for member states on how to set up interoperable digital public services.</li> <li>Electronic Exchange of Social Security Information (EESSI): IT system that helps social security institutions across the EU exchange information relating to different branches such as applicable legislation, sickness, occupational diseases and accidents at work, pensions, unemployment and family benefits more rapidly and securely, as required by EU rules on social security coordination.</li> <li>European Social Security Pass pilot project: aims to explore the feasibility of a digital solution to improve cross-border verification of social security coverage and to address challenges in mobile citizens' identification and authentication for social security coordination purposes. The solution will be developed by leveraging the European Blockchain Services Infrastructure (EBSI) platform, the first EU-wide blockchain infrastructure supporting delivery of cross-border services, for instance, for citizens to manage their own identity, educational credentials and register documents.</li> </ul>
<b>Once-only principle</b>	yes	Single Gateway Regulation	The Regulation covers establishment and operation of a single digital gateway to provide citizens and businesses with easy access to high-quality information, use of procedures by cross-border users, and implementation of the 'once-only' principle.
<b>Digital post</b>	yes	<ul style="list-style-type: none"> <li>eIDAS Regulation</li> <li>Directive for the Electronic Communications Code</li> <li>Digital Services Act (proposal)</li> </ul>	The current and proposed legal frameworks set up the legal basis for ensuring two routes to electronic communication between public administrations and citizens and businesses, including establishing digital post.
<b>Usability service standards</b>	yes	Accessibility requirements for ICT products and services (EN 301549:2021)	This standard specifies the functional accessibility requirements applicable to ICT products and services, with a description of the test procedures and evaluation methodology for each accessibility requirement, in a form suitable for use in public procurement within Europe (CEN/CENELEC, 2022).

<b>Personalised and proactive services</b>	yes	2030 Digital Compass	One of the 2030 Digital Compass (strategy) priorities is digitalisation of public services, providing easy-to-use, efficient and personalised services and tools with high security and privacy standards, ensuring that it will be fully accessible for everyone including people with disabilities.
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**Table 7: Availability of the major key enablers and standards in the EU**

(Source: European Commission, 2021)

## 5. BACK-END SERVICE PRODUCTION ECOSYSTEM

The EC has developed support for back-end ecosystem, initiatives to advance digitisation in order to coordinate social security systems. Concepts and technologies have been examined to streamline data exchange between social security institutions and prevent fraud. The objective is to make it easier for mobile EU citizens to access information from and communicate with social security institutions. Several initiatives have been adopted, including the Electronic Exchange of Social Security Information (EESSI), European Social Security Pass (ESSP) and the European Health Data Hub.

**The European Commission developed an EESSI Infrastructure<sup>17</sup>.** The Electronic Exchange of Social Information is designed to add and strengthen protection of social security rights, by allowing social security institutions to process claims for social security benefit across national boundaries. This infrastructure's purpose is to simplify European citizens' formalities for an interchange, that should theoretically be processed abroad. This IT system seeks to facilitate data exchange between social security organisations in the EU. It allows dematerialisation of exchanges between relevant institutions to exchange social services information. In addition, it will enable national social security institutions to determine social security rights, combat fraud and errors, and handle personal data securely. This server, hosted by the EC, will route electronic documents from the local body to the insured person's affiliation body. Nearly 200 forms are affected by this integration. Social security institutions across the EU plus Iceland, Liechtenstein, Norway, Switzerland and the United Kingdom exchange information digitally through EESSI. All 32 participating countries are connected to the EESSI system and are able to conduct electronic exchanges on some of the business processes. In 2022, EESSI is expected to be in full production in all participating countries. This system speeds up and simplifies information exchange between social security institutions in a secure manner. Figure 4 outlines the EESSI concept.

