



Waseda University Institute of Digital Government
in cooperation with International Academy of CIO

1 . The 20th World Digital Government
Rankings 2025 Edition Released

Highlights

1. For the first time in 20 years since the rankings began, the UK has taken first place. The advantage of the countries with small populations, such as Denmark Estonia and Singapore is cleared by the ranking.
2. To develop AI is in full swing, and while it has contributed to improving the quality of government services and streamlining operations, it has not yet achieved sufficient results to drive social change. Comprehensive measures against climate change, energy/food, and large-scale disasters are still in the early stages to solve.
3. Administrative and financial reform, the starting point of digital government, is a shift to proactive fiscal spending that prioritizes public services. In today's rapidly evolving world, even leading countries are struggling to maintain fiscal discipline due to the rising initial costs of new technology and the rising maintenance and operation costs.
4. The growing risk of advanced cybersecurity, AI , and a lack of literacy in dealing with false and misinformation are becoming more serious, and a lack of response capabilities is becoming a reality, even in developed countries.
5. Both Central and local government digital policies face implementation issues such as standardization, and structural disparities are emerging.
6. There are some signs that expected progress has not been achieved in the UN SDGs 2030'inclusive design to address vulnerable groups, such as those facing rapidly aging populations around the world.
7. Digital government has a correlation with economic growth. It will have an impact on both national economic activities and national security, which are focused on digital assets and data. It will also weaken the boundaries between civilian and military in science and technology, such as semiconductors and drones.

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1. Executive Summary

Institute of Digital Government (hereafter referred to as "the Institute") has announced the 20th Waseda University World Digital Government Rankings 2025. This research and analysis cover 66 digitally advanced countries and regions, and evaluate the progress of digital governments, which are essential to people's lives. From multiple angles using 10 key indicators. The outcome is contributing to the promotion of a digital society . The report 's analysis and discussion are structured as follows:

- (1) Highlights
- (2) 2025 Survey Results – Characteristics of this year's rankings
- (3) Full ranking and top 10 country rankings for each of the 10 indicators
- (4) Historical trends in digital government based on the past 20 presentations
- (5) New trends in digital government and their impact on the economy and society
- (6) Recommendations
- (7) Evaluation method
- (8) Contributors

The edition includes scores for 66 digitally advanced countries and regions, as well as approximately 320 pages. Country- by-country evaluation reports for the top 25 countries (region) also is released.

@ Survey results for the 20th World Digital Government Rankings 2025

Comprehensive Ranking

Our institute's rankings are based on the 20-year history of d-government, which was introduced with the aim of administrative and financial reform in each country's government, and contain sufficient big data to understand the latest trends in digital government in each country. This year, as in the previous year, the rankings cover 66 countries and regions, and are evaluated. The overall rankings for the 2025, which are the 20th in the series, are shown in Table 1.

This year, the UK took first place. While maintaining its position as a "science and technology powerhouse". The UK is developing digital policies that also take into consideration the inclusiveness and sustainability of society as a whole. Denmark, which came in third last year, has risen to second place. Third place is Singapore, which came in first last year, dropping two places. In fourth place is Estonia (seventh last year), in fifth place is South Korea (same as last year), in sixth place is the Netherlands (same as last year), in seventh place is the United States (fourth last year), in eighth place is Saudi Arabia as a leader of the Middle East and oil producing group (same as last year), in ninth place is Japan (11th last year), and in tenth place is Finland, which made a huge leap from 17th place last year.

Japan, ranked 9th, announced its "Government AI" plan in this June by the Digital Agency. Countries such as the UAE are introducing AI into administrative work in preparation for an AI government. Both Singapore and South Korea are also putting AI to practical use in policy proposals and citizen responses.

A recent trend is a widening gap in the progress of digitalization between the countries surveyed. There is a difference of around 40 points between the top and bottom countries, revealing differences in progress between each country. Furthermore, the rapid progress of 11 non-Europe and US region countries of the top 25 is remarkable.

Table 1 20th Waseda University World Digital Government Rankings 2025

Rank	Country	Score	22	Australia	77.7832	45	Lithuania	66.3245
1	UK	95.5353	23	Indonesia	76.8192	46	Brunei	66.2118
2	Denmark	94.8924	24	India	76.2653	47	Brazil	66.0921
3	Singapore	94.7332	25	Spain	75.6524	48	Mexico	65.7952
4	Estonia	94.4940	26	Italy	75.4399	49	Romania	65.7006
5	South Korea	93.2292	27	France	75.4016	50	Uzbekistan	64.2491
6	Netherlands	90.0041	28	Austria	75.1211	51	Kenya	63.6843
7	USA	88.9118	29	Philippines	75.0914	52	Bahrain	63.1591
8	Saudi Arabia	88.0054	30	Malaysia	74.6291	53	Paraguay	62.9098
9	Japan	87.4509	31	Belgium	73.6713	54	Chile	62.7289
10	Finland	85.6950	32	Portugal	73.5837	55	Columbia	62.6006
11	Canada	85.5729	33	Kazakhstan	73.0981	56	Peru	62.4887
12	Germany	85.3774	34	Oman	72.8363	57	Pakistan	58.7617
13	Ireland	83.8640	35	South Africa	72.7346	58	Egypt	58.5005
14	New Zealand	82.3740	36	Czech Republic	71.8405	59	Tunisia	57.5974
15	Switzerland	82.3158	37	Israel	71.5105	60	Morocco	57.4197
16	Sweden	81.6764	38	China	70.6782	61	Argentina	56.7737
17	Thailand	81.6245	39	Poland	70.3537	62	Fiji	55.6310
18	Norway	81.5416	40	Hong Kong	70.0965	63	Nigeria	55.3305
19	Iceland	80.3447	41	Uruguay	68.6246	64	Bangladesh	54.7317
20	United Arab Emirates	80.0000	42	Turkey	67.4754	65	Costa Rica	53.3757
21	Taiwan	78.5491	43	Vietnam	67.0794	66	Ghana	52.6494
			44	Russia	66.6144			

The various factors that cause these differences in progress are summarized in a report posted on our Institute 's website (https://idg-waseda.jp/ranking_jp.htm) . The report is available in an approximately 320 pages. The Edition provides a

multifaceted analysis of each country's issues, including country-specific assessment reports. In addition to explaining the rankings, the report also summarizes the progress of digital governments around the world over the past 20 years, trends in the overall rankings, digital policies, and notable new trends.

The report marks a turning point in examining how much generative AI's implementation is becoming a reality, while its utilization is contributing to the expected results. There is no denying the trend that it is taking too long to realize its contribution to administrative and financial reform, which has been the greatest concern since the beginning. Even the core elements of digital government governance, such as ensuring not only efficiency and productivity but also reliability and transparency, are unable to keep up with the speed of technological evolution, and an urgent strategic revision is required in this world.

2. The progress of digital governments over the past 20 years

The following characteristics are notable examples of remarkable innovations in digital government that have been identified through 20 years of research, surveys, and analysis.

@ In social networking sites , there has been an increase in government portals and apps that place emphasis on user experience (UX). In the UK and the Netherlands, progress is being made in designing these apps with consideration for people with disabilities and the elderly.

@ While the investment of people, goods, and money is essential to eliminating various digital divides, the benefits of these are not reaching those who need them.

@ Furthermore, not only accessibility (connectivity), but also AI literacy and the ability to use data are becoming new factors that create disparities.

@ Strengthening cybersecurity measures is a common concern for countries around the world. Attacks on government agencies are on the rise. The United States and the EU are moving forward with the adoption of the zero-trust model, and developing digital

@ Human resources in areas such as security has become an important issue. digital transformation and social media have led to increased demand from citizens and civic groups for digital participation and measures to improve well-being.

@ United nations with four years remaining until the goal of " SDGs 2030 " is achieved, further efforts are required to realize the goal.

@ Although digital government is not a specific target, the formation of a digital society is a social issue that must be resolved from the perspective of the equality, eradication of poverty, and elimination of disparities that the SDGs aim for, and therefore is of great importance.

@ The UN Ranking survey, which is published every two years, uses four benchmarks as indicators, but this Waseda University survey, which is conducted annually, utilizes the 10 sector-specific indicators mentioned above and has conducted extensive and detailed analyses. In particular, the recently emerging use of digital transformation and AI has been added to the evaluation indicators for ranking analysis, improving analytical capabilities.

@ 20 -year period is divided into the following three stages :
the first stage (2005-2011), second stage (2012-2019), and third stage (2020-2025) are as follows:

1st Stage 2005-2011

@ History of our survey started in 2005 as e-Government became popular among government administrative officers.

@ Also, OECD has changed the concept of electronic government (e-government) to digital government (d-gov) to cover a wide range of government activities, including various e- health applications, cybersecurity and etc.

@ Regarding the above, within the framework of the "digital economy," we will incorporate the digital revolution, including IoT and open/big data, into administrative activities to the maximum extent possible, and begin to effectively utilize PPP (public-private partnerships).

@ The spread of one-stop and one-time services to improve the quality of online services began

@ Interested in introducing electronic systems in the G2B and G2G sectors , where digital government will be a powerful tool in eradicating corruption

@ Promoting administrative transparency, efficiency, and productivity improvement through digital government in developing countries

@ Started examining the feasibility of digital government services that can replace the establishment of a mobile government

@ Countries where central and local governments (electronic local governments) are able to effectively collaborate and work together, and there are many challenges in terms of funding, services, and human resources.

@ Utilizing big data and IoT in megacities and smart cities to stay ahead of the global urbanization trend

2nd Stage 2012-2019

@ With the use of Big data, IoT , and blockchain, the race to popularize apps is on.

@ ICT professionals including CIOs , CTOs who lead research and development and technology , CISOs for cybersecurity measures , and CDOs for data management , there is a growing need to develop highly skilled ICT personnel who can adapt to the evolution of innovation.

@ The construction of broadband with features such as one-stop service , high speed, and large capacity as the best business for applications began.

@ Major governments have begun to reduce administrative costs by introducing new technologies such as the government cloud.

@ Exploring the integration of "social media" and digital government services became popular. The importance of social media has been proven in times of disaster, and the degree of integration between the two has become an issue for user services.

@Lessons learned from developed countries that have begun providing "open data" are drawing attention to whether developing and non-democratic countries can overcome political barriers to information disclosure.

@ "Big data" encourages the creation of an environment for new businesses based on active government support, and aims to create a synergistic effect with the open data measures mentioned above .

@ The issue of "cybersecurity," which continues to cause damage in many countries, has emerged as a crucial element in promoting digital government, with both the public and private sectors working together to build advanced secured digital government networks and infrastructure.

@ Digital government in emerging countries and top ICT developing countries is driven by cloud, IoT , AI , BCP (Business Continuity Plan) in the event of a disaster. These demands for new applications have brought to light the digital divide between "have countries" and "have-not countries."

@ Alongside the rapid urbanization phenomenon (megacities), smart city-compatible digital governments are gaining attention.

3rd Stage 2020-2025

@ Major governments are making progress in streamlining their operations by introducing AI .

@ Cyberattacks are intensifying faster than expected, making cybersecurity a higher priority for governments around the world .

Country survey reveals clear digital divide in technology and talent

@ UN SDG 2030 is slower than expected, and governments around the world are beginning to review the targets .

@ DX is recognized and is progressing in a wide range of sectors, both public and private .

@ SX (sustainability) has attracted the attention of major governments, and SX has become an important element in projects .

@ Governments around the world are beginning to fully utilized AI programs to develop highly skilled digital talent.

@ The " silver shift " has begun in d-government, particularly in the Japanese, Chinese and Korean governments in North Asia region.

@ Social media has begun to build a citizen-centered digital society

Table 2: Historical trends over the past 20 years of the top 10 global digital government rankings

#	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	USA	USA	USA	USA	Singapore	Singapore	Singapore	Singapore	Singapore	USA
2	Canada	Canada	Singapore	Singapore	USA	UK	USA	USA	Finland	Singapore
3	Singapore	Singapore	Canada	Canada	Sweden	USA	Sweden	South Korea	USA	South Korea
4	Finland	Japan	Japan	South Korea	UK	Canada	South Korea	Finland	South Korea	UK
5	Sweden	South Korea	South Korea	Japan	Japan	Australia	Finland	Denmark	UK	Japan
6	Australia	Germany	Australia	Hong Kong	South Korea	Japan	Japan	Sweden	Japan	Canada
7	Japan	Taiwan	Finland	Australia	Canada	South Korea	Canada	Australia	Sweden	Estonia
8	Hong Kong	Australia	Taiwan	Finland	Taiwan	Germany	Estonia	Japan	Denmark	Finland
9	Malaysia	UK	UK	Sweden	Finland	Sweden	Belgium	UK	Taiwan	Australia
10	UK	Finland	Sweden	Taiwan	Germany/Italy	Taiwan/Italy	UK/Denmark	Taiwan/Canada	Netherlands	Sweden
#	2015	2016	2017	2018	2019	2021	2022	2023	2024	2025
1	Singapore	Singapore	Singapore	Denmark	USA	Denmark	Denmark	Denmark	Singapore	UK

2	USA	USA	Denmark	Singapore	Denmark	Singapore	New Zealand	Canada	UK	Denmark
3	Denmark	Denmark	USA	UK	Singapore	UK	Canada	UK	Denmark	Singapore
4	UK	South Korea	Japan	Estonia	UK	USA	Singapore	New Zealand	USA	Estonia
5	South Korea	Japan	Estonia	USA	Estonia	Canada	USA	Singapore	South Korea	South Korea
6	Japan	Estonia	Canada	South Korea	Australia	Estonia	UK	South Korea	Netherlands	Netherlands
7	Australia	Canada	New Zealand	Japan	Japan	New Zealand	South Korea	USA	Estonia	USA
8	Estonia	Australia	South Korea	Sweden	Canada	South Korea	Estonia	Netherlands	Saudi Arabia	Saudi Arabia
9	Canada	New Zealand	UK	Taiwan	South Korea	Japan	Taiwan	Estonia	Germany	Japan
10	Norway	UK/Taiwan	Taiwan	Australia	Sweden	Taiwan	Japan	Ireland	New Zealand	Finland

*The task in Year 2020 was cancelled due to COVID-19. Totally 20 times in 21 years.

The following characteristics can be seen as notable examples of innovation over the past 20 years.

- (1) The evolution of social networking (SNS) sites is leading to an increase in government portals and apps that emphasize user experience (UX). In the UK and the Netherlands, progress is being made in designing these apps with consideration for people with disabilities and the elderly.
- (2) While the investment of people and goods, finance is essential to eliminating various digital divides, the benefits of these are not reaching those who need them. Furthermore, not only accessibility (connectivity), but also AI literacy and the ability to use data are becoming new factors that create disparities.
- (3) Strengthening cybersecurity is a common concern for countries around the world. Cyber-Attacks on government agencies are on the rise. The United States and the EU are moving forward with the adoption of the zero-trust model. And developing digital human resources in areas such as security has become an important issue.
- (4) The spread of digital transformation (DX) and social media has led to increased demand for citizen digital participation and measures to improve citizen happiness and well-being.
- (5) There are some doubts that United nations with only four years remaining until the deadline of SDGs 2030 will be achieved, further efforts are required to achieve the goals. Although digital government is not a specific target, the

formation of a digital society is a social issue that must be resolved from the perspective of the equality, eradication of poverty, and elimination of disparities that the SDGs aim for, and therefore is of great importance.

@ Evaluation Method: This research, survey and analysis began in 2005 and assesses the progress of digital governments in 66 target countries and region from multiple angles using 10 key indicators. Analysis is performed using benchmarks for each of the following 10 indicators:

1. "Digital Infrastructure Development,"
2. "Administrative and Financial Optimization,"
3. "Applications,"
4. "Portal Sites,"
5. "CIO (Chief Information Officer),"
6. "Strategy and Promotion,"
7. "Citizen Participation,"
8. "Open Government Data and DX,"
9. "Security," and
10. "AI and destructive Technologies."

This time, the report focuses on the following three global social and economic issues that need to be resolved regarding digital governments.

- (1) Government AI Support Activities
- (2) Measures on Digital Innovation for a Rapid Aging Society

About the Waseda University World Digital Government Rankings

As for the organizer, the Institute's comprehensiveness, strict neutrality and independence, advanced academic analytical capabilities, and global network are highly regarded around the world.

This evaluation model was developed by the Institute's founder and first Director, Professor Toshio Obi, as well as the ranking method was established. He is the only Japanese expert who was honorably selected by a British Think Tank as one of the "100 Most Influential People in E-Government in the World." The Institute also serves as APEC's Digital Government Research Center, and co-hosts for problem-solving Forums with the United Nations on topics such as the SDGs.

In order to obtain the latest and most accurate information for this research survey and to analyze and evaluate the data, a joint research team has been formed consisting of experts representing partner universities under the International Academy of CIO, which prof. Obi also established in 2003 as a global NGO

organization (Prof.Naoko Iwasaki at the Waseda University Institute of D-Government is now a president).

Partner universities include Peking University (China), George Mason University (USA), Bocconi University (Italy), University of Turku (Finland), Thammasat University (Thailand), Presidential Federal University of Political Science and Economics (Russia), La Salle University (Philippines), Bandung Institute of Technology (Indonesia), and the coordinating base, Waseda University (Japan).