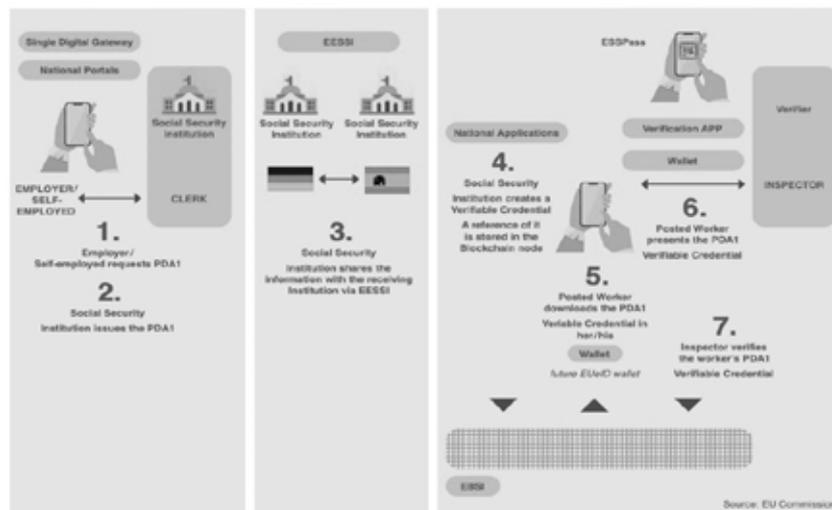


Figure 4: Digitalising the coordination of the social security systems (Source: EU Commission)

<sup>17</sup> <https://ec.europa.eu/social/main.jsp?catId=1544&langId=en>

**European Social Security Pass (ESSP)<sup>18</sup>** is an EU pilot project (launched in 2021) in collaboration with the Italian Social Security Institution (Istituto Nazionale della Previdenza Sociale (INPS)). The aim is to explore feasibility of a European Social Security Pass to simplify citizens' interactions with social security institutions, healthcare providers and labour inspectorates. The ESSP is a digital solution to improve portability of social security rights across national boundaries. The EU pass permits digital verification of citizens' social security coverage and entitlements by competent actors and institutions. It will also address challenges in identifying and authenticating mobile citizens' for social security coordination purposes. The ESSP solution will adopt the European Blockchain Service Infrastructure (EBSI) platform. It is the first EU-wide blockchain infrastructure supporting delivery of cross-border services, allowing citizens to manage their identity, educational credentials, and registration documents. This pilot includes: Digitalisation of the process for document portability; A digital wallet owned by mobile people handling social security credentials verifiable online across borders; Mobile people are in control of their personal data. No need for a unique identifier, such as a European Social Security Number, and; More efficient cross-border verification and fraud reduction.

**European Health Data Space<sup>19</sup>** is a health-specific ecosystem encompassing rules, common standards and practices, infrastructures and a governance framework that aims to empower individuals to utilise increased digital access for improved control of their personal health data on a national level and EU-wide and to support their free movement, as well as fostering a genuine single market for electronic health record systems, relevant medical devices, and high-risk AI systems. It will also provide a consistent, trustworthy and efficient set-up for using health data for research, innovation, policy-making and regulatory activities. The European Health Data Space will provide a setting for accessing and processing a wide range of health data. It builds on GDPR, the Data Governance Act and the Network Information Systems Directive (NIS).

In addition, the EC launched a public consultation on formulating a set of EU digital principles as a follow-up to the 2030 Digital Compass communication<sup>20</sup>. These principles would be integrated into the joint declaration of main EU institution members. They will commit to digitalisation of social security and healthcare systems. The goal of EU digital principles<sup>21</sup> is to ensure the development of policies (EEESI, European Social Security Pass and the European Health Data Space), to increase sustainability and accessibility within and across borders that will allow users to be informed, and will guide policymakers and digital operators such as:

Principals	Adaptation to Digital Social and Health security.
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<sup>18</sup> <https://ec.europa.eu/social/main.jsp?catId=1545&langId=en>

<sup>19</sup> [https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space\\_en](https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space_en)

<sup>20</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021DC0118>

<sup>21</sup> Digital principles are rooted in primary EU law, notably the Treaty on European Union (TEU), the Treaty on the Functioning of the European Union (TFEU), the Charter of Fundamental Rights and case-law of the Court of Justice of the European Union, as well as in secondary legislation

<b>Universal digital education and skills for people to take an active part in society and democratic processes</b>	When it comes to specific online services provided by public administrations, and in particular social security institutions, digitalisation can help improve the accessibility and availability of services. Social security institutions are adapting their IT infrastructure to facilitate portability and interoperability of data through EESSI. Digitalisation does not eliminate the need to maintain face-to-face services, including as access for people with limited digital skills or specific needs.
<b>Accessible and human-centric digital public services and administrations</b>	Digital skills development and education should be a priority to avoid the risk of excluding an important part of the population from accessing online services. It should be provided as part of lifelong learning. However, digitalisation raises the stakes for work-life balance by requiring workers to be available at all times.
<b>Access to digital health services</b>	Access to inclusive and equitable digital health and care services and their electronic health records should be coupled with investment in digital health literacy, minimum standards for telehealth equipment and, at the same time, reinforced community-based services. In personalised medicine, new digital technologies and health data should be leveraged to promote targeted risk diagnosis and foster the shift towards prevention.
<b>European digital identity</b>	Digital identity provides beneficiaries secure access to online social security services. New tools might be needed in this field, specifically to verify insurance status abroad in a timely, secure and GDPR-compliant manner. For instance, an EU system to strengthen recognition of national social security identifiers, with high data reliability could be useful. It should be stressed that any EU tool should be developed in close cooperation with social security institutions.
<b>Additional digital principles</b>	<p>Establishing common EU governance and infrastructure(s) for (sensitive) data exchange and placing safeguarding occupational health &amp; safety and worker's rights on an equal footing as fundamental rights.</p> <p>It is important to maintain and continue fostering a high level of data protection while implementing services, in full compliance with GDPR.</p>
<b>Ethical principles for human-centric algorithms</b>	Promoting a citizen-centred approach to designing AI solutions highlights the importance of avoiding algorithm-based decisions and their impact on people. This is particularly relevant for developing AI-enabled digital solutions which apply to healthcare. To ensure trustworthy and secure uptake of AI, mechanisms behind AI must be transparent and human oversight must be maintained.

**Table 8: EU Digital principles<sup>22</sup>**

The EC will propose including such a set of digital principles and rights in an inter-institutional declaration between the EC, EP and the Council. The digital principles are a proposal from the EC and build on and complement the experience of the European Pillar of Social Rights.

Other solutions and experiences show directly or indirectly how we guide digital transformation of social security in the EU, and include the following large-scale and fully funded pilot study:

- Pan-European Public Procurement Online (PEP-POL)<sup>23</sup> which developed Business Interoperability Specifications (BIS) for common e-Procurement processes such as e-Catalogue, e-Orders, and e-Invoices to standardise electronic documents exchanged

<sup>22</sup> Public consultation on a set of European Digital Principles available at: <https://digital-strategy.ec.europa.eu/en/consultations/public-consultation-set-european-digital-principles>

<sup>23</sup> PEP-POL, <https://peppol.eu/>

and validated through an open and secure network, between sending and receiving Access Points for public sector buyers and their suppliers across Europe. The PEP-POL project has been a key driver of both the European Interoperability Framework (EIF), as well as for promoting the once-only principle.

- Secure identity across borders linked 2.0 (STORK)<sup>24</sup>, on cross border recognition and use of secure and trusted electronic identities and signatures. This developed a cross-border interoperability eID platform, common specifications including manuals, guidelines and common codes and attributed a quality authentication assurance (AQAA) framework, enabling a quality rating.
- The Once-Only Principle Project (TOOP)<sup>25</sup> for once-only and cross border data exchange, identification and services. With a particular focus on data from businesses, this explored and tested better ways of exchanging data or documents with and between public administrations and reduced administrative burdens for both businesses and public administrations.