During the research process, a team of experts exchanged opinions, and furthermore, emphasis was placed on exchanging opinions with the digital departments of national governments, as well as international organizations. The project has been completed under the guidance of Prof Iwasaki, Waseda University [Contact information]

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3. Rankings by 10 Indicators

Infrastructure NIP ranking		
order	country	Evaluation weight 8points
1	Switzerland	6.5333
2	Norway	6.5307
3	Denmark	6.5280
4	South Korea	6.5067
5	Saudi Arabia	6.4960
6	Netherlands	6.4373
7	United Arab Emirates	6.4000
8	Iceland	6.3467
9	UK	6.3387
10	Sweden	6.3040

Administrative and Financial Reform MO Ranking		
order	country	12 points
1	UK	12.0000
1	Denmark	12.0000
1	Singapore	12.0000
1	Estonia	12.0000
5	USA	11.9900
6	Finland	11.9870
7	South Korea	11.7209
8	Saudi Arabia	11.4419
8	Germany	11.4419
8	Norway	11.4419
Online service OS ranking		
order	country	14 points
1	Denmark	14.0000
2	UK	13.7273
3	Estonia	13.1364
4	Saudi Arabia	13.0909
5	Singapore	13.0000
5	Finland	13.0000
7	South Korea	12.8182
7	USA	12.8182
9	Netherlands	12.7727
10	Thailand	12.7273

Portal site NPR rankings		
order	country	6 points
1	UK	5.8929
2	South Korea	5.7857
3	Japan	5.6 78 6
3	Singapore	5.6786
5	Saudi Arabia	5.6 550
6	Estonia	5.5714
6	Netherlands	5.5714
6	Finland	5.5714
6	Iceland	5.5714
10	USA	5.4643
10	Germany	5.4643
10	Australia	5.4643
Government CIO Ranking		
order	country	10 points
1	UK	9.8305
2	Estonia	9.6610
3	Saudi Arabia	9.4915
4	Singapore	9.1525
5	South Korea	8.6441
6	Netherlands	8.3051
6	Canada	8.3051
8	Denmark	8.1356

8	USA	8.1356
10	Germany	7.7966
Promotion Policy EPRO Ranking		
order	country	10 points
1	Estonia	9.8413
2	Denmark	9.6825
3	South Korea	9.3651
4	India	9.2063
5	Singapore	9.0476
5	Saudi Arabia	9.0476
5	Germany	9.0476
5	Ireland	9.0476
9	Thailand	9.04 00
9	Portugal	9.04 00
Citizen Participation EPAR Ranking		
order	country	8 points
1	UK	8.0000
1	Denmark	8.0000
1	Singapore	8.0000
1	Switzerland	8.0000
5	Estonia	7.8095
5	South Korea	7.8095
7	Japan	7.6190
7	Finland	7.6190

7	Australia	7.6190
10	Mexico	7.61 7 0
Open Data and Innovation OGD - DX Ranking		
order	country	10 points
1	UK	10
2	Singapore	9.814
3	Japan	9.652
4	Denmark	9.629
4	Estonia	9.629
4	Netherlands	9.629
7	Saudi Arabia	9.520
8	Australia	9.510
9	South Korea	9.444
9	Norway	9.444
Security CYB ranking		
Order	country	10 points
1	UK	10,000
1	Denmark	10,000
3	Singapore	9.8077
3	Netherlands	9.8077
3	Canada	9.8077
3	Sweden	9.8077
7	Italy	9.80 10
8	Estonia	9.6154

8	New Zealand	9.6154
8	Poland	9.6154
Ranking by Emerging technology EMG		
Order	country	12 points
1	Singapore	12.0000
1	South Korea	12.0000
3	Denmark	11.6667
4	UK	11.3333
4	Netherlands	11.3333
6	Estonia	11.0000
6	Ireland	11.0000
8	Japan	10.6667
8	Canada	10.6667
8	Austria	10.6667

(Description)

1. Network Infrastructure (NIP)

In the "Network Adequacy" category, three sub-indicators are used to evaluate digital government. Internet users have always been an important sub-indicator for evaluating a country's online application services. Nowadays, wireless broadband, especially 4G and 5G, is becoming increasingly popular. Many countries have already begun to develop and commercialize the infrastructure. This can also be an effective tool for developing countries in terms of expanding high-speed connectivity, evolving high-bandwidth infrastructure, and adopting and progressing digital government strategies, thereby narrowing the digital divide with developed countries.

Top-ranked countries such as Switzerland (1st place) and Norway (2nd place) have sufficient infrastructure for ICT networks and digital government promotion, enabling system interoperability and the mass exchange of data between government departments. Internet use is widespread and continues to grow, even among rural areas outside of major cities. To provide a healthier environment for all citizens, governments are placing importance on continuously expanding ICT infrastructure and contributing to private industry, focusing not only on digital transformation but also on "green" solutions in the environmental field.

2. Contribution to administrative and financial reform, Optimization of administrative management (MO)

Administrative management optimization is a key indicator in the digital government rankings, referring to a government's optimal actions in the operation and implementation of digital government ICT. It is evaluated through strategies for project implementation and ICT application development, and applies new technologies optimally to promote online services. Setting digital policies and system architectures is also a factor for all governments considering transitioning to a digital model. This indicator evaluates the use of ICT to improve government business processes and internal processes (each organization's back office). Administrative management optimization is an important indicator of digital government development, as it is related to optimization progress, integrated enterprise architecture (EA), and administrative management and budgeting systems.

Four countries are tied for first place: the UK, Denmark, Estonia, and Singapore. Australia, which is ranked 16th, is ranked just 0.9 points behind. In order to achieve digital transformation, the Australian government has set a goal of making significant progress in digital transformation by the end of 2025. This strategy aims to create a digital ID system for users. Citizens will use digital IDs to receive personalized services. Digital IDs were introduced in March 2019 for services such as grant management, business registration, and student support. With this digital strategy, the Australian government has set a goal of providing world-leading digital services to the benefit of all citizens.

3. Progress of various online application services (OS)

Given the importance of this sector, the highest score is allocated a maximum of 14 points. E-services is a key indicator for measuring the development of digital government. Digital government outcomes include e-services, or products/services that governments provide to citizens, positioning e-services as the interface of digital government. A country's growth as a digital government is measured by the increase in online services and the level of services (information, download forms, transactions, e-payments, etc.). The Digital Government Ranking currently assesses five major online services, including e-procurement, e-tax payment, e-payment, one-stop services, and e-health. These are fundamental services among online services.

Coming in first place is Denmark, second place is the UK, and third place is Estonia. In addition to the usual countries, Saudi Arabia in fourth place and Thailand in tenth place are also outstanding in making them into the top ten.

4. Usability of homepage/portal site (NPR)

A one-stop service is defined as a centralized location where the government integrates all electronic services and makes them accessible through a single gateway. It is also the primary interface for stakeholders to access government electronically. Through a national portal, the government provides many benefits to users of public services, from citizens and businesses to public administrators themselves, including faster, cheaper, and better services. In the public sector, one-stop service is one of the most promising concepts for service delivery in public administration. The implementation of a national portal is included in most countries' digital government strategies. Following the United

Kingdom and South Korea in first and second place, Singapore has consistently ranked among the top players in this category for 20 years. GovTech is building key digital platforms and infrastructure to support Singapore's Smart Nation efforts. As one of the national projects in Singapore's "Smart Nation" strategy, the National Digital Identity (NDI) ecosystem aims to provide convenience and security to citizens and businesses when transacting online. NDI is a common, universal trust framework for the public and private sectors to build value-added digital services. Smart Nation is Singapore's digital government development strategy. The Smart Nation platform is one of the initiatives that will enable everyone in Singapore to stay connected, everywhere.

5. Government CIO (Chief Information Officer) Performance (GCIO)

From its first year, the World Digital Government Rankings introduced GCIO as an important indicator for evaluating each country's digital government. CIOs are expected to align business strategies with ICT investments to balance business strategies, organizational reforms, and management reforms. This indicator evaluates the role of information technology departments in planning, developing, and implementing digital governments, and aims to transform traditional management models into applications of digital technology innovation (digital transformation).

The UK, ranked #1, recently merged the CIO and CDO (Digital) positions. In the US, ranked #8, the Federal CIO Council is a forum for CIOs from each ministry and department, with the goal of improving ICT practices across US government agencies. CIO.gov is a platform where government CIOs share priorities, major technology policies, information, and programs for the development of ICT and digital government . Government CIOs lead digital transformation efforts, implementing digital technologies, research, and workflow methodologies to transform the agility and digital landscape of federal agencies. In the US, government CIOs initiate and lead the implementation of cybersecurity strategies and solutions, address issues related to federal agencies, and support clients in multiple cybersecurity fields, including policy, governance, risk management, and advanced security engineering. Government CIOs also support companies developing cutting-edge scientific analysis, simulations, and data visualization through public-private partnerships, both within the government and abroad.

6. Digital Government Strategy and Promotion Measures (EPRO)

This indicator measures government activities towards promoting digital government and delivering digital services to citizens, businesses and other stakeholders. This includes activities related to supporting the implementation of digital government, such as legal frameworks and mechanisms (laws, plans, policies and strategies). In other words, governments undertake these activities to support the development of e-services and the overall development of digital government.

The top spot in 2020 was taken by Estonia, a small European country with a population of 1.3 million. Japan ranked 13th in the digital government promotion index . Through the media, the government has introduced the promotion of services and utilities that use the internet to provide public services. It also regularly holds workshops on digital government and has partnered with top universities such as Waseda University to develop digital government CIO talent. In this regard, the medium- to long-term digital government plan has been updated and strategically promoted.

7. Enhancement of electronic participation in citizen administration through ICT (EPAR)

E-participation is one example of the application of ICT to increase participation in digital government. It connects people and gives them a say in the implementation of digital projects, increasing transparency and consistency of processes. The processes can relate to management, service delivery, decision-making, and policy-making. Four countries - the UK, Singapore, Switzerland, and Denmark - tied for first place in 2025.

Estonia, ranked fifth, is one of five countries that make up the top group in the e-Participation Index. In addition to developing broadband throughout the country, Estonia is also focusing on formulating a strategy and citizen participation policies for digital government. A prime example is the Estonian Digital Agenda 2020, in which the Estonian government develops the information society and strengthens cybersecurity. For example, thanks to these policies, the majority of people now use the internet to vote and participate in elections. In addition, 99% of the Estonian population uses e-ID, and 99% of government services are now digital.

8. Open Government + Digital Transformation (OGD)

Open data is a barometer of the openness of specific government data to citizens, businesses, and other government ministries. Meanwhile, digital transformation is an indicator of promoting digital innovation. DX was added several years ago and plays an important role in promoting digital transformation in both the public and private sectors. Japan's rapid growth was notable, with the UK in first place, Singapore in second, and Japan in third.

Already in fourth place, Denmark has joined the Open Government Partnership (OGP), an international initiative that helps promote good governance and strengthen democracy by fostering transparent and inclusive governance. The first Danish Open Government Action Plan has been launched, focusing on improving digital public services for citizens and businesses, and increasing transparency and accountability in public projects and processes.

The latest Open Government Action Plan calls for governments to (1) commit to open data, sharing data on public distribution platforms, and more for citizens; (2) harmonize data to ensure a foundation for citizen participation; (3) collaborate for a better public sector; and (4) make a global commitment to openness.

9. Cyber Security (CYB)

Victims in this sector are rapidly increasing around the world, making countermeasures urgently needed. Developed countries rank first in the UK and Denmark, and twelfth in Norway. South Korea, ranked 15th, promotes cybersecurity through various laws, regulations, and guidelines, including the IT Network Use and Information Protection Promotion Act (Network Act) and the Personal Information Protection Act (PIPA). The Network Act plays an important role in promoting cybersecurity from the perspective of protecting personal information and strengthening data security on IT networks. PIPA serves as a personal data protection law that is applied in conjunction with the Network Act to all cases of data privacy violations, including cyberattacks and data leaks. In this ranking, South Korea received a full score in cybersecurity, improving its ranking compared to the previous year.

10. ICT and Emerging Tech

The role of innovation in this field is to use the Internet and communication networks to provide services to all citizens and businesses. Today, the development of many new

technologies such as AI, big data, and IoT not only helps people access government services through computers, phones, tablets, and multiple other devices, but also helps facilitate the connection between governments and citizens. Big data helps governments expand data to optimize services. Therefore, the emergence of these technologies should always be a top priority and should be implemented by governments.

4 • International Organizations, Regional Rankings

Table 4 International Organizations, Regional Rankings

OECD countries		
Rank	Country name	Score
1	UK	95.5353
2	Denmark	94.8924
3	Estonia	94.4940
4	South Korea	93.2292
5	Netherlands	90.0041
6	United States of America	89.0118
7	Japan	87.5605
8	Finland	85.6950
9	Canada	85.5729
10	Germany	85.3774
11	Ireland	83.8640
12	New Zealand	82.3740
13	Switzerland	82.3158
14	Sweden	81.6764
15	Norway	81.5416
16	Iceland	80.3447
17	Australia	77.9536
18	Spain	75.6524
19	Italy	75.5399
20	France	75.4016
21	Austria	75.1211

22	Belgium	73.6713
23	Portugal	73.5963
24	Czech Republic	71.8405
25	Israel	71.5105
26	Poland	70.3537
27	Turkey	67.4754
28	Mexico	65.8972
29	Chile	62.7289

APEC (Asia-Pacific) Economies		
Rank	Country(Economy)) name	Score
1	Singapore	94.7332
2	South Korea	93.2292
3	USA	89.0118
4	Japan	87.5605
5	Canada	85.5729
6	New Zealand	82.3740
7	Thailand	81.6321
8	Chinese Taipei(Taiwan)	78.5491
9	Australia	77.9536
10	Indonesia	76.8192
11	Philippines	75.0914
12	Malaysia	74.6291
13	China	71.1782
14	Hong Kong	70.0965
15	Vietnam	67.0794
16	Russia	66.6144
17	Brunei	66.2118
18	Mexico	65.8972
19	Chile	62.7289
20	Peru	62.4887

Big population country (more than 100 million)		
Rank	Country name	Score
1	USA	89.0118

2	Japan	87.5605
3	Indonesia	76.8192
4	India	76.2653
5	Philippines	75.0914
6	China	71.1782
7	Russia	66.6144
8	Brazil	66.0921
9	Mexico	65.8972
10	Pakistan	58.7617

Small population country (Less than 10 million)

Rank	Country name	Score
1	Denmark	94.8924
2	Singapore	94.7332
3	Estonia	94.4940
4	Finland	85.6950
5	Ireland	83.8640
6	New Zealand	82.3740
7	Switzerland	82.3158
8	Sweden	81.6764
9	Norway	81.5416
10	Iceland	80.3447
11	United Arab Emirates	80.0000
12	Austria	75.1211
13	Oman	72.8363
14	Israel	71.5105
15	Hong Kong	70.0965
16	Uruguay	68.6246
17	Lithuania	66.3245
18	Brunei	66.2118
19	Bahrain	63.4621
20	Fiji	56.6023
21	Costa Rica	53.3757

Highest GDP (Top 11 countries)

Rank	Country name	Score
1	UK	95.5353
2	USA	89.0118

3	Japan	87.5605
4	Canada	85.5729
5	Germany	85.3774
6	India	76.2653
7	Italy	75.5399
8	France	75.4016
9	China	71.1782
10	Russia	66.6144
11	Brazil	66.0921

North and South Americas		
Rank	Country name	Score
1	USA	89.0118
2	Canada	85.5729
3	Uruguay	68.6246
4	Brazil	66.0921
5	Mexico	65.8972
6	Paraguay	62.9098
7	Chile	62.7289
8	Columbia	62.6017
9	Peru	62.4887
10	Argentina	56.7737
11	Costa Rica	53.3757

AMC (Africa, Middle East, Central Asia)		
Rank	Country name	Score
1	Saudi Arabia	88.2067
2	United Arab Emirates	80,000
3	Kazakhstan	73.1256
4	Oman	72.8363
5	South Africa	72.7346
6	Israel	71.5105
7	T ü rkiye	67.4754
8	Russia	66.6144
9	Uzbekistan	64.4347
10	Kenya	63.6843
11	Bahrain	63.4621

12	Egypt	58.5005
13	Tunisia	57.5974
14	Morocco	57.4197
15	Nigeria	55.3305

European Union		
Rank	Country name	Score
1	UK	95.5353
2	Denmark	94.8924
3	Estonia	94.4940
4	Netherlands	90.0041
5	Finland	85.6950
6	Germany	85.3774
7	Ireland	83.8640
8	Switzerland	82.3158
9	Sweden	81.6764
10	Norway	81.5416
11	Iceland	80.3447
12	Spain	75.6524
13	Italy	75.5399
14	France	75.4016
15	Austria	75.1211
16	Belgium	73.6713
17	Portugal	73.5963
18	Czech Republic	71.8405
19	Poland	70.3537
20	Lithuania	66.3245
21	Romania	65.7006

(Description)

1. APEC (Asia-Pacific Economic Cooperation) Digital Government Ranking

Singapore, South Korea and the United States are the top three countries in the rankings.

Coming in fourth in this group is Japan, and fifth is Canada. They are followed by New Zealand in sixth, Thailand in seventh, and Taiwan in eighth. Outside of Singapore, four other ASEAN countries are worthy of note: Thailand, Malaysia, Indonesia, and the Philippines. Rounding out the bottom of this group are three Latin American countries: Mexico, Chile, and Peru.

Australia, ranked ninth, was quick to respond to the new global trend toward digital government, launching its first Electronic Transactions Act in 2017. The government's strategic priorities strategy outlined a clear roadmap with major projects through 2020 and significant transformational opportunities through to 2025.

Brunei has made significant changes in this year's digital government ranking compared to other economies in the group. To achieve technological innovation, the Brunei government is quickly adopting new tools into current business processes, improving the efficiency, effectiveness, quality, and accessibility of information and services that contribute to economic and social growth. The Brunei government is developing a digital government strategy through to 2020, and its mission is to lead the digital transformation and make government services simpler, faster, and more accessible.

2. Digital Government Ranking of OECD Countries

In the OECD group, the top five countries are the UK in first place, Denmark in second, Estonia in third, South Korea in fourth, and Netherlands in fifth. There is not much change in the top six to ten rankings. Japan is in seventh place and Finland in eighth. The bottom three countries in this group, ranked 29th, are Turkey, Mexico, and Chile.

In Canada, the "Digital Operations Strategic Plan" is the government's strategic plan for how to manage the evolution of digital services and technology. This strategic plan, particularly the CIO's direct role, sets the government's digital direction and provides business opportunities. The strategic plan establishes the government's integrated direction for digital transformation, service delivery, security, information management, and information technology. Canada has strong performance in both the "Online Services" and "Electronic Participation" indicators. As one of the leading countries for digital government, Canada is expected to increase its score in the latest indicator of the use of new technologies with an efficient model for adopting advanced technologies such as cloud computing and IoT.

Digital Israel is a national initiative focused on harnessing the digital revolution to accelerate economic growth, reduce socio-economic disparities, make government smarter, faster and more accessible to citizens, and make Israel a global leader in the digital sector.

3. Digital Government Rankings in Africa, the Middle East, and CIS (Central Asia) Countries

This group includes countries from Africa, the Middle East, and the CIS. While the number of countries is large, with the exception of Saudi Arabia, the United Arab Emirates, and Kazakhstan, most are in the mid-stage of digital government. Fifteen countries were selected for evaluation. Oman came in fourth, followed by South Africa in fifth place. The lowest-ranking group includes Egypt, Tunisia, Morocco, and Nigeria. Most of the countries are developing or authoritarian.