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<sup>24</sup> STORK, <http://science2society.eu/content/stork-20>

<sup>25</sup> TOOP, <https://toop.eu/>

## 6. FRONT-END SERVICE DELIVERY ECOSYSTEM

The EU implemented measures at an early stage, to ensure that working in another member state does not result in losing social security rights. These measures enable mobile workers in the EU to claim health, pension insurance and unemployment benefits under simplified conditions, when they move to another member state. They are protected under the European coordination law regarding social security.

The EU provides a number of services and strives to make social security more client-oriented, visible and digitally accessible.

The EU front-end is described by two policies for improving communication between citizens and social security<sup>26</sup>: Health and care policies and social security policies. Some of these digital service delivery programs are presented in Table 9.<sup>27</sup>

Policies	Descriptions
<b>Health and Care Policy program</b>	<ul style="list-style-type: none"> <li>Measures to support members states' health reforms include effective, accessible, and resilient health systems (Commission communication, 2014).</li> <li>Measures to strengthen country-specific and EU-wide knowledge and to look at how health systems can remain fit for purpose, and help people improve their health (State of Health in the EU, 2016).</li> <li>The Commission's communication on transformation of Digital health and care set out a plan to enhance digitisation of health and care sectors in citizen empowerment and person-centred care.</li> <li>EU is also exploring the option of establishing a platform for monitoring vaccinations.</li> <li>Strengthening health systems by assisting health authorities in digital transformation of health and care through national reform processes and programmes.</li> </ul>
<b>Social Security Policy program</b>	<p>The following initiatives apply to the relationship between EU citizens and social security institutions and are intended to complement the EESSI:</p> <ul style="list-style-type: none"> <li><b>The EU social security number</b> initially adopted for EU citizens is considered a uniform, cross-system identifier in all member states. It should enable clear identification of people and a quick check of social security status across national borders. It should also contribute to avoiding errors when exchanging data and combating abuse when claiming social security benefits. The Regulatory Scrutiny Board recently stopped it.</li> <li><b>European Digital Identity and ID-Wallet store digitally</b>, in which case a person will be identified via the EU-ID. The ESSP should enable relevant actors and labour inspectors to digitally check the social security status as well as benefits and entitlements for mobile EU citizens in real time, once they have been identified. ID-wallets will be based on national systems, provided that they already exist, and will be issued by member states within twelve months of the proposed regulation coming into force.</li> <li><b>Single Digital Gateway</b>. SDG is a module for digitising communications between EU citizens and social security institutions. The purpose of SDG is to create a uniform European portal for data and digital handling of specific administrative procedures within the EU. This portal should also include an overview of essential rights and obligations under EU law.</li> <li><b>Your Europe Platform</b>. Standard digital point of contact between EU citizens and the public administration of member states, including social security institutions. Portals belonging to all member states have been bundled into the common EU portal since the end of 2020, and this allows EU citizens to search in all EU languages and access national portals. In the field of coordination of social security systems, this will include requests for the portable PDA1 document, the EHIC and pensions of mobile EU citizens. Several European social security organisations already provide relevant information online, such as health insurance cover, unemployment or retirement pension information in keeping with SDG requirements,</li> </ul>

<sup>26</sup> [https://dsv-europa.de/lib/03\\_Themenletter/ED\\_0321/Themenletter\\_ed\\_0321\\_EN\\_ba.pdf](https://dsv-europa.de/lib/03_Themenletter/ED_0321/Themenletter_ed_0321_EN_ba.pdf)

<sup>27</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_18\\_4043](https://ec.europa.eu/commission/presscorner/detail/en/IP_18_4043)

	<p>and they are working to have all procedures set up online by 2023. However It seems to be complex to implement the Once-only principle.</p>
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**Table 9: Healthcare and social security programmes**

The front-end should promote inclusive growth and social cohesion by focusing on economic empowerment of people through a life-course approach. For the young, the right to social protection must be upheld in an increasingly digital and globalized economy where platform work and migration are widespread. Social security efforts during the pandemic of the last two years or more were particularly effective in this regard. During the pandemic, unemployment and sickness insurance benefits were key pillars of social security responses. Social security institutions focused on business continuity and service delivery to support people, and ensure they had jobs.

Digitalisation strategies implemented during the pandemic were essential for further development of effective citizen-oriented social security systems and services. Protection under social security law across European national borders requires extensive exchanges between social security institutions in relevant countries. Exchanging necessary data, forms and invoices were paper based, but they will soon become solely electronic processes. The COVID 19 pandemic recently accelerated these processes. Nine participating countries were already fully connected to the process for exchanging social security data electronically within the EU by October 2021. Other countries are close to finalisation.

## 7. SKILLS AND CAPABILITIES

The EC is determined to tackle issues relating to the digital skills gap and to promote strategies improving the level of digital skills, to allow EU citizens to access healthcare as well as social security and protection benefits.

Many Europeans do not have adequate digital skills. The DESI shows that 4 out of 10 adults and every third person who works in Europe lack basic digital skills. This is the case especially among women and the most vulnerable members of society, who also need health cover and social protection. The EC has set targets with the European skills agenda and the digital education action plan, to ensure that 70% of adults have basic digital skills by 2025. The European Pillar of Social Rights Action Plan intends<sup>28</sup> to target raising the proportion of adults with at least basic digital skills to 80%, by 2030. As recommended by digital principles, access to education facilitating acquisition of basic digital skills should be a right for all EU citizens, and lifelong learning should become a reality to allow all Europeans to fully benefit from welfare in an inclusive digital society.

The EU has also implemented the digital skills platform, a new initiative providing information and resources on digital skills, training and funding opportunities. Furthermore, the EU is investing €700 million to ensure that the current and future workforces have the opportunity to easily acquire advanced digital skills through long-term and short-term training courses and on-the-job training, regardless of the member state they reside in. In the Digital Europe Programme, Digital Innovation Hubs will carry out targeted programmes for public administrations to equip healthcare and social protection staff and personnel with the advanced skills needed, to be able to access the new opportunities offered by supercomputing, artificial intelligence and cybersecurity.

Large technological projects for Europe's digital transition require a European approach to building digital capacities. However, European capacities need a critical mass of funding and alignment of all actors. A high-tech partnership is planned to ensure this, for digital skills through the Pact for Skills. Growing and widening gaps for ICT specialists in all ecosystems, regions and member states affect and impact the public sector in particular. A large-scale multi-stakeholder skills partnership is proposed as the primary strategy to fill this gap. It will allow building bridges between supply and demand, foster more significant public-private investment, increasing the quantity and quality of provision of specialised education and training and boosting excellence in higher education institutions, making them more attractive and responsive to needs of the labour market in terms of digital agendas, and improving the general digital skills level for transition to the EU-Digital society.