Russia has been invading Ukraine for two years. In the e-government sector, the maturity of services provided through one-stop portals is generally uniform across the country, but there is room for improvement. The government aims to make at least 80% of services available through the portal. Other plans include ensuring service availability regardless of geographic location and providing several channels for service access,

including mobile access, the Internet, call centers, and on-site service machines. E-health and e-learning systems are expected to optimize and integrate services available through the one-stop digital government portal, including sick leave certificates, e-prescriptions, and e-referral requests. Cybersecurity has also become a focus of the government in recent years. The scale of progress in AI and quantum computing programs is unclear, as it depends on the country's fiscal strength, which is primarily funded by oil revenues.

The South African government is deploying ICT initiatives to provide citizens with basic services, with progress made visible on the gov.za portal. It provides measures to improve government efficiency and effectiveness and make it easier for citizens to access government services across the country. Under the Digital Government policy framework, it has realized the important role of ICT in enabling modernized government services and benefits for service delivery. The Gauteng provincial government is one of the most modernized provinces in South Africa and has achieved key digital local government goals. Through its well-organized e-government sector, Gauteng is helping to drive the growth of South Africa's digital economy, particularly at the local government level.

4. Americas

The Americas is a general term for the countries of North and South America, but it is divided into the three North American countries and the rest of Latin America. The former are advanced digital nations, while the latter are making desperate efforts to catch up with North America. The United States and Canada are in a class of their own, and the small populations of South America's Chile and Uruguay are noteworthy. Meanwhile, the highly populated countries of Brazil, Mexico, and Argentina are not so highly rated.

Table 6: Average scores for 10 indicators by international organization/region and population

	NIP	MO	OS	NPR	GCIO	EPR O	EPA R	OGD	CYB	EMG
OECD	6.11	10.5	11.9	5.22	5.7	7.8	6.8	8.8	8.4	8.8
Africa and Central Asia	5.1	9.1	9.9	4.6	3.6	7.6	6.2	7.9	6.8	6.0
Indo- Pacific	5.2	9.6	11.3	4.9	5.4	7.9	6.6	8.4	7.4	7.4
Americas (North /South America)	5.4	8.6	10.7	4.6	3.7	6.4	6.3	8.3	7.0	5.8
APEC	5.7	10	11.6	5.0	5.7	7.5	6.6	8.6	7.6	7.9

Big Population country	4.5	9.0	11.2	4.6	4.2	7.8	6.4	7.8	6.7	7.5
small population country	6.0	10.2	11.4	5.0	5.0	7.6	6.9	8.4	8.0	7.6
Large GDP country	5.4	8.4	10.0	4.7	6	7.9	6.6	8.5	8.5	9.4

We have created rankings for 10 indicators by region and by international organization. The former includes the Americas, Indo-Pacific, Africa/Central Asia/Middle East, OECD, and APEC, while the latter includes countries with large populations, countries with small populations, and countries with large GDPs. What is striking is that the OECD, known as the developed country club, scores well in every category. Conversely, Africa/Central Asia/Middle East performs poorly. APEC and the Indo-Pacific region are a mix of developed and developing countries, and the figures shown are average.

It is hypothesized that countries with small populations will see rapid adoption of digital technology and therefore rapid development of their overall digital government. However, in reality, an analysis of each score reveals that countries with small populations will not receive high scores unless they have high levels of management ability and digital literacy, as in the case of countries like Estonia (population 1.3 million) and Singapore (population 6.5 million).

Target member countries/economies * Excluding countries not included in the ranking	
OECD	Germany, France, Italy, Netherlands, Belgium, Finland, Sweden, Austria, Denmark, Spain, Portugal, Ireland, Czech Republic, Hungary, Poland, Estonia, Lithuania, Japan, United Kingdom, United States, Canada, Mexico, Australia, New Zealand, Switzerland, Norway, Iceland, Turkey, South Korea, Chile, Israel, Colombia
Africa Central Asia Middle East	Saudi Arabia, UAE, Bahrain, South Africa, Kenya, Kazakhstan, Oman, Israel, Turkey, Russia, Uzbekistan, Kenya, Egypt, Tunisia, Morocco, Nigeria
Americas	United States, Canada, Mexico, Uruguay, Brazil, Argentina, Paraguay, Peru, Chile, Colombia, Costa Rica
APEC	Australia, Brunei, Canada, Chile, People's Republic of China, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New

	Zealand, Papua New Guinea, Peru , Philippines, Russia, Singapore, Chinese Taipei (Taiwan), Thailand, United States of America, Vietnam
Big Population country	United States, Japan, Indonesia, India, Philippines, China, Russia, Brazil, Mexico, Pakistan, Nigeria, Bangladesh
Small population country	Singapore, Denmark, Estonia, Finland, Ireland, New Zealand, Switzerland, Sweden, Norway, Iceland, UAE, Austria, Oman, Israel, HK, Uruguay, Lithuania, Brunei, Bahrain, Fiji, Costa Rica
Highest GDP	United States, China, Germany, Japan, India, United Kingdom, France, Italy, Canada , Brazil

Table 7

List of Indicators and Sub-Indicators		
I	Network Preparedness	
	1.1	Internet Users
	1.2	Wired (Fixed) Broadband Users
	1.3	Wireless Broadband Users
II	Management Optimization	
	2.1	Optimization Awareness
	2.2	Integrated Enterprise Architecture
	2.3	Administrative and Budgetary System
III	Online Service	
	3.1	e-Procurement
	3.2	e-Tax
	3.3	e-Customs
	3.4	One Stop Service
	3.5	e-Health
	3.6	e-disaster-mobility and Smart city
	3.7	Usages of AI and Web3
IV	National Portal	
	4.1	Information
	4.2	Technical
	4.3	Functionality
V	Government CIO	
	5.1	The presence of GCIO
	5.2	GCIO Mandate
	5.3	GCIO Organization
	5.4	GCIO Development Programs

VI	e-Government Promotion	
6.1		Legal Aspects
6.2		Enabling Aspects
6.3		Supporting Aspects
6.4		Assessment Aspects
VII	E-Participation	
7.1		E-Information
7.2		E-Consultation
7.3		E-Decision Making
VIII	Digital Transformation and Open Government	
8.1		Legal Framework
8.2		Synergy Effects
8.3		Organization
IX	Cyber Security	
9.1		Legal Framework
9.2		Cybercrime Countermeasures
9.3		Internet Security Organization
X	The use of Emerging technologies	
10.1		The use of Cloud Computing
10.2		The use of Internet of Things
10.3		The use of Big Data
10.4		The Application of AI
10 Indicators		37 Sub-Indicators

5. Top 25 Country Evaluation Reports

The United Kingdom (UK)

1. General Information

Area: **244,376 km2**

Population: **69,551,332**

Government Type: Constitutional Monarchy

2025 Growth Rate: **1.1%**

GDP (IMF '25): **\$3.84 Tn**

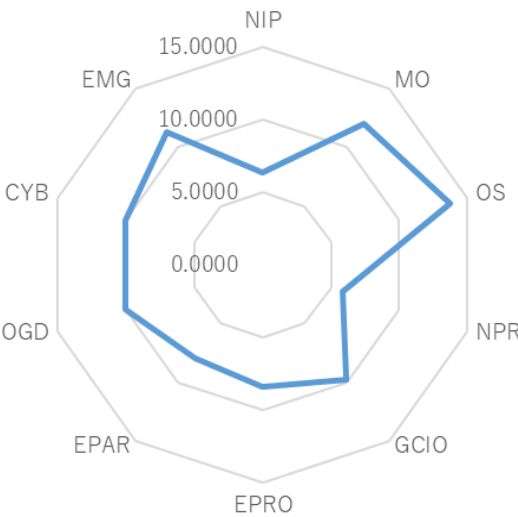
GDP Per Capita: **\$54,95**

Internet User: **96.3%**

Wired (Fixed Broadband User) per 100 people: **41.4**

Wireless Broadband User per 100 people: **130**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, the United Kingdom has made significant strides in digital government, securing the top spot in the Waseda Digital Government Rankings. This achievement is a result of

a cohesive national strategy centered on integrating artificial intelligence (AI) into public services. The government's proactive approach is defined by strategic investments in AI infrastructure, the development of clear operational guidelines, and organizational reforms aimed at building a more efficient and responsive digital state. These measures highlight the UK's commitment to leveraging technology for economic growth and improved public services.

Alongside these structural and technological changes, the UK is also introducing a new generation of citizen-focused digital services. The development of the GOV.UK App and GOV.UK Wallet aims to provide a single, secure platform where citizens can manage all their government interactions and store official digital documents, such as licenses or certificates, in one place. This signals a shift toward a more personalized and mobile-first model of delivery service. In addition, a new digital functional standard has been rolled out to guide senior leaders across government on how to manage digital, data, and technology more effectively. This standard promotes accountability, ensures consistent quality, and encourages innovation at every level of public service.

3.2. New Trends

The UK's digital government strategy is built upon several key initiatives designed to accelerate the adoption of AI and enhance public sector capabilities:

- **AI Infrastructure and Innovation Hubs:** The government launched the AI Opportunities Action Plan to boost the economy and public services. A major investment of over £1.75 billion has been allocated to establish new supercomputing facilities and data centers within dedicated AI Growth Zones. These hubs are designed to provide the necessary computing power for advanced AI research and innovation, creating a strong foundation for future technological development.
- **Responsible AI Integration:** To ensure the safe and ethical deployment of AI across all government departments, a new AI Playbook has been released. This document provides clear, practical guidance on the responsible use of AI, helping to govern its adoption and build public trust.

- **Data-Driven Governance:** A new National Data Library is being established to make public data more accessible for research and development. This initiative aims to increase transparency and ensure that AI models and other digital innovations are grounded in reliable, public-interest data, benefiting society as a whole.
- **Organizational Streamlining:** The government has merged the Government Digital Service (GDS) and the Central Digital and Data Office (CDDO) into a single, unified GDS. This reform is intended to streamline operations, strengthen central leadership, and build a more capable and efficient organization for delivering digital services at scale.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

In 2025, the United Kingdom has significantly strengthened the digital infrastructure that serves as the backbone of its government digitalization efforts. The nation has seen an accelerated rollout of full-fiber broadband, now reaching over 78% of homes, a substantial increase from just 12% in 2020. This progress is complemented by continued investment in 5G and readiness for future 6G technology, with the objective of ensuring nationwide coverage by the end of the decade.

To support the government's AI Action Plan, advanced capacity has been provisioned through modernized data centers located in new AI Growth Zones. Cloud computing has become the standard for most central services, enhancing scalability and resilience. These initiatives have been streamlined through effective partnerships with private telecom providers, which have helped to accelerate innovation and reduce costs. Furthermore, the Telecommunications Security Act and the mandated removal of Huawei equipment by 2027 have substantially bolstered cyber resilience, improving both the security and long-term trustworthiness of the national network. These concerted investments have positioned the UK's infrastructure as one of the strongest in Europe, ensuring that government services remain reliable, secure, and accessible to all citizens.

4.2. Management Optimization [MO]

A major reform was the merger of the Government Digital Service (GDS) and the Central Digital and Data Office (CDDO), which created a single, more powerful central authority designed to streamline operations and accelerate decision-making by reducing duplication and aligning strategy. This structural change was complemented by the introduction of a new digital functional standard, which provides senior leaders with clear responsibilities for managing digital initiatives and promotes greater accountability for digital outcomes. The adoption of agile and product-centered working methods across departments has been instrumental in this transformation, with performance now transparently tracked via public-facing digital dashboards. To support these new methods, leaders are receiving training in AI and data literacy, while more consistent risk management and contingency planning have improved project success rates. These collective reforms, along with better coordination between central and local government, have fostered a culture of stronger accountability and continuous improvement within the public sector.

4.3. Online Service [OS]

The UK's online government services are becoming more seamless, mobile-first, and user-friendly. A key part of this effort is the expansion of the GOV.UK One Login system, which by 2025 has onboarded over 12 million users. This system allows citizens to use a single digital identity to securely access dozens of services, ranging from tax filing to healthcare. The new GOV.UK App makes these services readily available on smartphones, addressing the public's growing preference for mobile channels. Additionally, integration with the GOV.UK Wallet allows users to securely store digital versions of official documents. To enhance efficiency and user experience, many high-volume services, such as driving license renewal, have been redesigned for simplicity and speed.

The government is also embedding AI assistants to improve navigation and reduce waiting times. In line with new digital inclusion commitments, accessibility for citizens with disabilities has also been significantly improved. These user-centric improvements, supported by feedback loops built into online platforms, collectively demonstrate the

UK's ambition to create services that are not just digital, but genuinely centered on the needs of their users.

4.4. National Portal [NPR]

The GOV.UK portal remains the United Kingdom's primary access point for digital government services but is undergoing major transformation in 2025. Its integration with the GOV.UK App and digital Wallet represents a pivotal step, while new personalized dashboards allow citizens to track applications and manage interactions more effectively. Artificial intelligence-powered search capabilities further streamline navigation, providing quicker and more accurate access to information.

Concurrently, government agencies are required to align their online services with the GOV.UK design framework, reducing duplication and fragmentation. Accessibility has become a defining standard, with the portal built to comply with the latest international web guidelines. Citizens now benefit from real-time chatbot support for common queries, alongside enhanced transparency through open publication of policies, expenditures, and service performance data. Cybersecurity protections have also been reinforced, particularly in safeguarding identity and payment transactions. These reforms are redefining the portal from a static information site into an interactive, citizen-focused platform built on principles of usability, openness, and security.

4.5. Government CIO [GCIO]

By 2025, the position of UK Government Chief Information Officer (CIO) has become increasingly central to the country's digital governance. The CIO now directs the consolidated Government Digital Service (GDS), placing the role at the core of national digital strategy. This leadership strengthens departmental alignment and accelerates transformation across the public sector. A key responsibility is the responsible integration of artificial intelligence into service design, guided by the recently introduced AI Playbook. The office has also deepened collaboration with cybersecurity institutions such as the National Cyber Security Centre (NCSC), ensuring resilience against digital threats. In addition, the CIO sets performance standards and provides regular progress reports to

senior ministers. Emphasis is placed on cost-effectiveness, ensuring that technology investments achieve maximum public value. This role also advances open data initiatives, system interoperability, and shared platforms across agencies. Complementing this, training programs are expanding digital literacy among civil servants nationwide. Collectively, the CIO's broadened mandate reinforces digital governance and guarantees more effective, citizen-focused public services.

4.6. E-Government Promotion [EPRO]

This year, the government has intensified efforts to promote e-government adoption and strengthen public confidence in digital services. Nationwide campaigns emphasize the advantages of tools such as One Login, the GOV.UK App, and digital healthcare platforms. Particular attention is directed toward older citizens and vulnerable populations to mitigate risks of digital exclusion. Local authorities are encouraged, through incentives, to adopt national digital standards, thereby ensuring greater uniformity in service delivery across regions.

Educational initiatives are being piloted in schools and community centers, linking digital literacy training directly to government service use. Collaboration with the private sector through public-private partnerships is also advancing the development of innovative digital solutions. Promotion strategies extend beyond technology, embedding digital awareness into broader civic campaigns. On the international stage, the UK is positioning itself as a leader in AI-enabled governance, enhancing its global profile. Transparency portals now demonstrate the tangible benefits of digital investments, reinforcing public trust. Collectively, these measures signal that the UK's digital government agenda is not solely technological but represents a wider cultural transformation embraced by society.

4.7. E-Participation [EPAR]

E-participation in the United Kingdom has undergone major expansion, providing citizens with stronger channels to influence policy. Consultations on topics such as national budgets and health reforms are now hosted directly on GOV.UK, with artificial intelligence applied to process and analyzing large volumes of submissions. Government

departments also run live digital forums, creating spaces for real-time dialogue between citizens and officials. The NHS App has been upgraded to include direct feedback features, allowing patients to share experiences and suggestions with policy makers.

Accountability has been reinforced through improved tools for reporting corruption and misconduct, while participatory budgeting pilots enable residents to vote digitally on local spending priorities. To enhance transparency, the outcomes of consultations are openly published, demonstrating how citizen input informs decisions. Youth engagement has also been prioritized through initiatives that integrate participation into social media platforms.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

The United Kingdom's digital transformation is advancing through six government-wide missions that set clear priorities for reform. Central to this effort is the redesign of high-demand services to achieve a "great" standard of usability and efficiency. The expansion of the One Login program further simplifies and secures citizen access to online services. At the same time, a new Data Maturity Model is guiding departments in strengthening the role of data within policymaking.

Outdated IT infrastructure is being phased out under a national retirement framework, reducing long-term technical debt. A flagship initiative, the National Data Library, is expanding access to datasets that support research and AI-driven applications. Open data remains a key principle, with portals such as data.gov.uk regularly updated with information on health, transport, and public finance. Interoperability standards are also enforced to ensure seamless data exchange across government bodies. By linking open data policies with innovation, startups and researchers are enabled to create new solutions. Collectively, these initiatives highlight the UK's progress in digital transformation and its leadership in open data governance.

4.9. Cyber Security [CYB]

Cybersecurity continues to rank among the UK's top priorities, as the National Cyber Security Centre (NCSC) records persistent growth in hostile online activity. To strengthen defenses, all central government systems are now required to undergo regular vulnerability scanning, while the Telecommunications Security Act provides additional safeguards for national telecoms infrastructure. The phased removal of Huawei equipment from 5G networks remains on schedule for completion by 2027.

New digital services are developed under a Secure by Design framework, ensuring security is embedded from the outset. Citizens are also targeted through awareness campaigns warning against fraud and phishing attempts that exploit government platforms. At the strategic level, the Government Chief Information Officer (CIO) collaborates closely with the NCSC to coordinate resilience measures across departments. Incident response mechanisms have become more efficient, reducing delays in managing cyber threats. With AI-enabled attacks presenting new risks, investments are being directed toward advanced detection and response systems.

4.10. The use of Emerging ICT [EMG]

The United Kingdom maintains its position as a frontrunner in the adoption of emerging ICT, with artificial intelligence at the core of its digital agenda. Major investments in supercomputing capacity and designated AI Growth Zones provide the foundation for this leadership. Cloud computing is now widely deployed across government, using hybrid models that balance scalability with strong security requirements. The strength of the domestic fintech sector also enables sophisticated digital payment solutions to be embedded into public services.