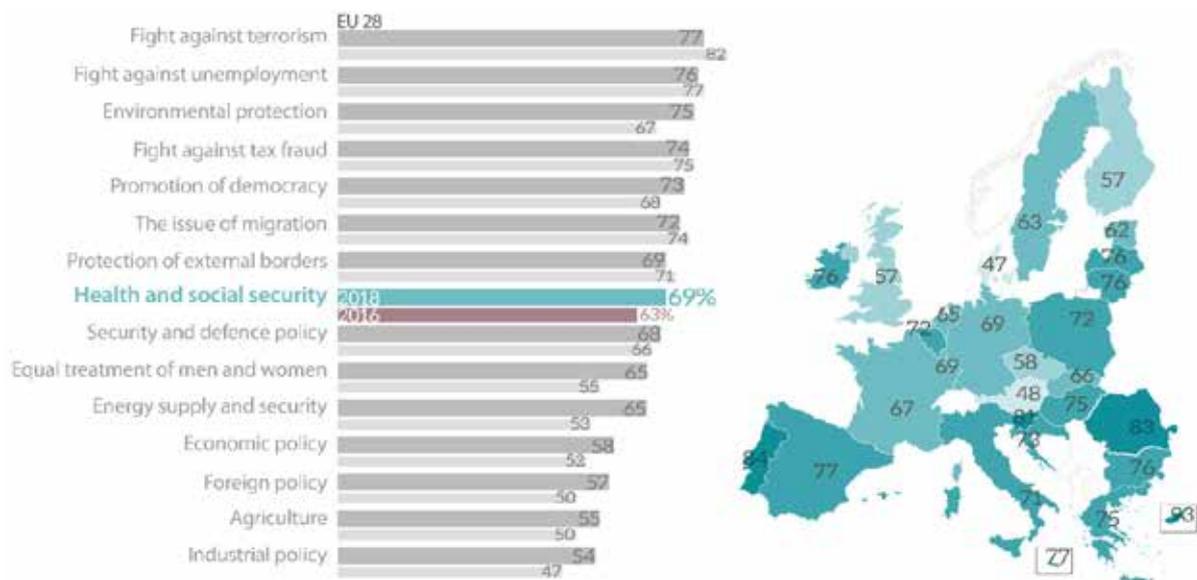
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<sup>28</sup> The European Pillar of Social Rights Action Plan COM (2021) 102. Adopted on 3 March 2021.

## 8. EXPANDING INCLUSION AND COVERAGE

The EU and specifically the EC, welcome member states' strong commitment to making Europe fair, inclusive and full of opportunities. With their national commitments, member states are supporting joint efforts to reach the three EU headline targets for employment, skills and reducing levels of poverty. Still, according to ISSA (International Social Security Association), the main challenges for social security services in the EU are still covering gaps, demographic changes and labour market transformations that require adaptation and reforms. In this sense, it is essential to maintain and extend social security coverage using digital platforms and technologies. The EU and many European governments are taking important steps to address this.

Given the increased demands and expectations from EU citizens, as illustrated in Figure 5 below, the EC has developed an important program to support upcoming development in the field of social protection and healthcare cover. A critical priority area is ensuring and extending social security cover for migrant workers through bilateral and multilateral agreements, and ensuring that people access their rights to social security.<sup>29</sup>



To achieve this, the EC has initiated a number of specific activities. For instance, the **Europe 2020 strategy**<sup>30</sup> for smart, sustainable and inclusive growth, which aims to lift at least 20 million people out of poverty and social exclusion.

The **European Pillar of Social Rights Action Plan** sets out the EU's ambition for a strong social Europe that focuses on jobs, skills and social inclusion, which is translated in three **EU-level social targets to be achieved by 2030**, including: A minimum of 78% of people aged from 20 to 64 should be in employment; at least 60% of all adults should participate in training every year, and; the number of people at risk from poverty or social exclusion should be reduced by at least 15 million, including at least 5 million children, in comparison to 2019.

The flagship initiatives of the Europe 2020 strategy, including the **Platform against Poverty and Social Exclusion** and the **Agenda for New Skills and Jobs**<sup>31</sup>, support efforts to achieve these targets.

Through its **Social Investment Package**, the Commission provides guidance to member states, to modernise their welfare systems towards social investment throughout life. The package complements: **Employment Package**<sup>32</sup>, which sets out the way ahead for a job-rich recovery; **Youth Employment Package**, which deals specifically with the situation of young people, and; **White Paper on Pensions**<sup>33</sup>, presenting a strategy for adequate, sustainable and safe pensions.