Innovative technologies are being tested across multiple sectors: blockchain pilots are under way for secure land registration, the NHS is trialing AI-driven diagnostic and predictive tools, and edge computing is being deployed to deliver faster, localized services. The rollout of nationwide 5G networks further supports mobile-first service delivery and powers Internet of Things applications in smart cities. Close collaboration with international partners ensures alignment with evolving global ICT standards.

Through the integration of these technologies into everyday governance, the UK consolidates its strong performance in the Waseda Emerging ICT indicator.

Denmark

1. General Information

Area: **43,094 km²**

Population: **6,002,507**

Government Type: Unitary parliamentary constitutional monarchy

2025 Growth Rate: **2.9%**

GDP (IMF '25): **\$449.94 Bn**

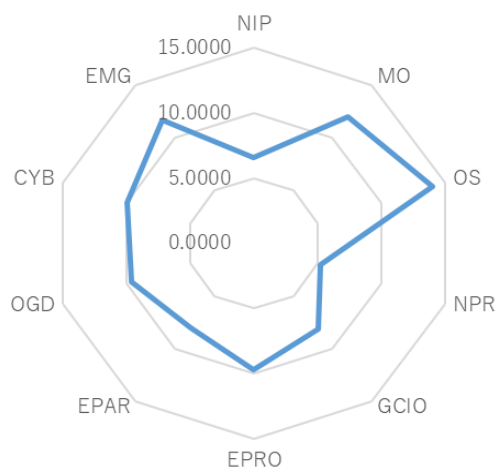
GDP Per Capita: **\$74.97**

Internet User: **99.8%**

Wired (Fixed Broadband User) per 100 people: **45**

Wireless Broadband User per 100 people: **146**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Denmark has reinforced its role as a global frontrunner in digital governance, ranking second in the 2025 Waseda Digital Government Index. This recognition reflects the country's sustained focus on innovation and citizen-oriented service delivery. National investments in secure cloud infrastructure and comprehensive 5G coverage have enhanced the resilience and scalability of digital platforms. The principle of citizen-first

design remains central, with services increasingly streamlined through the MitID login system and mobile applications.

Significant progress has also been made in digital healthcare, where AI is applied for diagnostics, predictive care planning, and remote consultations. Collaboration between municipalities and central agencies is driving smart city projects that prioritize sustainability, traffic optimization, and energy efficiency. Strong partnerships across government, academia, and industry continue to foster experimentation and innovation through shared testbeds and pilot programs. Meanwhile, open data policies are enabling researchers and businesses to develop new services based on public datasets, reflecting the maturity of Denmark's data-driven governance model. With cybersecurity protections strengthened to counter AI-enabled risks, Denmark demonstrates steady advancement toward a digital government that is both efficient and people-centered.

3.2. New Trends

Denmark's National Strategy for Digitalization 2025–2030 sets out a forward-looking agenda that builds on previous achievements while responding to emerging challenges. The plan is anchored around five key priorities: strengthening trust and security, advancing digital welfare, promoting green digital solutions, accelerating AI adoption, and reinforcing international digital leadership. At its core, the strategy places cybersecurity and ethical AI, ensuring that citizens can rely on secure, transparent digital services while benefiting from technological innovation.

One defining feature is the broader application of AI within public administration, underpinned by new data platforms and robust ethical guidelines designed to safeguard accountability. Denmark is also positioning itself as a pioneer in green digitalization, integrating technology into climate policy through smart energy networks and digital tools for emission monitoring. The Digitization Council plays a central role in overseeing implementation and maintaining accountability across government institutions.

Partnerships with the private sector are being expanded, engaging businesses and startups in co-developing innovative services for citizens and small enterprises. At the same time,

nationwide digital literacy initiatives are equipping people of all ages and backgrounds to engage confidently with e-services. Through this comprehensive, value-driven approach, Denmark is consolidating its position as both a global leader in digital governance and a model for uniting innovation with trust and sustainability.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Denmark continues to rank among Europe's leaders in mobile connectivity, with all four national operators delivering advanced 5G services. Independent assessments conducted in early 2025 confirm exceptionally high 5G download speeds across providers, reflecting sustained investment in radio access and backhaul infrastructure. These capabilities translate into resilient, low-latency connections that are critical for digital government platforms and essential public services.

National policy places strong emphasis on comprehensive broadband and mobile coverage as the backbone of service digitalization. Public institutions increasingly operate on cloud-optimized architectures within compliant data centers, ensuring scalability and continuity. Connectivity initiatives also prioritize rural municipalities, reducing the risk of regional exclusion in the digital transition. Competitive dynamics in the telecom sector further drive performance gains while preserving choice for both consumers and enterprises.

As a result, agencies are equipped to deploy data-intensive solutions such as e-health applications, geospatial platforms, and remote judicial hearings. Denmark's robust network environment thus provides a stable, high-capacity foundation that citizens and businesses can rely on, reinforcing the country's position as a secure and dependable provider of digital services in 2025.

4.2. Management Optimization [MO]

Denmark's digital transformation is governed through the Agency for Digital Government, operating under the Ministry of Digital Affairs. The Agency is responsible

for implementing public-sector digital policies and managing large segments of the national digital infrastructure. Its remit covers setting standards, overseeing project portfolios, and coordinating delivery across ministries to minimize duplication and delays. The National Strategy for Digitalization 2022–2026 continues to serve as the foundation for multi-year initiatives, now complemented by new priorities in artificial intelligence and data use.

A formal Digitization Council supports this framework by advising on implementation and monitoring progress against strategic objectives. Senior leaders rely on this structure to align funding decisions, manage risks, and track benefits across both central and municipal administrations. Delivery practices emphasize product-oriented approaches, open standards, and user-driven planning. The Ministry also provides practical guidance on AI adoption, platform governance, and digital risk management to support policymakers and suppliers. This combination of institutional clarity and operational guidance strengthens discipline in execution.

4.3. Online Service [OS]

Digital self-service continues to be the standard mode of interaction between citizens and the Danish government. MitID serves as the universal digital identity across public services, with 5.5 million users and nearly 97% of residents over the age of 15 holding an active account. Transaction volumes remain substantial, averaging around 89 million authentications per month through 2024 and sustaining similar levels in 2025. Mandatory self-service policies ensure that digital channels are the default for both individuals and businesses.

The Digital Post system carries the same legal status as paper correspondence, securing official communications and making them binding. At the same time, exemptions and assisted digital options are available to safeguard inclusion while maintaining the digital-first principle. Ongoing user experience enhancements are designed to reduce completion times for high-frequency services such as address changes, healthcare selections, and benefit applications. Accessibility features and multilingual support further extend usability for newcomers and people with disabilities.

4.4. National Portal [NPR]

Borger.dk functions as Denmark's central entry point for citizen information and digital self-service, consolidating guidance, forms, and links to agency systems within a single platform. It also highlights support channels and exemptions for individuals unable to manage services independently. For newcomers, the Life in Denmark site offers tailored onboarding, introducing essential services and legal obligations. The portal is fully integrated with MitID authentication and Digital Post, ensuring a consistent user journey across government departments. Structured navigation and improved search tools help users complete tasks quickly, even as the range of available services expands. Strict usability and accessibility standards ensure that content remains clear and compliant with modern web requirements. Agencies are encouraged to follow national design patterns, reducing fragmentation and creating a more coherent digital environment.

4.5. Government CIO [GCIO]

In Denmark, the Government Chief Information Officer (GCIO) function is distributed across ministerial and agency leadership rather than concentrated in a single individual. The Ministry of Digital Affairs defines national priorities in areas such as artificial intelligence, platform governance, and digital sovereignty, while the Agency for Digital Government translates these priorities into common standards, shared components, and oversight mechanisms. This framework enables leaders to promote interoperability, system reuse, and effective risk management across government portfolios.

Practical support is provided through playbooks and regular publications that guide departments on secure and responsible technology adoption. Coordination with cybersecurity authorities ensures that new digital services are developed according to "secure-by-design" principles. The model balances strong central direction with delivery autonomy, allowing line ministries and municipalities to adapt solutions to their contexts. Program reviews focus on long-term outputs, citizen value, and sustainability rather than short-lived project outputs. Over successive strategy cycles, this approach has matured, embedding digital leadership into the state's core operations. By 2025, Denmark's

integrated GCIO model continues to provide coherence and long-term orientation in decision-making.

4.6. E-Government Promotion [EPRO]

Denmark's 2025 promotion agenda places strong emphasis on inclusion, enterprise adoption, and transparency as cornerstones of digital government. Public communications continue to clarify citizen rights and responsibilities around digital self-service and Digital Post, while new proxy functions enable trusted relatives to manage Digital Post on behalf of vulnerable users, strengthening assisted digital support. The state's Open Government Partnership (OGP) 2023–2025 Action Plan further embeds co-creation principles and commits to expanding access to public data for researchers, businesses, and civic organizations.

Municipalities reinforce national initiatives with local support points, exemptions, and hands-on guidance, ensuring no citizen is excluded from digital services. Nationwide campaigns also address the rising threat of fraud and phishing by promoting stronger security practices in public communications. Cross-sector pilot programs demonstrate how digital channels can simplify complex journeys in welfare, healthcare, and licensing. What stands out is Denmark's insistence that promotion is not a short-lived publicity exercise but a systematic effort to enable participation, lower access barriers, and extend digital dividends across society. This approach gives promotion a practical, empowering character rather than a purely symbolic one, making it a defining feature of Denmark's digital governance model.

4.7. E-Participation [EPAR]

Denmark supplements traditional consultation processes with structured citizen initiatives hosted on borgerforslag.dk. Through this mechanism, proposals that secure 50,000 signatures within 180 days must be taken up for parliamentary debate. The model has not only generated genuine public discussion but, in some cases, has also translated into legislative outcomes, reinforcing a culture of participatory democracy. Clear

guidance from parliamentary and official sources ensures that residents understand how to engage effectively.

Integration with the national portal and other digital platforms directs users toward active consultations and ongoing submissions, while annual analyses by universities and civic organizations provide insights into participation patterns and highlight areas for refinement. Agencies further strengthen trust by publishing impact notes that explain how citizen contributions shape policy or service design. Outreach through social media extends participation to younger audiences and newly arrived residents, broadening the base of contributors.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Denmark's digital transformation agenda continues to emphasize shared platforms and systematic data reuse, ensuring that information is captured once and leveraged across agencies. The Danish Data Portal serves as a central catalog, enabling researchers, businesses, and civic groups to locate and use public datasets. At the heart of this ecosystem is the long-established Basic Data Programme, which maintains authoritative registries covering individuals, businesses, properties, and addresses. Public updates in 2024–2025 outlined further expansion of these assets, along with enhanced documentation and greater discoverability through Datafordeler.

Transparency has also advanced with the publication of beneficial ownership data from the Central Business Register (CVR) in a standardized open-data format, refreshed in 2025. These canonical registries and open datasets reduce administrative overhead, improve data accuracy, and provide a foundation for private-sector innovation. Government departments are applying data maturity models to strengthen analytical capacity and embed evidence-based decision-making, while interoperability standards and APIs remain the backbone of cross-government integration. The cumulative result is a coherent and secure data infrastructure that underpins both efficient service delivery and innovation. In 2025, Denmark's open government data and digital transformation framework continues to stand out globally as a model for whole-of-government data reuse.

4.9. Cyber Security [CYB]

The Center for Cyber Security (CFCS) continues to report an elevated threat environment for Denmark. Sector-specific risk assessments, including those for essential areas such as water supply, provide guidance to operators on likely threats and appropriate mitigation strategies. National cybersecurity policy stresses collective responsibility, calling for coordinated action across government, critical infrastructure providers, private businesses, and citizens.

Compliance obligations—such as mandatory incident reporting, vulnerability scanning, and adherence to secure-by-design principles—are becoming standard features of public IT management. Telecommunications operators are also reinforcing networks in line with supplier risk assessments and national security directives. Exercises and information-sharing are carried out in cooperation with sectoral CERTs, notably SektorCERT, to strengthen resilience. At the citizen level, awareness campaigns address phishing and fraud attempts linked to Digital Post and digital self-service systems.

4.10. The use of Emerging ICT [EMG]

Denmark is advancing artificial intelligence under a “strategic and responsible” framework introduced in January 2025. The plan establishes funding for a Digital Taskforce for AI, expands university-backed advisory capacity, and launches a secure platform to develop Danish-language models. Public authorities are encouraged to adopt AI where it demonstrably enhances service delivery, supported by clear guidance and oversight mechanisms. To maintain trust, new protections against deepfakes are being proposed, aimed at safeguarding digital identity as generative technologies proliferate.

Agencies are also piloting IoT and edge computing solutions in areas such as smart energy, mobility, and environmental monitoring, linking digital innovation to climate objectives. In healthcare, AI is being tested for triage, waiting list management, and clinical decision support, all within strict ethical parameters. The broader technology stack continues to emphasize cloud-native and API-first designs, ensuring flexibility and rapid integration

of new tools. Updated procurement guidelines promote modular architectures to avoid vendor lock-in and accelerate innovation cycles.

Singapore

1. General Information

Area: **735.6 km²**

Population: **5,870,750**

Government Type: Parliamentary Republic

2025 Growth Rate: **2%**

GDP (IMF '25): **\$564.77 Bn**

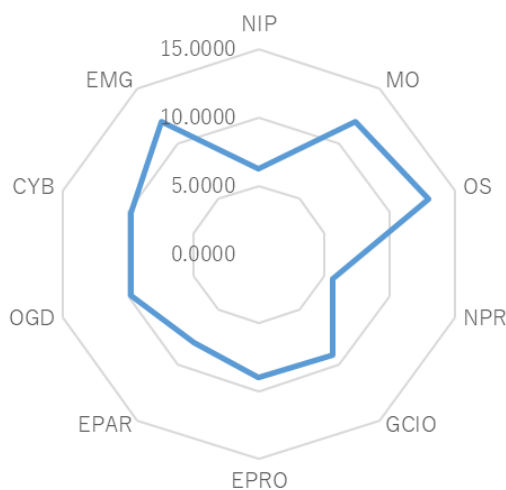
GDP Per Capita; **\$92,93**

Internet User: **96%**

Wired (Fixed Broadband User) per 100 people: **37.7**

Wireless Broadband User per 100 people: **173**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Singapore consolidated its Smart Nation foundations in 2025 with a strong focus on AI deployment at scale and seamless, secure citizen services. The refreshed National AI Strategy (NAIS 2.0) is now in execution, reinforced by new budget allocations that embed artificial intelligence into public service delivery, workforce skills, and business

innovation. GovTech's 2025 update highlights the operational use of data science and AI across agencies, improving both policymaking and service outcomes.

The Singpass ecosystem continues to anchor digital identity, supporting more than 41 million monthly transactions for over 5 million users. Features such as app-based logins, digital signatures, and face verification provide secure access to thousands of services. On the financial side, GovWallet and RedeemSG manage large-scale disbursements, including the 2025 CDC Voucher program, cutting reliance on paper-based cheques and speeding benefits distribution to households and merchants.

Singapore's open data ecosystem has also matured. The government reports over 350,000 monthly visitors, 30,000 monthly downloads, and approximately 13 million API calls to data.gov.sg, with clearer API governance and new rate limits introduced in 2025. Actively updated datasets from agencies such as ACRA, LTA, and URA continue to underpin research and private-sector innovation. In parallel, cybersecurity resilience remains a national priority. The Cyber Security Agency (CSA) issued updated advisories and began incorporating quantum-safe guidance into national strategy in response to increasing espionage and supply-chain risks.

Taken together, these initiatives demonstrate how Singapore is blending trusted identity systems, rapid financial support, AI-enabled government operations, and robust open data practices. This integrated model reinforces Singapore's strong global standing, reflected in its third-place position in the 2025 Waseda Digital Government Ranking.

3.2. New Trends

Singapore is moving toward AI-native public services, guided by the governance principles of NAIS 2.0. GovTech is embedding artificial intelligence into core functions such as triage, case routing, and decision support, while citizen interactions are being streamlined through an integrated suite of platforms—Sing pass, LifeSG, and GovWallet—that serve as a unified digital gateway. The maturity of Singapore's infrastructure is evident in its ability to conduct nationwide disbursements at scale; the

2025 rollout of CDC Vouchers via RedeemSG demonstrated rapid, low-friction payouts built on identity-linked rails.

Management of open data and APIs is also tightening, with clearer usage policies on data.gov.sg and an expanding catalog of machine-readable, real-time datasets across government agencies. At the same time, cyber resilience is being reinforced through new advisories from the Cyber Security Agency (CSA) and the incorporation of quantum-safe practices to embed security by design across platforms.

Innovation pipelines remain active, with initiatives like Open Government Products and Hack for Public Good graduating experimental prototypes into nationwide services. These developments present a governance model that is AI-enabled, identity- and wallet-centric, data-driven, and security-first, underscoring Singapore's continued position among the world's digital leaders.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Singapore's network infrastructure continues to serve as a core strategic asset in 2025, with upgrades deliberately planned ahead of demand. The country authorities are now driving multi-gigabit last-mile connectivity to accommodate the data intensity of AI-driven workloads. Resilience is being reinforced through diversified international connections and the expansion of greener, more energy-efficient data center capacity.

These supply-side investments translate into lower latency and greater reliability for essential government systems such as digital identity, payments, and data APIs. The extension of maritime and industrial 5G further broadens coverage beyond consumer markets, embedding advanced connectivity in critical sectors. Because enhancements are coordinated centrally, policy coherence prevents fragmented investment and accelerates rollout. This enables agencies to launch real-time, data-heavy services without the need for costly infrastructure redesign.

4.2. Management Optimization [MO]

Singapore's model of digital governance in 2025 is characterized by centralized strategy combined with pragmatic execution, ensuring consistent progress. The Ministry defines overarching strategy, Smart Nation institutions set mission-level priorities, and GovTech operationalizes these through reusable platforms and common standards. This center-led but agency-executed approach preserves operational autonomy where flexibility is needed, while safeguarding overall coherence. Updated guidance on responsible AI and secure-by-design principles now anchors investment and risk management decisions across agencies. Regular reviews, supported by clear performance metrics, emphasize adoption and long-term benefits instead of focusing solely on initial launches. As duplication decreases and reuse expands, the total cost of ownership across government systems is reduced.

4.3. Online Service [OS]

By 2025, Singapore's digital services are becoming increasingly mobile-first and identity-anchored, fundamentally reshaping how citizens interact with government. 99% of all government transactions are now completed online. Simplified transactions and integrated e-payments ensure that every citizen—regardless of digital literacy—can engage with services easily. These solutions also extend beyond government, creating an open, connected ecosystem that private-sector partners can leverage to improve and optimize their own operations.

Sing pass serves as the trusted gateway for thousands of public and private services, streamlining authentication, approvals, and transactions. With identity, digital signatures, notifications, and tightly integrated payouts, processes that once required multiple platforms now feel like a single, seamless journey. LifeSG organizes tasks around life events, while GovWallet enables entitlements and refunds to be delivered securely through app-based disbursements.

4.4. National Portal [NPR]

In 2025, Singapore's national portals operate as an integrated ecosystem rather than isolated websites, marking a defining shift in the digital landscape. gov.sg serves as the

hub for authoritative information, national campaigns, and crisis communication, while LifeSG and GoBusiness channel users directly into transactions. Because these entry points are predictably cross-linked, citizens spend less time searching and more time completing tasks.

Policy and budget microsites now model best practice by combining plain-language explainers with interactive tools such as calculators, FAQs, and seamless handoffs to e-services. At the same time, content governance has tightened: readability, accessibility, and scam-warning standards are consistently applied across agencies. Improved search functions and structured navigation further cut time-to-task as service catalogs expand. On mobile, enhanced layouts and performance sustain consistent user experience across devices.

This portal strategy deliberately aligns communication with action, closing the gap between learning and doing. As agencies adopt common design patterns, fragmentation continues to diminish. The result is that Singapore's National Portal Regime (NPR) in 2025 functions as a true digital front door to the state—comprehensive, seamless, and action-oriented—rather than a static information brochure.

4.5. Government CIO [GCIO]

Singapore's Government Chief Information Officer (GCIO) function is structured institutionally—an approach that enables scale and continuity. Strategic direction is set at the center, while GovTech translates policy into practice through the Singapore Government Tech Stack (SGTS), shared platforms, and open APIs. Platforms are managed as ongoing products rather than one-off projects, ensuring that updates are delivered continuously, securely, and with minimal disruption.

The refreshed NAIS 2.0 now provides the framework for AI governance and talent development, which agency leaders translate into specific roadmaps and safeguards. Procurement and architectural decisions are designed around reuse, modularity, and interoperability, avoiding expensive bespoke solutions. Core principles such as security,

observability, and reliability are embedded directly into the stack, reducing the need for remedial fixes.

Cross-ministry boards monitor outcomes and risks, while practical playbooks guide departments in turning policy into implementation. This model enables rapid delivery while preserving coherence and oversight, narrowing the gap between policy intent and operational software. As a result, Singapore's GCIO capability in 2025 functions as a backbone for both speed and disciplined stewardship of digital transformation.

4.6. E-Government Promotion [EPRO]

Singapore's Digital Government Blueprint (DGB) serves as the central roadmap for public-sector digitalization, ensuring a coordinated and citizen-centric approach to service transformation. It streamlines transactions, strengthens accessibility, and integrates emerging technologies such as AI and smart city platforms to enhance efficiency and user experience. Key objectives include making government interactions seamless and secure, upskilling agencies, leveraging data and AI for citizen-focused services, and engaging citizens and businesses in co-creation.

Initiatives such as the Open Digital Platform in Punggol Digital District illustrate how infrastructure and smart city solutions enable intelligent automation and resource optimization. Achieving DGB's ambitions requires close collaboration with businesses and ICT vendors, linking digital government goals with Singapore's broader Smart Nation vision of a thriving digital economy and inclusive digital society.

4.7. E-Participation [EPAR]

In 2025, Singapore's e-participation model is evolving from one-off feedback exercises to a structured, closed-loop process that clearly demonstrates how citizen input influences policy. The REACH Budget 2025 engagement combined online submissions, WhatsApp groups, and campus dialogues, ensuring that perspectives from students, workers, and seniors fed into a unified pipeline. Ministries now routinely publish "What We Heard /

What We’re Doing” summaries, a practice that closes the feedback loop and strengthens public trust.

Participation is broadening through both national and themed consultations—covering areas such as housing, transport, and skills—hosted on official portals with transparent timelines and outcomes. To reach less-connected groups, Listening Point booths and community sessions provide assisted digital access. Hybrid consultation formats are increasingly used for complex topics, pairing livestream Q&A with smaller, moderate discussions to balance reach with depth. Sing pass-enabled submissions help reduce spam while maintaining anonymity options for sensitive matters. Youth engagement is also being institutionalized, with schools and youth groups co-hosting dialogues to normalize civic participation from an early age. Because results are documented and searchable, citizens can follow proposals from initial idea to eventual implementation.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

In 2025, Singapore’s digital transformation is anchored in platform reuse and canonical data, shortening the path from policy decisions to operational services. The Singapore Government Tech Stack (SGTS) standardizes elements such as security, logging, and deployment, enabling teams to prioritize user value over infrastructure. On these foundations, GoBusiness integrates licensing and grants, drawing on MyInfo for pre-filled data that reduces form-filling and errors for SMEs. Similarly, LifeSG structures services around life events—such as childbirth or moving home—combining guidance, notifications, and transactions into single, streamlined flows.

The open data ecosystem continues to mature: data.gov.sg expands machine-readable datasets and stable, versioned APIs in areas including transport telemetry, environmental monitoring, and public finance. To safeguard reliability at scale, updated 2025 usage policies introduce rate limits, fair-use rules, and improved developer documentation. Agencies increasingly treat telemetry and user feedback as core inputs, iterating on measurable metrics such as task times and completion rates. Meanwhile, legacy systems are either wrapped or phased out systematically, lowering technical debt and reducing outages.

4.9. Cyber Security [CYB]

Singapore's cybersecurity posture in 2025 combines operational vigilance with long-term preparedness. The Cyber Security Agency (CSA) issues continuous advisories on scams, zero-day vulnerabilities, and supply-chain risks, which agencies convert into patching schedules and citizen alerts published on official portals. In system design, secure-by-default practices—including multi-factor authentication, strong cryptography, secrets management, and continuous scanning—are built into the Singapore Government Tech Stack (SGTS) and enforced through platform guardrails. Sector-specific codes for critical information infrastructure ensure standardized incident playbooks and regular red-teaming, enabling responses that are both rapid and repeatable.

Cross-government exercises simulate service takedown and recovery, strengthening coordination. Since scams remain the most common citizen threat, protective measures such as warning banners, verified links, and in-app notices have become standard across high-traffic channels. Looking ahead, a quantum-safe roadmap is initiating trials of post-quantum algorithms and crypto-agility designs in selected systems. Meanwhile, talent pipelines across government, academia, and industry are ensuring expertise in detection engineering and threat intelligence remains current.

4.10. Emerging ICT [EMG]

In 2025, Singapore adopts new technologies in a practical and well-governed way, focusing on proven results instead of hype. Under NAIS 2.0, AI is used where it clearly adds value—for example, answering questions in contact centers, routing social service cases, and extracting information from documents with human checks for accuracy. Core platforms such as Sing pass, GovWallet, and RedeemSG show the country's ability to deliver large-scale payouts and vouchers, as seen in the recent CDC Voucher programme. More licenses and certificates are becoming verifiable online, so people can confirm them in apps without paper copies or phone calls.

IoT and edge computing pilots are improving energy use in smart estates and providing near real-time transport data, supported by strong 5G networks. The Open Government

Products team continues to turn small prototypes—like secure forms or voucher systems—into platforms other agencies can reuse. Testing sandboxes and playbooks make sure AI systems are safe, reliable, and in line with policy.

At the same time, Singapore is planning for the future with quantum-safe cryptography, ensuring digital security keeps pace with advances in computing. Through global partnerships, the country also shares standards and methods to stay interoperable worldwide. Overall, Singapore’s 2025 approach to emerging tech is AI-first, identity-linked, security-focused, and designed for scale and trust.

Estonia

1. General Information

Area: **45,335 km²**

Population: **1,344,232**

Government Type: Parliamentary Republic

2025 Growth Rate: **0.7%**

GDP (IMF '25): **\$45 Bn**

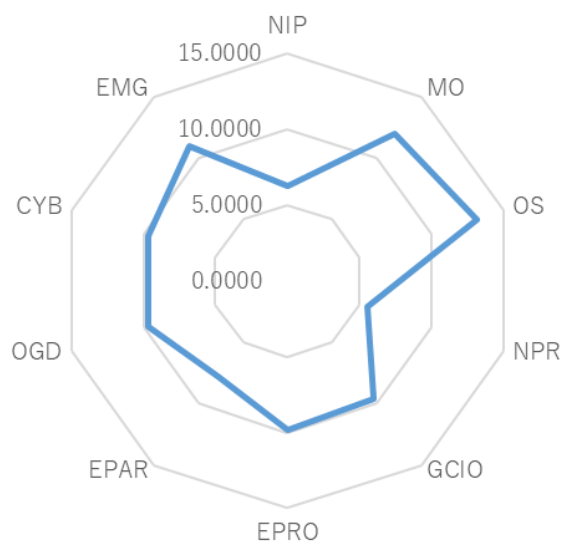
GDP Per Capita: **\$32.76**

Internet User: **93.2%**

Wired (Fixed Broadband User) per 100 people: **40.4**

Wireless Broadband User per 100 people: **210**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

By 2025, Estonia is consolidating two decades of digital nation-building into a more resilient and streamlined model. Instead of launching new portals, the government strengthens the core infrastructure: X-Road for secure data exchange, strong digital ID

systems (ID-card, Mobile-ID, Smart-ID) for trusted access, and an expanding Government Cloud for scale. With these foundations in place, ministries focus on improving the user experience—using pre-filled forms from central registers, bundling services around life events (such as birth, education, business, retirement), and offering proactive services where help is delivered before citizens even ask.

Flagship services remain central examples: e-Prescriptions are almost universally used, e-Tax filings are the norm, and the e-Business Register makes “company in a day” practical for both residents and e-residents. Cross-border capability continues to distinguish Estonia, with the joint Finnish Estonian NIIS partnership keeping X-Road interoperable, while the data embassy in Luxembourg ensures continuity in case domestic systems are disrupted. Security is deeply embedded, with blockchain-based integrity logging, continuous monitoring, and sector CERT coordination standard across systems.

Local governments now operate on the same digital rails, ensuring that a service in Tallinn works the same way in Tartu or on Saaremaa. Talent pipelines through agencies like TEHIK (health and welfare), RIK (registers and courts), and RIA (architecture and security) sustain momentum despite a small civil service. In short, Estonia’s 2025 progress is less about new showcases and more about reliably scaling the trusted model it pioneered.

3.2. New Trends

The Estonian Digital Agenda 2030, adopted in 2021, sets out the country’s long-term vision for using digital technology to advance the economy, government, and society. Its guiding principles emphasize digital government, universal connectivity, strong cybersecurity, and the integration of AI into public services. The overarching goal is to strengthen Estonia’s “digital power”: by 2030, digital government should deliver the best user experience, high-speed internet will be available to all, cyberspace will remain safe and reliable, and AI will be applied responsibly to improve policymaking, automate processes, and deliver proactive services.

Key priorities focus on developing digital competence: doubling the number of ICT professionals (with more cyber and AI specialists), expanding digital education at all levels, and promoting continuous reskilling across sectors. Citizens are expected to gain up-to-date digital skills, with the aim that all adults become regular internet users capable of safely and effectively engaging with AI-enabled e-services. Finally, investment in research and development will drive innovation, with a stronger role for AI in creating smart solutions and enabling their rapid deployment across the state and economy.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Estonia’s network readiness in 2025 remains a core national strength, designed not only for speed but also for resilience. With dense fiber coverage in urban areas and broad 4G/5G availability in rural counties, services can be confidently built on a mobile-first model. This connectivity enables real-time use cases such as video court hearings, secure authentication flows, and registry checks—without requiring in-person visits.

Government backbones are reinforced with multi-path connections and cross-provider redundancy, ensuring that single failures do not escalate into wider outages. To reduce latency in time-critical settings, hospitals, courts, and municipal hubs operate edge nodes that keep vital services responsive. Cross-border links with Finland further strengthen continuity for registries that synchronize across the Gulf, reflecting Estonia’s hallmark as a “small but connected” state.

Inclusion is safeguarded through public Wi-Fi, school networks, and community hubs that provide fallback access where home connections lag. Regular failover drills simulate black-sky scenarios, ensuring recovery procedures are proven in practice. Because capacity upgrades are closely tied to inclusion policies, infrastructure improvements deliver visible reliability gains for citizens. As a result, Estonia’s National Information Infrastructure (NIP) provides stable, predictable performance that underwrites digital operations at national scale.

4.2. Management Optimization [MO]

Estonia’s management model succeeds because it combines central guardrails with sector-led delivery. The state CIO function defines core architecture, cloud, and security baselines, while the Information System Authority (RIA) maintains the reference model. Specialized agencies—such as TEHIK for health and welfare and RIK for registers and courts—operate as “mini digital agencies,” developing sector platforms within a shared national framework. This division of responsibility prevents duplication and accelerates decision-making by keeping roles clear.

Procurement has been reoriented toward modular components tied to common rails such as identity, X-Road data exchange, and notifications. Instead of rebuilding, teams plug into existing systems, saving time and resources. A product-based delivery model (discovery–alpha–beta–live) ensures continuous user feedback, reducing rework and improving service fit across ministries. Leadership oversight emphasizes completion times, failure rates, and inclusion outcomes rather than only tracking launch milestones.

Risk governance is applied proportionately tight controls for high-risk changes, while low-risk iterations move forward with minimal barriers. Talent development also supports optimization: specialists rotate between central and sector teams, spreading expertise without over-centralizing capacity. As duplication declines and reuse increases, Estonia achieves both a lower total cost of ownership and greater delivery reliability, sustaining momentum in digital transformation.

4.3. Online Service [OS]

Estonia achieved a historic milestone: 100% of government services are now digitalized, making it the first country in the world where every administrative interaction can be completed online. This achievement underscores Estonia’s position as a global leader in digital governance and provides a benchmark for other nations. The final service to go digital was divorce, a process both complex and emotionally sensitive. By digitalizing this life event, Estonia proved that even services requiring nuance and empathy can be transformed into citizen-friendly solutions. Couples are now able to file applications online, access pre-filled forms, and complete the process with reduced stress. Since

launch, more than half of divorce applications—53%—have already been submitted digitally. The service includes a mandatory 30-day reflection period, as well as tools for property division and custody arrangements, showing the state’s ability to combine technological efficiency with human care.

This breakthrough complements strong uptake in other areas: 85% of birth registrations and 56% of marriage applications are now processed online. Together, these services highlight how Estonia’s model not only reduces bureaucracy but also simplifies some of life’s most significant events. The approach reflects a broader philosophy of human-centric technology. By prioritizing simplicity, security, and accessibility, Estonia ensures that digital solutions empower citizens rather than complicate their lives. Its e-government systems are designed for scalability, offering a transferable model that other countries can adopt to accelerate their own transformation.

4.4. National Portal [NPR]

Estonia’s eesti.ee portal reflects the country’s long tradition of building services around the “once-only” principle, where citizens never provide the same information twice. Instead of acting as a static website, the portal serves as an operational hub that connects people directly to transactions already pre-filled from national registers. Services are grouped around major life events—such as having a child, moving house, or registering a company—and the flow integrates seamlessly with Estonia’s secure digital ID ecosystem (ID-card, Mobile-ID, and Smart-ID).

The portal is also used as an official communication channel: verified messages delivered through Digital Post and clear anti-scam patterns ensure citizens can trust every interaction. Analytics are continuously applied to refine user journeys, and accessibility requirements make the portal reliable across all devices, from low-cost smartphones to desktops. In practice, eesti.ee is less a website and more the front door to Estonia’s digital state, converting intent into completed tasks with minimal friction.

4.5. Government CIO [GCIO]

Estonia's GCIO capability is designed to scale because it is embedded institutionally. The center establishes clear guardrails for interoperability, cloud use, and security, while dedicated platform teams deliver shared building blocks—such as digital identity, X-Road data exchange, secure messaging, and audit services—that other agencies consume as standard components. Architecture reviews reward modularity and the use of open APIs, keeping vendor lock-in limited and making future upgrades manageable.

Leadership monitors runtime metrics, and underperforming services are required to implement improvement plans. Talent development brings product, data, and AI expertise directly into line ministries, reducing long-term reliance on external vendors. Cross-border collaboration through NIIS keeps X-Road interoperable with peers like Finland, ensuring Estonia's systems evolve in step with regional standards.

4.6. E-Government Promotion [EPRO]

The e-Estonia initiative reflects Estonia's comprehensive vision of a digitally empowered society, built on secure, efficient, and interoperable services. At its core is X-Road, the national data exchange backbone that enables seamless and trusted information flows across platforms and institutions.

Estonia's digital government framework rests on three foundational pillars:

- Confidentiality – Access to information is strictly limited to authorized users, protected by advanced cryptography, digital signatures, and multi-factor authentication. These safeguards give citizens and businesses confidence that their data remains private and tamper-proof.
- Availability – Services are designed to be accessible anytime, ensuring that essential interactions—such as filing taxes, voting, or retrieving health records—are always online and reliable, with minimal downtime.
- Integrity – Systems ensure that data remains accurate, consistent, and trustworthy. Strong authentication tools—such as the ID-card, Mobile-ID, and Smart-ID—guarantee that only authorized users can access or alter records, maintaining the credibility of government data.

4.7. E-Participation [EPAR]

Estonia's digital participation system is designed to be transparent, and impactful, encouraging citizens to stay engaged well beyond single campaigns. A unified consultation portal hosts draft laws and regulations with clear timelines and background information, enabling citizens to provide informed feedback. Ministries increasingly follow up with “what we heard / what we changed” reports, so contributors can see how their input influenced outcomes rather than disappearing into a black box.

Multiple civic platforms reinforce this ecosystem. Rahvaalgatus channels qualified citizen initiatives to parliament, while municipalities expand participatory budgeting that allows residents to vote on local spending priorities directly from their phones. For more complex issues, hybrid formats combine livestream Q&A with smaller moderated sessions, achieving both breadth and depth. Identity-backed submissions safeguard integrity when needed, while anonymous input is allowed for sensitive matters.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Estonia's digital transformation moves fastest where platform reuse combines with canonical data, and 2025 highlights this formula in action. X-Road ensures systems remain synchronized under the once-only principle, so citizens never resubmit information already held by the state. The RIHA catalogue clarifies ownership of systems and interfaces, reducing duplication and making integration more predictable. Open-data portals, including geospatial services, now provide machine-readable datasets with versioning and service-level agreements, giving developers dependable tools for reuse.