For the 2021-2027 period, the most significant part of funding is planned to be allocated for improving social inclusion, health, education, and employment:

- For the healthcare policy, a substantial effort (and expenditure) is planned to strengthen the health systems by assisting health authorities in digital transformation of health and care and national reform processes. Furthermore, new initiatives are planned to be designed supporting, among other things, EU health legislation for health technology assessment and consolidating cooperation among member states for assessing health technologies.
- For the social security policy, an essential part of the social inclusion program, particularly in member states with above EU-average rates of young people neither in employment nor in education or training, should dedicate some of the budget to social innovation and cross-border test innovations. There is a programme to modernise coordination of social security systems through new technologies, as well as improving transparency and legal predictability of working conditions. This modernisation takes into consideration the role of the EU commission to adapt social

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<sup>30</sup> European Commission. Social protection & social inclusion. Accessed on 11-15 July 2022: [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester\\_en](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester_en)

<sup>31</sup> European Commission. Employment, Social Affairs and Inclusion. Policies and activities. Accessed on 11-15 July 2022: <https://ec.europa.eu/social/home.jsp?langId=en>

<sup>32</sup> European Commission. Employment, Social Affairs and Inclusion. Employment package. Accessed on 11-15 July 2022: <https://ec.europa.eu/social/main.jsp?catId=1039&langId=en>

<sup>33</sup> European Commission. Employment, Social Affairs and Inclusion. EU sets out plans for adequate, safe and sustainable pensions. Accessed on 11-15 July 2022: <https://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=1194&furtherNews=yes>

protection schemes to the new reality, to accommodate the platform for remote workers, atypical workers and situations. Reforms will be necessary, to reduce the difference in treatment across different forms of work and to expand social protection, such as improving effective access to social security systems and not just statutory access.

There is also a request from the EP to the EC to consider introducing a European social security card or another EU-wide document, subject to strict data-protection rules, to make it easier to exchange data and carry out a pilot project for a European early-warning system on undeclared work. As a new way of building digital public services, including social security services, Government as a Platform will provide holistic and easy access to healthcare platforms and social security services with a seamless interplay of advanced capabilities, such as data processing, AI and virtual reality.<sup>34</sup>

Collectively, the aim is for the EU framework to lead to broad deployment of trusted, user-controlled identities, allowing each citizen to control their online interactions and presence by 2030, while all Europeans will have full use of user-centric, easy to use online services throughout the EU while preserving their privacy.<sup>35</sup>

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<sup>34</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021DC0118>

<sup>35</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021DC0118>

## 9. LESSONS LEARNED

The EU, as a whole, is a collection of relatively strong welfare states where digital transformation is driven either by an ageing population, pressure to increase efficiency and productivity, or a combination of both. It is defined by a specific model based on a collective agreement of 27 individual member states.

With respect to many parameters, the EU is collectively the global leader in digital transformation of the public sector and social security. The EU has successfully implemented electronic and digital government and the majority of member states continuously rank in the top quartile of the UNDESA biannual E-Government Readiness Survey and Index. Across the EU, individual member states are considered global innovators with regards to digital service delivery and citizen participation.

With respect to digital transformation of social security, the EU and its institutions defined a vision and several programmes to improve citizen access to healthcare and social security and protection across EU member states. Specifically, the EU's objective is to ensure that social security and protection online will be fully accessible for everyone by 2030. This involves transformation of all communications between the social security institutions, beneficiaries, and contributors, and third parties where relevant.

With respect to digital transformation of social security across EU member states, the EU has initiated numerous initiatives relating to backend and frontend ecosystems, with the strategic objective of:

- Supporting digital portability of social security entitlements for mobile workers (EU term for cross-border labour movements).
- Ensuring compliance with EU norms and standards, including EU GDPR, IOP, EA, IDM standards.

That said, considerable investment is still needed on a European level and within individual member states. Like big countries with federal structures, digital transformation of social security in the EU has an added layer of complexity. This complexity is the result of:

- National social security systems, their corresponding administrative structures, the degree of digitisation and type of technologies used differ from one another. The administrative procedures embodied in these technologies will therefore differ.
- Systems compatibility and data interoperability takes times to implement, as illustrated by EESSI.
- The EU-ID, as a key enabler for online IDM and cross-border social security provision, in the ESSP project, requires further adjustments in member states, and it cannot be implemented in the short term.
- Alignment between EU and member states' regulatory frameworks remains problematic.
- Compliance with EU wide standards for IOP, IDM, GDPR are at times problematic, as they may be interpreted differently by individual member states.