Inside government, event-based integration is steadily replacing fragile batch processes, reducing reconciliation errors across ministries. Legacy IT systems are phased out in waves—wrap, replace, decommission—allowing risks to be managed while freeing capacity for new builds. With technology, data, and design aligned, services are deployed faster and adapt more easily to change. As a result, Estonia's DX and OGD strategy delivers quicker builds, stronger evidence, and lower friction for both citizens and businesses.

4.9. Cyber Security [CYB]

Since 2016, Estonia's e-Government Academy has contributed to the NCSI Cyber Security Index, which benchmarks national cybersecurity maturity and highlights areas for development. Estonia's performance is also assessed against the EU-CSI index (by ENISA) and the ITU global index, reflecting its readiness to prevent and respond to cyberattacks.

In Estonia, the Information System Authority (RIA) began operating as the National Cyber Security Centre (NCSC-EE) in 2023, serving as the country's single point of contact under the EU NIS Directive, and safeguarding both the public sector and critical infrastructure. Estonia's cybersecurity strategy has evolved since 2008, with the current 2024–2030 strategy focusing on four areas: developing national cybersecurity, strengthening societal resilience, reinforcing CYBER-SHIELD (monitoring and prevention), and shaping a secure cyber environment. The vision is to ensure that Estonia's digital services remain trustworthy and resilient amid an increasingly insecure global environment, with a stronger emphasis on security and defense than in earlier strategies.

4.10. The use of Emerging ICT [EMG]

Estonia's approach to emerging technology is purposeful and governed, ensuring that deployments scale beyond pilots. Under the Bürokratt framework, AI is applied only where it delivers measurable value—such as triaging inboxes, routing cases, or extracting data from documents—while accountability remains with human decision-makers. These capabilities are integrated into existing identity-linked rails, avoiding new silos and keeping the user experience coherent.

Estonia is also piloting verifiable credentials and EUDI wallets, enabling licenses and diplomas to be instantly checked across borders and extending the e-residency mindset to everyday proofs. Edge and IoT solutions are being deployed in traffic optimization, flood monitoring, and building safety, supported by 5G MEC where ultra-low latency is

required. Digital twins in construction and transport allow planners to test scenarios virtually before implementation, reducing costs and risks.

Strong assurance practices—such as model documentation, bias testing, and audit trails—embed AI ethics into daily engineering work. Sustainability is also advancing through green-by-default computing and carbon-aware scheduling in procurement. Partnerships with higher education and research institutions provide secure compute capacity and expertise, accelerating the move from prototype to production.

South Korea

1. General Information

Area: **100,363 km²**

Population: **51,667,029**

Government Type: Presidential Republic

2025 Growth Rate: **1%**

GDP (IMF '25): **\$1.79 Tn**

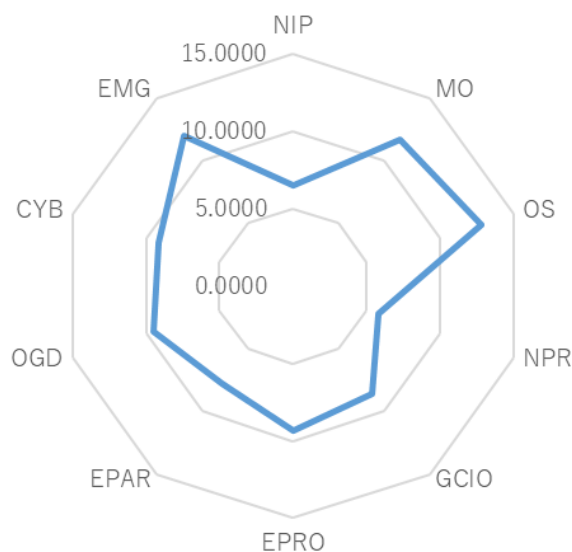
GDP Per Capita: **\$34,64**

Internet User: **97.4%**

Wired (Fixed Broadband User) per 100 people: **46.6**

Wireless Broadband User per 100 people: **122**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

South Korea has long been recognized for its strong e-government, but by 2025 the challenge is shifting toward digital government and economy-wide transformation. Having entered the world's top 10 economies in 2006 on the back of export-led growth, Korea now seeks to revitalize its slowing growth potential through digitalization.

Initiatives such as the smart factory programme, which integrates AI, IoT, big data, and cloud into manufacturing, illustrate how digital technologies can boost productivity, encourage reshoring, and support job creation. However, progress toward a broader digital economy has been gradual, underscoring the need to extend digitalization beyond government services into core industries.

The distinction between e-government and digital government is still evolving in Korea, with the latter concept only recently taking shape through large-scale projects. Whereas e-government has traditionally focused on online access to administrative services, digital government implies data-driven, AI-enabled, and user-centered services integrated across sectors. For citizens, this means greater convenience through online forms, mobile access, and reduced waiting times. For businesses, digitalization offers opportunities for innovation and competitiveness but also brings disruption for slower adopters. For government, it requires rethinking regulations, service delivery, and economic policy in ways that account for both benefits and risks.

At a broader level, Korea recognizes that data is now a critical production factor, reshaping trade, industry, and global value chains. Digital goods flow across borders at near-zero marginal cost, while platforms capture scale advantages in media, entertainment, and commerce. These dynamics demand new policies to address privacy, intellectual property, and cybersecurity. For Korea, the task ahead is clear: scale digital innovation across government and industry, clarify its digital-government framework, and invest heavily in skills and resilience. Doing so will allow the country to convert its e-government strengths into a whole-economy digital transformation, ensuring growth, trust, and competitiveness in the global digital era.

3.2. New Trends

South Korea unveiled its Digital Government Master Plan 2021–2025, designed to shift from traditional e-government to a smarter, AI-enabled digital state. The strategy highlights three key directions: intelligent service delivery, data-driven governance, and inclusive digital infrastructure. Together, these trends aim to harness emerging

technologies like artificial intelligence, blockchain, IoT, and cloud computing to improve efficiency, resilience, and accessibility.

The first priority is building intelligent public services. AI plays a central role in natural language-based virtual assistants, automated case routing, and proactive service notifications. Citizens can access one-stop application processes supported by MyData and digital certificates, while blockchain and IoT strengthen authentication and security. These services are designed not only to simplify interactions but also to anticipate user needs.

The second pillar advances a data-based government, where AI-driven analytics help shape evidence-based policymaking and improve disaster prevention and response. Government data analysis centers and open APIs also enable collaboration with the private sector, while cloud adoption ensures scalable and cost-effective operations.

Finally, the third priority focuses on foundations for digital transformation: ensuring inclusion for vulnerable groups, fostering public–private partnerships, updating laws to address digital rights and ethics, and promoting international cooperation. With AI integrated across all three pillars, South Korea positions itself to build a resilient, citizen-centric, and globally connected digital government.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

South Korea’s network remains a core competitive strength, and by 2025 it is being optimized for both resilience and speed. With nationwide fiber and extensive 5G coverage, ministries can design mobile-first services—such as license renewals or benefit claims—that complete smoothly on a smartphone. Low-latency connectivity also supports edge analytics and other data-intensive applications.

The government is adopting multi-cloud and multi-carrier strategies, protecting critical functions like payments, messaging, and digital identity. Municipal networks are being upgraded to manage growing sensor traffic from smart mobility, energy systems, and

flood monitoring, all of which feed into real-time dashboards for decision-makers. Expanded backhaul and peering capacity ensure the network can absorb AI-era data volumes without service degradation.

Resilience is further reinforced through realistic continuity testing, ensuring failover mechanisms work in practice. At the same time, inclusion programmes extend reliable access to rural and low-income users, so “digital-by-default” does not become “digital-only.” Collectively, these measures allow agencies to deliver richer, real-time digital services without infrastructure becoming the constraint. South Korea’s National Information Infrastructure (NIP) thus continues to underpin nationwide digital operations with consistent and predictable performance.

4.2. Management Optimization [MO]

South Korea’s management approach combines central direction with empowered delivery, enabling faster and more consistent execution in 2025. The Digital Platform Government Committee sets strategic priorities, while MOIS and MSIT translate these into standards, budgets, and reusable components. With roles clearly defined, portfolios are managed by outcomes and service quality rather than simply by the number of projects delivered.

Large ministries now work with product-centric methods, roadmaps, discovery, beta testing, and continuous delivery—cutting rework and improving service fit. Procurement has shifted toward modular contracting, so teams can plug in shared capabilities like identity, payments, or notifications without renegotiating large monolithic agreements. Performance is monitored through benefits tracking and public dashboards, giving leaders visibility into friction points and helping them prioritize fixes that matter most to citizens.

Risk governance follows a proportional model: high-risk changes face tighter controls, while low-risk iterations move forward quickly to maintain momentum. Talent programmes rotate designers, product managers, and data scientists into line agencies, embedding modern practices across the public sector. As duplication decreases and reuse expands, South Korea reduces total cost of ownership while raising delivery reliability.

In effect, the country's management optimization model turns digital strategy into repeatable, cross-government execution.

4.3. Online Service [OS]

By 2025, South Korea's digital services are shifting from a fragmented portal landscape to coherent, end-to-end journeys anchored by Government24 and mobile credentials. Single sign-on now unifies access to taxes, benefits, and licensing, sparing users from juggling multiple accounts. With canonical registers pre-filling forms, citizens spend less time resubmitting information the state already holds, improving efficiency and reducing frustration.

AI-powered assistants—operating with human oversight—help triage questions, recommend next steps, and ease pressure on call centers. Standardized payment rails allow fees, refunds, and vouchers to move through the same secure mobile platform, while proactive notifications with verified links bring users back to incomplete tasks and reduce abandonment. Accessibility features such as strong contrast, language support, and error-handling have boosted completion rates across age groups.

To ensure equity, assisted-digital services remain available in community centers and city halls for those with lower digital confidence. Reliability is reinforced through multi-cloud hosting and active monitoring, reducing failures during peak demand. As a result, South Korea's online services in 2025 function less like a catalogue of links and more like a seamlessly stitched digital journey, balancing convenience, trust, and inclusivity.

4.4. National Portal [NPR]

The portal's search and structured navigation have been refined to keep time-to-task low, even as service catalogues grow. Mobile layouts and system performance have been strengthened to absorb peak loads during tax filings, school registrations, or benefits seasons. Security is built in: scam-resistant patterns—such as verified sender labels, consistent headers, and warning banners—protect users from fraud and phishing.

For businesses, one-stop pages now bundle licensing, filings, and support schemes into single, predictable journeys. Personalization is expanding through life-event dashboards that show pending steps and deadlines in one view. Analytics drive content governance, with high-bounce or dead-end pages quickly redesigned. As a result, Korea's national portal in 2025 operates as a coherent entry point that reliably converts user intent into completed tasks, reinforcing trust and efficiency.

4.5. Government CIO [GCIO]

South Korea's GCIO function is structured institutionally, which allows it to scale consistently across ministries. Central authorities set guardrails on cloud, security, and interoperability, while platform teams deliver reusable building blocks such as identity, payments, notifications, and verified documents. Delivered "as a service," these rails let programmes concentrate on mission logic and user experience instead of duplicating core infrastructure.

Architecture reviews prioritize modularity and open interfaces, keeping vendor lock-in low and future changes manageable. Spending controls and portfolio reviews link budgets directly to outcomes rather than milestones, reinforcing accountability. Communities of practice translate policy into reference architectures, shared code, and playbooks, enabling teams to adopt proven patterns quickly.

Compliance is embedded into platform contracts, ensuring security, privacy, and accessibility come by default. Talent programmers inject product, data, and AI skills into line agencies, reducing dependency on external vendors for critical capabilities. With runtime metrics visible to senior leadership, underperforming services prompt corrective action rather than delay. In 2025, this model ensures that Korea's GCIO capability provides both delivery speed and disciplined stewardship across government.

4.6. E-Government Promotion [EPRO]

South Korea's promotion strategy in 2025 emphasizes building digital confidence alongside adoption. Rather than generic advertising, campaigns are tied to concrete

outcomes—faster tax refunds, smoother business filings, and easier benefits access—so citizens and SMEs see immediate value. Public trust is reinforced through cyber-safety messaging and practical guidance on spotting scams, a theme that reflects Korea’s high mobile penetration and the rising volume of fraud attempts on messaging platforms.

Targeted initiatives expand inclusion: senior-friendly counters, digital help desks, and community classes make online services usable for those less confident, while multilingual resources support immigrant groups. For SMEs, specialized compliance toolkits demonstrate how digital processes like e-invoicing translate into efficiency and fewer errors. This practical framing positions digital tools as enablers of competitiveness, not just obligations.

Promotion also operates as a feedback loop. Service performance data—completion rates, transaction speed, satisfaction—feed directly into communication campaigns, highlighting improvements and encouraging more users to shift online. Assisted digital channels remain open and visible, signaling that the government values equity as much as efficiency. In this way, Korea’s promotion model in 2025 works less like marketing and more like trust-building infrastructure, turning consistent usage into lower costs and higher confidence over time.

4.7. E-Participation [EPAR]

South Korea’s approach to digital participation in 2025 is marked by a steady move toward predictability and consequence. Petitions and grievances no longer vanish into bureaucracy; instead, they are routed to the right agencies, tracked, and published with outcomes. Engagement is also becoming more diverse and layered. Ministries targeted dialogues on transport, housing, or skills, while municipalities bring residents into budgeting decisions through mobile voting. Schools, universities, and youth groups are increasingly drawn into the process, so civic participation is learned early rather than reserved for election cycles. Hybrid forums—mixing livestream debates with smaller moderated sessions—demonstrate that even complex issues can be handled in inclusive yet structured ways.

This openness lowers the sense of tokenism and strengthens trust. By 2025, South Korea's e-participation channels no longer feel like experiments; they function as evidence-bearing systems that reliably shape decisions at both national and local levels.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

South Korea's progress in e-government through the 1990s and 2000s was widely recognized, but transparency lagged behind service delivery. Until the early 2010s, government agencies rarely published data proactively and often resisted making information easily accessible to citizens or businesses. The government used a two-pronged approach: strengthening the Public Information Disclosure Act to require pre-emptive disclosure and simplifying requests, while simultaneously launching the Korea Open Data Policy (KODP) to promote service innovation and entrepreneurship. Implementation was not without resistance, many agencies treated data as a source of authority and were reluctant to share it. To overcome this, open data performance was incorporated into annual evaluations, putting reputation and incentives on the line. Agencies began to compete on transparency, supported by technical tools such as automatic data conversion to machine-readable formats.

The results were significant. Target policy areas for open data grew significantly. The focus also shifted from quantity to quality, with machine-readable formats emphasized over PDFs to make data more usable for citizens, researchers, and businesses. This expansion has driven new digital services, improved accountability, and opened business opportunities in data-driven sectors. South Korea's open data journey demonstrates how legal reform, institutional incentives, and performance monitoring can turn transparency into a pillar of digital governance and economic innovation.

4.9. Cyber Security [CYB]

South Korea's cybersecurity posture in 2025 combines operational vigilance with design-time assurance. Agencies follow roadmaps—embedding strong authentication, least-privilege access, and continuous monitoring—enforced through shared platform guardrails. Supplier requirements now mandate secure-by-design practices and timely

patching across the software chain, ensuring vulnerabilities are addressed early. For citizens, public-facing portals display scam warnings and verification cues, improving digital hygiene as more communication shifts to mobile channels.

Resilience is tested through sector-wide exercises that rehearse service restoration under realistic stress rather than controlled lab conditions. Lessons from past outages have informed stronger redundancy in messaging and payment systems, preventing failures at a single provider from cascading across government services. Sensitive systems are piloting crypto-agility and early quantum-safe methods, ensuring the country is prepared for emerging cryptographic risks.

Workforce capacity is being bolstered through joint training programs with universities and industry, helping maintain up-to-date expertise in detection and response. Cyber metrics are presented alongside service KPIs, giving leaders a unified view of both risk and performance. Collectively, these measures position South Korea's cybersecurity framework as a trust anchor for an increasingly AI-enabled, mobile-first digital state.

4.10. The use of Emerging ICT [EMG]

In 2025, South Korea approaches emerging technology adoption with purpose and strong governance, ensuring that deployments are sustainable rather than short-lived pilots. Agencies apply AI where it demonstrably improves outcomes—triaging contact-center queries, routing benefit cases, and extracting information from documents—while maintaining human oversight of decisions. These capabilities are embedded into existing identity-linked platforms, avoiding the creation of new silos and keeping user journeys seamless.

The scope of verifiable digital documents continues to expand, allowing licenses and certificates to be authenticated directly in mobile apps without the need for paper forms or hotline calls. Cities are also deploying edge and IoT solutions on 5G MEC for high-speed applications such as traffic management, energy optimization, and public safety. Korea's global strengths in semiconductors and AI chips provide the backbone for secure, high-performance inference close to the user, reinforcing both capability and sovereignty.

Strong assurance practices—such as model documentation, bias testing, and audit trails—translate AI ethics into routine engineering standards. At the same time, sustainability is prioritized through green-by-default computing and carbon-aware scheduling in procurement. By engaging in international standards forums, Korea ensures its solutions remain interoperable and export-ready. Collectively, these measures define South Korea’s emerging tech landscape as AI-forward, identity-centric, and security-first, designed for scale, resilience, and public trust.

Netherlands

1. General Information

Area: **41,865 km²**

Population: **18,346,819**

Government Type: Constitutional Monarchy

2025 Growth Rate: **1.4%**

GDP (IMF '25): **\$1.27 Tn**

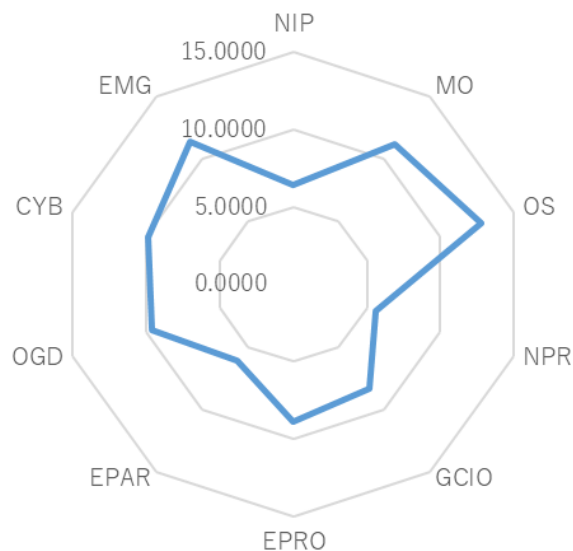
GDP Per Capita: **\$70,480**

Internet User: **97%**

Wired (Fixed Broadband User) per 100 people: **44.4**

Wireless Broadband User per 100 people: **123**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, the Netherlands advances its “value-driven digital government” agenda by embedding proven infrastructure into day-to-day service delivery. Core national platforms—DigiD for citizens, eHerkenning for businesses, MijnOverheid with the

Berichtenbox for secure communication, and Digipoort/SBR for structured data exchange—now underpin most high-volume services across taxation, benefits, permits, and healthcare. With these rails stable and widely used, ministries can shift focus from maintaining infrastructure to improving the user experience, streamlining forms, pre-filling data already held by the state, and strengthening service-level guarantees.