Specific lessons to be learned from EU cases relate to strategy and policy formulation. In practice, strategic direction of both social service and digital transformation is formulated directly at an EU level. This ensures that all member states are moving in the same direction and all adopt a similar timeframe (*i.e. to change*). The multi-stakeholder governance model ensures political co-ownership of EU level decisions within and across member states. This in turn, establishes a basic strategic framework for digital transformation of social security in central, regional and local government. For instance, in the most recent EU policies and strategies, the EU encourages member states to optimise delivery of social services, transparency, and inclusion through utilising technologies. In doing so the EU, and in particular the EC, is also establishing the foundation of data sharing and collaboration between member states and across service sectors. Solving cross-sectorial challenges through EU institutions and working groups, and use of EU-level tools for monitoring, compliance, troubleshooting/escalation. Initiatives such as DESI and I-DESI allow for monitoring, member state alignment with strategic objectives but also create a healthy sense of competition between member states, thus driving innovation and performance.

This advanced state, and the globally leading position of EU, is partly due to the early start and take up of digital transformation in several member states, but more importantly it is the result of a coordinated, collaborative, and cross-border approach. A key enabling factor, is adoption of relevant standards, legal and regulatory elements. The focus on interoperability, enterprise architecture, identity management, cyber security, data protection and privacy are key, as they establish a common reference framework for all public and private sector actors across the EU and its member states. In practice, EU standards and the legal and regulatory framework are evident, reflected across all member states and their respective levels of central, regional and local government. This includes both back-end and front-end ecosystems and individual infrastructures, systems and solutions components within the public sector and in social security.

Several lessons to be learned from EU digital transformation of the social security experience:

- Capturing the complexity of the EU landscape for social security digital transformation, a robust governance model including representatives of key national, regional and local stakeholders. This should include the public sector, i.e. social security organisations, the private sector and citizens. The governance model must set the strategic direction, monitor and measure progress, and evolve troubleshooting and escalation mechanisms.
- Digital transformation should be proactively addressed and translated in actionable policies and strategies, engaging and involving the member states and the concerned stakeholders from public sector, private sector and other partners. Strategies must include measurable strategic objectives for all social security silos, across all levels of government. The vision, mission and strategy must be underpinned by action plans and specific initiatives. Strategic and operational objectives must be linked, monitored and measured.
- Standards and the legal and regulatory framework must be established, and must cover all levels of government and must be applied across all service areas. Compliance must be monitored as part of the governance model. The greater the number of stakeholders and the greater the level of complexity of governance model (e.g. the EU or federal countries), the more important and significant a shared set of standards, the legal and regulatory framework will be. Compliance with regulations, standards in respect of

diversity is also an important factor to consider, specifically concerning data protection and privacy.

- Standards as a minimum must address: Technical, semantic, and organisational interoperability, governance of the interoperability standard plus data governance, data taxonomy and the once-only principle; Enterprise architecture; Identity management (analogue and digital); Cyber security, protection of data and privacy; Design and web accessibility standards.
- Proactive investment in ICT with key enabling infrastructure such as base registries, data distribution, eID and eSignature, shared service portals between key drivers in individual EU member states.
- Coordination and data sharing between the EU, citizens, and social security institutions from different members states exploring innovative and advanced technologies such as AI and blockchain-based infrastructure has been a critical factor for digital transformation of social security systems, particularly those involving a complex network and ecosystem. Large-scale EU pilot projects such as PEP-POL, STORK, eIDAS, TOOP successfully tested and developed models benefiting digital transformation of service delivery across the EU member states and across borders.
- Investment in continuous training is key, to develop skills and capabilities, both for beneficiaries of social security but also within the public sector and social security organisations. Improving digital literacy early in the process was part of the strength of digital transformation of the EU, and in particular social security. Similarly, EU member states which invest in continuous skills and capacity development for civil servants are seen to perform better than those who do not.

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