The government continues to invest in open data and geospatial platforms, such as national catalogs and PDOK-style services, to drive research and commercial reuse. Updated API policies make integration more predictable for developers, while the long-delayed digital permitting system under the Environment and Planning Act has been incrementally reinforced. Citizens can now access municipal services through a single Omgevingsloket portal, with clearer workflows and status tracking. On the infrastructure side, cloud-first adoption grows under shared reference architectures, and legacy IT systems are retired in phased waves to manage operational risk.

Cybersecurity has become a design-time requirement: stronger identity assurance, continuous monitoring, and supply-chain controls are built directly into contracts. To ensure inclusion, Informatiepunten Digitale Overheid in libraries and municipal counters offer assisted-digital support for those less confident online. At the same time, talent pipelines in product management, data, and AI are being expanded so ministries can develop and iterate more in-house. Together, these measures keep the Netherlands among the global leaders in digital government, while creating capacity for the next generation of AI-enabled services that remain secure, fair, and easy to use.

3.2. New Trends

The Netherlands' Digital Economy Strategy (2022–2030) sets the long-term framework for strengthening the country's role as a leader in the digital transition. Built on five pillars, accelerating SME digitalization, fostering innovation and digital expertise, ensuring competitive digital markets, developing resilient infrastructure, and improving cybersecurity, the strategy remains intact under the current government. A progress report submitted to the House of Representatives in early 2025 shows progress in SME digitalization, infrastructure quality, and innovation uptake, but also highlights persistent

challenges: a shortage of digital experts, slow private investment in infrastructure, and a transformation pace that risks eroding the Netherlands' competitive edge.

The strategy is tightly interlinked with the National Technology Strategy (2024) and the Netherlands Cybersecurity Strategy (2022) and will soon be complemented by an overarching Dutch Digitalization Strategy, expected in mid-2025 under the State Secretary for Digitalization. All three strategies align closely with the European Commission's Digital Decade targets, reflecting the Netherlands' integration into EU-wide digital policy. The agenda also stresses the role of emerging technologies—AI, quantum computing, digital twins, 6G, and digital product passports—in shaping the country's future economic resilience and service delivery.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

In 2025, the Netherlands combines high-speed connectivity with resilience to sustain its digital government ambitions. Fiber rollouts continue to raise baseline capacity, while the 3.5 GHz band extends 5G coverage and performance beyond major cities. With predictable bandwidth and latency, agencies are able to design mobile-first services for identity verification, permits, and payments without fearing service degradation.

Resilience is strengthened through multi-path connectivity and reinforced peering, protecting critical portals against surges and incidents. Data-center upgrades are guided by efficiency and continuity targets, ensuring computed resources can scale within both energy and availability budgets. Edge capacity at ports, airports, and campuses supports time-critical logistics and public-safety applications, while refreshed municipal backbones and public Wi-Fi expand adoption among groups that might otherwise lag behind.

4.2. Management Optimization [MO]

By 2025, the Netherlands manages digital government through a product-centric, outcomes-driven model that accelerates execution. The Interior Ministry provides policy

and governance, while Logius and other delivery bodies maintain shared identity, secure mail, payments—that agencies can reuse. Portfolio boards track benefits and risks, evaluating not just whether services are launched, but whether completion times fell and citizen trust improved.

Procurement has shifted toward modular contracting, supported by standardized templates that make it easier to add core functions without renegotiating large, monolithic agreements. Reference architectures such as NORA ensure consistency, so platforms interoperate rather than multiply in silos. Delivery teams follow discovery–alpha–beta–live cycles, cutting rework and reducing time-to-service. Dashboards and user telemetry feed back into the policy cycle, turning intent into measurable iteration. Talent development—through rotations, academies, and communities of practice—brings product, data, and AI skills into line ministries, not just central agencies. With duplication reduced and reuse rising, the Netherlands lowers total cost of ownership while improving service reliability.

4.3. Online Service [OS]

Dutch online government services are recognized for their user-friendliness, transparency, and security, placing the Netherlands among Europe’s digital leaders. The country scores 85 points overall, well above the European average, with 96% of measured government services available online. This strong performance reflects the maturity of national platforms such as DigiD, MijnOverheid, and Berichtenbox, which provide citizens with secure and seamless access to key services.

Ease of use remains a defining feature. Pre-filled personal data is integrated into 89% of Dutch digital services, compared to a European average of 71%, and 13% of services are delivered proactively, such as automatic child benefit payments. This puts the Netherlands in the top tier of countries using data-driven automation to reduce administrative burden. However, accessibility gaps remain while most services meet user-friendly design standards, many websites across the EU—including Dutch ones—still fall short of the Web Content Accessibility Guidelines (WCAG), limiting usability for people with disabilities.

4.4. National Portal [NPR]

Citizens typically start at Overheid.nl or Rijksoverheid.nl, which provide authoritative information before directing users into MijnOverheid, tax, social security, or permitting services. Businesses follow a parallel path via Business.gov.nl (Ondernemersplein), which consolidates licensing, compliance, and grant applications into structured journeys. This dual-track design ensures that both citizens and enterprises encounter tailored pathways that align with their needs.

The focus is on reducing friction at scale. Plain-language explainers, calculators, and life-event pages prepare users before handing them into actual transactions. Dashboards display upcoming deadlines and pending tasks, helping people and firms avoid missed filings or repeated contacts. Portals are optimized for mobile performance and peak demand, so seasonal spikes—such as tax or school enrolments—do not disrupt availability.

4.5. Government CIO [GCIO]

In 2025, the Netherlands runs its GCIO model through clear institutional roles rather than a single executive. The central CIO office defines the rules for cloud use, interoperability, and security, while Logius and allied platform teams deliver common building blocks such as DigiD, secure mail, verifiable documents, and messaging. Because these functions are provided as shared services, ministries can concentrate on designing policies and user journeys instead of rebuilding infrastructure.

Compliance and accountability are built in. Security, privacy, and accessibility requirements are embedded in contracts, so services inherit them by default. Real-time performance dashboards give leaders visibility, with underperforming systems flagged for immediate action. Talent programs bring product, data, and AI skills into ministries, cutting dependence on vendors. Together, these measures make the Dutch GCIO function a disciplined but flexible system that delivers both speed and reliability in digital government.

4.6. E-Government Promotion [EPRO]

The Netherlands promotes e-government through its National Digitalization Strategy (NDS), which frames digitalization as a collaborative effort across all levels of government and with private-sector partners. The strategy prioritizes cloud adoption, better data sharing, and responsible AI, aiming to create services that are more streamlined, transparent, and citizen focused.

Equally important are inclusion and resilience. High-quality connectivity and targeted support help bridge the digital divide, while cybersecurity requirements are built into platforms to strengthen trust. Civil servants are being trained in digital and data skills, ensuring that capacity keeps pace with technology. By linking infrastructure, skills, and private-sector collaboration, the NDS positions the Netherlands to deliver a modern, data-driven, and resilient digital government.

4.7. E-Participation [EPAR]

Studies by Dutch research institutes such as SCP and WRR have long pointed to a gap between citizens' expectations and the responsiveness of authorities. While people want more direct involvement in policymaking, public administration has been slow to take advantage of digital tools.

The Ministry of the Interior and Kingdom Relations (BZK), together with the Association of Netherlands Municipalities (VNG), is now working on a network approach to expand the use of digital participation platforms at local level. Through partnerships with provinces—so-called provinciedeals—municipalities receive support to adopt tools for online consultation, participatory budgeting, and digital deliberation. Research bodies like the Rathenau Instituut and advocacy groups such as Netwerk Democratie help ensure these platforms are transparent, open source, and trusted.

These initiatives are framed as part of Democratie in Actie (“Democracy in Action”), which provides a national helpdesk, regular networking events, and shared open-source solutions such as Open Stad, Consul, and pol.is. The aim is to make participation more

visible, consequential, and accountable, with municipalities publishing not only consultation outcomes but also how feedback influences decisions. By embedding digital channels alongside traditional forms of engagement, the Netherlands is beginning to transform participation from occasional experiments into routine democratic practice, strengthening both local responsiveness and citizen trust.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

In 2025, the Netherlands shows how platform reuse and canonical data can accelerate digital transformation. Core enablers such as DigiD for identity, Berichtenbox/MijnOverheid for secure mail, and eHerkenning for business authentication are provided as shared services, allowing ministries and municipalities to concentrate on improving the user journey rather than maintaining infrastructure. The stelsel van basisregistraties (base registries)—covering people, businesses, addresses, buildings, topography, and subsurface data—supports the “once-only” principle, reducing administrative burden through pre-filled forms and automatic cross-checks.

Open government data is also structured for reuse. Data.overheid.nl and PDOK supply machine-readable datasets and geospatial services with versioning and clear service expectations, enabling developers and researchers to plan around stable APIs. For businesses, reporting through SBR/Digipoort continues to cut compliance costs by using standardized data formats that reduce errors and accelerate processing. Inside government, event-driven integration is gradually replacing batch-based exchanges, lowering the risk of data drift across national and municipal systems.

By aligning technology, data, and service design, the Netherlands has reached a stage where digital services are deployed faster, adjusted more safely, and deliver tangible reductions in friction for citizens and firms.

4.9. Cyber Security [CYB]

The Netherlands also performs strongly in public-service cybersecurity: all government websites now meet EU security criteria, and 90% of services enable secure DigiD login.

Yet, gaps remain citizens still lack full visibility into how their data is used, and service access for non-nationals is limited 96% availability for Dutch citizens compared to 54% for foreigners. Expanding English-language access and increasing transparency in data use are the next priorities. Taken together, the Netherlands' cyber posture in 2025 offers a mature, trusted foundation for AI-enabled, mobile-first digital services, while acknowledging the need to close remaining inclusivity gaps.

By 2025, the Netherlands manages cybersecurity through a blend of operational vigilance and design-time assurance. The BIO baseline ensures consistent rules for authentication, privilege, and monitoring across public bodies, while municipalities are supported by IBD and audited through ENSIA, turning compliance into a continuous process rather than one-off checks. For operators and suppliers, the NIS2-aligned regime strengthens governance and reporting obligations, raising standards for essential and important entities. At the national level, NCSC-NL advisories and DTC guidance translate threat intelligence into practical patching and hygiene steps for both government and businesses.

Public-facing portals carry prominent scam warnings and verified-sender cues, a critical safeguard as more official communication moves to SMS and apps. Sensitive platforms are adopting crypto agility, preparing for a post-quantum environment in a managed way rather than under emergency conditions. Sectoral ISACs in finance, health, water, and energy rehearse red-teaming and information-sharing, ensuring incident response is both rapid and repeatable. Skills pipelines are reinforced through university partnerships and regional hubs, keeping detection engineering and incident response expertise onshore.

4.10. The use of Emerging ICT [EMG]

In 2025, the Netherlands adopts emerging technologies with a governed, production-grade approach, ensuring pilots scale into durable services. AI applications are deployed where they demonstrably improve outcomes—such as triaging contact-center queues, routing permit or benefits cases, and extracting data from documents—while human oversight is safeguarded through audit trails and appeal processes. Identity-linked rails like DigiD and pilots with EUDI/NL-wallet enable verifiable digital documents—licenses,

diplomas, company attestations—to be checked directly in-app, reducing reliance on paper.

At the local level, edge and IoT deployments on 5G campuses support traffic optimization, flood and dike monitoring, and energy balancing, showing citizens tangible value from sensors and analytics. In logistics, ports—particularly Rotterdam—advance with digital-twin models and secure data-sharing, cutting turnaround times while maintaining safety. Governance mechanisms are equally mature: ministries maintain algorithm registers, apply national algorithm assessment methods, and embed procurement rules for explainability and bias testing. As a result, the Dutch EMG profile in 2025 is AI-driven, identity-centric, and security-first, designed for scale, speed, and public trust.

The United States (US)

1. General Information

Area: **9,833,520 km²**

Population: **347,275,807**

Government Type: Federal Constitutional Republic

2025 Growth Rate: **1.8%**

GDP (IMF '25): **\$30.51 Tn**

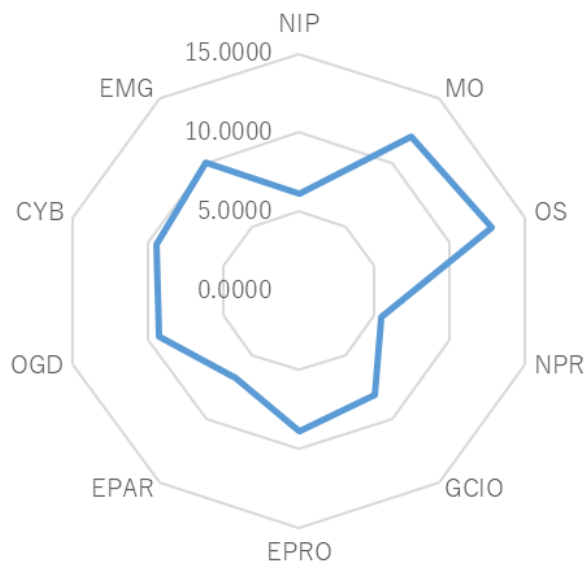
GDP Per Capita: **\$89,110**

Internet User: **93.1%**

Wired (Fixed Broadband User) per 100 people: **38.1**

Wireless Broadband User per 100 people: **185**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

The United States has rapidly expanded the availability and quality of online services. Digital options for permits, licensing, and payments are now routine at federal, state, and local levels, anchoring a government experience that is increasingly digital-first and user-

friendly. Transparency and efficiency are advanced through open data and open-source policies. The Open Data Policy expands access to public datasets, while the Federal Source Code Policy requires agencies to share reusable code. The U.S. Digital Service (USDS) plays a pivotal role, bringing technologists into government to modernize legacy systems and embed user-centered delivery practices.

Emerging technologies further drive progress. AI supports predictive analytics, fraud detection, and service triage, while IoT applications improve traffic, environmental monitoring, and smart infrastructure. Yet challenges remain digital inclusion efforts aim to ensure all citizens can access services, while data governance and cybersecurity are receiving heightened attention. Through interagency coordination and ongoing innovation, the U.S. model continues to evolve toward a more equitable, secure, and innovation-oriented digital government.

3.2. New Trends

In 2025, the Trump administration has dismissed many government employees and malfunctioned in many agencies. At the same time US government has placed artificial intelligence at the center of its digital strategy, framing it as both an economic imperative and a national security priority. Executive Order 14179, Removing Barriers to American Leadership in Artificial Intelligence, and the subsequent AI Action Plan outline a roadmap built on three pillars: innovation, infrastructure, and international leadership. The strategy seeks to accelerate AI innovation across sectors—from healthcare and manufacturing to energy and education—by dismantling regulatory barriers that limit private-sector adoption. At the same time, the federal government is committing to massive AI infrastructure buildout, from advanced semiconductors and energy-intensive data centers to next-generation models and applications. This approach is explicitly global: Washington aims to set the gold standard for AI and encourage allies to build on U.S. technologies, thereby shaping international norms.

The plan also embeds a strong domestic focus. Policymakers emphasize that the AI revolution must raise living standards, create high-paying jobs, and serve as a complement—not a substitute—for human labor. Worker training, local infrastructure

projects, and new AI-driven breakthroughs in medicine, science, and manufacturing are positioned as tangible benefits. To sustain trust, the government insists that AI systems must remain free of ideological bias, deliver factual and objective results, and be safeguarded from malicious misuse or foreign theft. Together, these elements make the AI Action Plan both a technology strategy and a political project, positioning the United States as the global driver of what it calls a new industrial, information, and cultural renaissance.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

By 2025, the U.S. government is investing huge amounts of money to improve internet networks, from last-mile connections (homes and businesses) to middle-mile links (the backbone that carries internet between regions) and key institutions like schools and hospitals. States are using these funds to lay new fiber cables, expand fixed-wireless coverage, and strengthen networks against extreme weather. At the same time, 5G mid-band networks are growing quickly across the country, which is important because for many people, mobile phones are now their main way to access online services.

Affordability of internet access still varies across states. To fix this, many local programs now add subsidies and support alongside new network builds, helping close the digital divide. Public maps and progress dashboards make it clear which areas are underserved, helping governors focus resources and increasing accountability. States are also using competitive bids to improve deployment quality and support open-access networks.

For government services, this stronger network foundation means that bandwidth-heavy tasks—like online ID checks, video hearings, or mapping tools—work more smoothly. Backup systems and multiple connection routes make networks more reliable during disasters. Overall, the U.S. network in 2025 is faster, more transparent, and more dependable, though affordability remains the biggest challenge still being worked on.

4.2. Management Optimization [MO]

In 2025, the U.S. government is treating AI as the first digital service that directly challenges national infrastructure capacity. To support large-scale AI adoption, Washington is pushing major reforms to accelerate the building of data centers, semiconductor factories, and power generation facilities, while cutting through regulatory barriers that traditionally slowed construction. Security rules are in place to ensure this infrastructure relies only on trusted U.S. technology and is safeguarded against adversarial influence.

A critical part of this strategy is modernizing the power grid. The plan calls for stabilizing today's electricity supply, optimizing transmission with advanced management technologies, and integrating new energy sources such as nuclear and geothermal to meet the surging demand from AI data centers. The grid is being reimagined not only as a backbone for AI innovation but also as a guarantee of national resilience.

Alongside infrastructure, the U.S. is prioritizing domestic semiconductor manufacturing, aiming to secure supply chains and integrate AI tools into chip production. High-security data centers for defense and intelligence agencies are being designed with stringent standards to protect sensitive workloads. Finally, workforce development is central: new training programs, apprenticeships, and updated curricula are being launched to build the electricians, engineers, and technicians needed to operate AI infrastructure.

4.3. Online Service [OS]

In 2025, U.S. digital services feel less like scattered websites and more like connected pathways. One secure sign-in works across agencies, with in-person verification available for people who cannot use mobile or credit-based checks. Tax filing, immigration updates, veterans' benefits, and grants all use the same login, the same notification system, and the same secure message inbox, so users no longer have to juggle accounts.

Agencies actively study where people get stuck. When data shows drop-offs, forms are shortened, duplicate questions removed, and prompts rewritten in plain language. Accessibility and multilingual support are standard practice, not afterthoughts, making services easier for everyone. Because most people arrive on phones, mobile flows are

smoother, and push alerts replace long email threads. Security is strong but designed to stay in the background, keeping taps and scrolls minimal. In-person and call-center options remain in place, ensuring no one is locked out. The net effect is a government service layer that feels stitched together—fewer steps for the public, less duplication for agencies, and a clearer path from start to finish.

4.4. National Portal [NPR]

By 2025, the U.S. national portal system works as a true entry point for action. USA.gov and USA.gov/es present information through life-event themes and clear “how to apply” guides that send users directly into the right transaction system. Tools like benefit finders and topical guides cut down on confusion, particularly for first-time visitors. Consistent design patterns—verified headers, anti-scam notices, and trusted-channel indicators—build confidence that users are navigating official sites.

Policy and budget pages now come with practical tools such as calculators and checklists, helping people move from reading to applying in one flow. Businesses also benefit from streamlined pathways, with grants and licensing sections laying out eligibility, required documents, and timelines step by step. Shared identity, notification, and accessibility standards make transitions across portals and services less disruptive. Meanwhile, mobile-first layouts, improved search, and plain-language content keep tasks quick to complete, even as catalogs expand. Analytics drive constant refinement, with underperforming pages revised quickly instead of left to linger. Overall, the portal layer in 2025 minimizes friction, turning intent into completed transactions.

4.5. Government CIO [GCIO]

The role of GCIO functions less as a single office and more as a coordinated system. Clear federal guidance defines the rules of the road—covering AI use, customer experience, and zero-trust security—while shared platform teams supply common services like identity, payments, logging, and monitoring. This allows agencies to focus on mission outcomes and user experience instead of rebuilding the basics.

Architecture reviews emphasize modular, interoperable designs that reduce vendor lock-in and future costs. Both Federal CIO and Department CIO councils help translate policy into actionable roadmaps and resolve barriers that no single agency could handle alone. Training programs and communities of practice raise digital literacy among leaders, ensuring executive sponsorship is active, not symbolic.

Compliance is built into the rails themselves, with contracts embedding requirements for security, privacy, and accessibility from the start. Outcome dashboards link leadership goals to real-time performance, improving accountability. The overall effect is a government digital ecosystem that delivers faster, with fewer missteps, by aligning policy, platforms, and people.

4.6. E-Government Promotion [EPRO]

E-promotion in the U.S. now builds on this AI-centered strategy by linking digital transformation directly to national prosperity and security. Federal agencies, supported by the U.S. Digital Service, are expected to showcase AI-enabled improvements in service delivery, such as faster benefit processing, predictive health systems, and automated but accountable document handling. Public campaigns frame AI not as a threat to jobs, but as a tool that empowers workers and enhances citizen services, reinforcing trust in digitalization. At the same time, outreach stresses digital inclusion, ensuring that all Americans—regardless of geography or income—can access AI-enhanced services.

Transparency and accountability are promoted through open data portals and continued use of open-source policies, allowing citizens, researchers, and businesses to see how digital systems function and to build upon them. Meanwhile, awareness campaigns highlight both the opportunities and risks of AI, teaching citizens how to use new tools effectively while guarding against bias, misinformation, and misuse. By combining infrastructure investment, public trust-building, and private-sector collaboration, U.S. e-promotion in 2025 frames digital government not as a technical shift, but as a nationwide movement to secure economic competitiveness and democratic resilience in the AI era.

4.7. E-Participation [EPAR]

In the United States, e-participation has become a central pillar of digital governance, using ICT tools to bring citizens into policymaking, service design, and oversight. Federal, state, and local agencies are expanding digital platforms that allow people not only to access services but also to provide feedback, join consultations, and monitor government actions. This shift transforms governance from one-way communication into an interactive, citizen-driven dialogue. The U.S. has steadily expanded e-government services—tax filing, benefits applications, veterans’ services, and immigration processes are now widely available online.

Digital technology is heavily used for voter engagement and campaigning. Campaigns use digital platforms to reach voters through social media ads, targeted emails, and mobile apps. Voter registration and information portals (like Vote.gov and state election sites) provide official guidance on how to register, request ballots, and find polling places. Some states pilot online ballot tracking, and election officials increasingly use dashboards to display turnout data and results in real time.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

The United States has steadily expanded its open government data ecosystem, turning into public-facing services that citizens and businesses can act upon. Portals like Recalls.gov consolidate alerts from multiple federal agencies, giving consumers a single source for safety information and mobile apps to check products instantly. Similarly, AIRNow.gov provides daily and real-time air quality data, supported by partnerships with EPA, NOAA, and local authorities, while integrations with Google Earth and mobile apps extend the reach of environmental data to everyday users. These platforms show how open datasets, once only internal, are now tools for public awareness, safety, and informed decision-making.

At the same time, digitalization has reshaped citizen-facing services, emphasizing usability and transparency. Healthcare.gov, mandated by the Affordable Care Act, became the first nationwide portal to present both public and private health insurance options in one place, guiding users through eligibility, rights, and market navigation. Tools like the CMS Dashboard let citizens track Medicare spending by state or hospital

type, while the IT Dashboard exposes federal technology investments, enabling oversight and accountability. Other platforms such as Recovery.gov visualize stimulus spending down to zip-code level, demonstrating how data-driven dashboards can empower taxpayers and watchdogs alike.

These initiatives also extend to public accountability and sector oversight. The Department of Justice publishes crime and prison datasets, OSHA releases weekly workplace fatality reports, and the Department of Labor's enforcement database provides searchable inspection and compliance data, putting pressure on businesses to meet safety and labor standards. Transportation-related tools, from MyTSA and FlyOnTime apps to automobile safety ratings and child car seat reviews, reflect the same philosophy: data made accessible, visual, and mobile-friendly. Together, these efforts show how U.S. digital government policy is not only about service delivery but also about making data open, actionable, and trustworthy for the public.

4.9. Cyber Security [CYB]

Cybersecurity is treated as a core design requirement in the United States' digital government strategy, not an afterthought. Federal agencies operate under frameworks like FISMA and NIST standards, which mandate strong authentication, encryption, continuous monitoring, and zero-trust architectures. These guardrails are embedded into major platforms, ensuring that identity systems, payments, and open data portals carry baseline protections across the board. Cloud adoption follows the FedRAMP program, which standardizes vendor security certifications and reduces duplication across agencies. This systemized approach allows departments to innovate while maintaining consistency in risk controls.

At the operational level, the Cybersecurity and Infrastructure Security Agency (CISA) lead threat monitoring, incident response, and public advisories, while sector-specific ISACs (Information Sharing and Analysis Centers) support industries such as finance, energy, and healthcare. Exercises test government readiness for ransomware, supply-chain compromises, and "black sky" outages, while continuous vulnerability scanning and patching cycles close gaps more quickly. Importantly, agencies are investing in

quantum-safe cryptography pilots and expanding cyber workforce pipelines in partnership with universities to prepare for emerging risks.

For the public interface, government portals emphasize trust and safety. Features like verified-sender indicators, scam warnings, and strong login protocols (for example, via Login.gov) help citizens navigate services without fear of fraud. Public reporting dashboards on cybersecurity performance increase accountability and encourage agencies to close weak spots. In combination, these measures position cybersecurity as the foundation of U.S. digitalization—ensuring that services remain resilient, secure, and credible even as AI, IoT, and data-driven applications expand across government functions.

4.10. The use of Emerging ICT [EMG]

The United States is leveraging emerging information and communication technologies (ICT) to modernize governance, improve service delivery, and strengthen national competitiveness. Artificial intelligence (AI) is being deployed across federal agencies for case routing, fraud detection, document processing, and citizen assistance through chatbots and virtual agents. AI also plays a growing role in defense, healthcare, and research, where predictive analytics and machine learning improve readiness and outcomes. The government is also advancing Internet of Things (IoT) applications in areas such as transportation, environmental monitoring, and smart infrastructure. Connected sensors provide real-time data on traffic, air quality, and energy use, which supports evidence-based policymaking and emergency response. Combined with 5G networks, IoT systems enable new services that rely on low latency and high reliability.

In parallel, the U.S. is investing in cloud computing, blockchain, and quantum technologies. Cloud adoption—supported by FedRAMP security certification—expands scalability and efficiency across agencies. Blockchain pilots are being tested for secure identity, supply chain tracking, and records management. Meanwhile, quantum computing and quantum-safe cryptography are moving from research labs into early federal programs to prepare for future breakthroughs. Together, these ICT innovations are reshaping the U.S. digital landscape. They not only make government services more

efficient and accessible but also reinforce America's push to remain a global leader in the AI-driven, data-centric economy of the future.

Saudi Arabia

1. General Information

Area: **2,149,690 km²**

Population: **34,566,328**

Government Type: Absolute Monarchy

2025 Growth Rate: **3%**

GDP (IMF '25): **\$1.08 Tn**

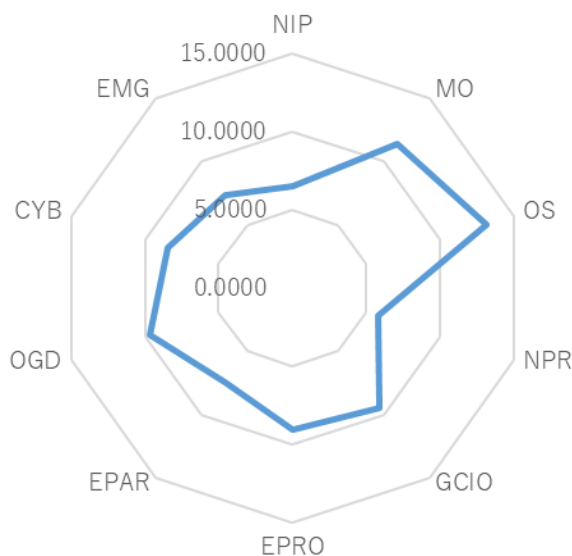
GDP Per Capita: **\$30,100**

Internet User: **100**

Wired (Fixed Broadband User) per 100 people: **43.6**

Wireless Broadband User per 100 people: **169**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Saudi Arabia's digital government has shifted its focus from simply digitizing services to enhancing quality and user experience, a key pillar of its current strategy. The country has already achieved a high digitization rate of 98% of public services by late 2022, and

its goal is to reach 100% by the end of 2025. This emphasis on quality is measured by the Digital Government Authority (DGA) through key indices like the Digital Experience Maturity Index (DEMI) and the Digital Transformation Measurement Index (DXMI). These metrics reflect a proactive approach to improving citizen satisfaction, which reached an impressive 82.34% by late 2024, with service maturity averaging 85.04%.

The Kingdom is rapidly establishing itself as a global leader in data and artificial intelligence (AI), with the Saudi Data and AI Authority (SDAIA) at the helm. This leadership is demonstrated by the deployment of cutting-edge technologies in public services. A prime example is the Social Insurance organization's launch of the "GOSI Brain" generative AI platform in September 2025. This innovation is part of a broader push to leverage AI for more efficient and intelligent government operations. Additionally, the Tawakkalna app has a new "My Resume" feature, which uses AI to assist citizens with career planning and development, further highlighting the integration of AI into daily life.

3.2. New Trends

Saudi Arabia's D-government initiatives are a cornerstone of its Vision 2030 goals, aiming to build a diversified and dynamic digital economy. This transformation goes beyond simply providing online services; it focuses on ensuring that all citizens can participate and benefit from the digital revolution. This is achieved through a strong emphasis on digital inclusivity and the development of a robust digital infrastructure.

The government is actively expanding high-speed internet and mobile penetration to bridge the digital divide between urban and rural areas. This push has led to significant results: as of early 2025, internet penetration in Saudi Arabia had reached 99% of the population, with mobile connections at a remarkable 140%—indicating that many individuals have more than one mobile device or SIM card. Furthermore, the country was among the first in the MENA region to launch 5G networks, with coverage now exceeding 77% nationwide and over 94% in Riyadh. This widespread digital access is a foundational step for fostering economic growth and social development by enabling citizens to access services, education, and job opportunities.

By prioritizing a future-ready digital infrastructure, Saudi Arabia aims to unlock the potential of its non-oil sectors and attract new investments. The digital economy is a critical enabler of this diversification, with its contribution to the country's GDP projected to grow from 17.7% in 2020 to 19.4% by 2025. Initiatives like the creation of the Saudi Data and Artificial Intelligence Authority (SDAIA) and the promotion of digital payments are driving this shift. The country is also supporting a vibrant ecosystem for entrepreneurs and small and medium-sized enterprises (SMEs) by removing obstacles and facilitating access to funding and regulations. The ultimate goal is to position Saudi Arabia as a leading global hub for technology, trade, and investment, making it one of the top 15 economies worldwide by 2030.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Saudi Arabia's D-government network infrastructure is exceptionally prepared for 2025, a readiness underscored by its top global position in the 2025 ICT Development Index from the International Telecommunication Union (ITU). This achievement is a direct result of the Kingdom's comprehensive digital policies, strategic investments in advanced infrastructure, and visionary frameworks aligned with Vision 2030. The country's robust digital progress is managed by key entities like the Communications, Space and Technology Commission (CST) and the Digital Government Authority (DGA), which work to ensure efficient, user-centered services.

Saudi Arabia is actively building a thriving digital ecosystem through shared services and a focus on cutting-edge technologies. The National Information Center (NIC) acts as a primary Cloud Service Provider for government data, supported by a secure National Digital Identity System. To foster innovation, the country is strategically adopting technologies such as AI, Big Data, Blockchain, and IoT, which are integrated into government services to improve their effectiveness. The DGA uses indices like the Emerging Technology Adoption Readiness Index and the Digital Experience Maturity Index to measure the capabilities of government agencies in adapting these technologies, ensuring that the country remains aligned with its national digital goals.

4.2. Management Optimization [MO]

A central part of the optimization strategy is the integration of cutting-edge technologies. The Saudi Data & AI Authority (SDAIA) is leading the charge in adopting Generative AI (GenAI) to improve efficiency and service innovation. This includes leveraging AI for tasks like predictive analytics and real-time data processing. The government is also implementing a "mobile-first" strategy, recognizing the nation's high internet and mobile penetration to deliver services through the most convenient channels for citizens. This approach is further supported by the use of Blockchain for secure record-keeping and the Internet of Things (IoT) for smart city initiatives.

The Digital Government Authority (DGA) plays a crucial role in overseeing this transformation by developing policies, setting standards, and monitoring compliance across all government entities. This robust governance framework ensures interoperability and eliminates redundancies, optimizing resource and technology investments. Collaboration across public, private, and non-profit sectors is also a key part of the strategy, aiming to create a thriving, knowledge-based society. The ultimate goals of this optimization are to deliver more efficient, user-centered services, enhance overall government efficiency, and solidify Saudi Arabia's position as a global leader in e-government development. The country is already a top performer in various international indices, reflecting the success of these strategic initiatives.

4.3. Online Service [OS]

The Kingdom is actively consolidating government services onto two main platforms: my.gov.sa national portal and the Tawakkalna Services mobile app. This centralized approach makes it easier for citizens, residents, and visitors to access a wide range of government services from a single, unified entry point. This strategy has been highly successful, contributing to Saudi Arabia's top regional ranking in the Electronic and Mobile Government Services Maturity Index for 2024. The ongoing integration of additional services from various ministries into the Tawakkalna app further enhances user convenience and shows a strong commitment to a "mobile-first" approach.

A core tenet of Saudi Arabia's online services strategy is digital inclusivity. The government is taking proactive steps to ensure that its services are accessible to all citizens, regardless of age, physical ability, or socioeconomic status. This commitment aims to eliminate the digital divide and ensure everyone can benefit from the country's digital transformation. By focusing on a user-centered design and ensuring that platforms like my.gov.sa are intuitive, Saudi Arabia is not just digitizing services; it's creating an inclusive digital environment that supports its long-term national goals.

4.4. National Portal [NPR]

Saudi Arabia's national portal, my.gov.sa, is the single, authoritative source for all digital government information and services. It is designed to simplify how citizens, residents, businessmen, and visitors interact with the government. By centralizing services, the portal offers a unified, convenient, and seamless experience. The national portal acts as a single point of entry, providing a unified digital identity that gives users quick and easy access to all government services from anywhere, at any time. This eliminates the need to navigate multiple websites and remember various login credentials. The services on the portal are curated based on user needs and different life stages, ensuring a more personalized experience. Whether it's for personal documents, business and entrepreneurship, or health services, the portal provides a single, interconnected platform.

In addition to the central portal, the Tawakkalna Services app serves as a mobile counterpart, further extending accessibility. This "mobile-first" approach leverages the Kingdom's high mobile penetration to deliver services directly to users' devices. The portal is a testament to the country's commitment to digital transformation, which has led to a top-tier regional ranking in the Electronic and Mobile Government Services Maturity Index for 2024. This success is achieved by focusing on user convenience, providing a unified digital identity, and offering services that are relevant and timely.

4.5. Government CIO [GCIO]

The country's GCIO's strategy is built on several core pillars to ensure effective and efficient digital transformation:

- **Shared Platforms:** The GCIO provides foundational "building blocks" as services for all government ministries to use. These include key systems like the National Digital Identity System (Nafath), messaging, and payments, ensuring that agencies don't need to rebuild the same solutions.
- **Outcome-Based Funding:** Instead of just funding a project's features, the GCIO ties budgets to specific outcomes, such as completion time, adoption rates, and digital inclusion. This approach ensures a focus on delivering tangible results.
- **Proactive Governance:** The GCIO embeds policies for privacy, cybersecurity, and accessibility directly into shared platforms. This "with the rails" approach ensures compliance from the beginning, rather than adding it as a late-stage hurdle.
- **Talent Development:** The GCIO is committed to building internal capabilities by providing training and talent programs for product, data, and AI skills within line agencies. This reduces reliance on external vendors for core functions.

4.6. E-Government Promotion [EPRO]

Saudi Arabia's revised Digital Government Strategy (2025–2030) builds on a foundation of significant success, reflecting a shift from a focus on the sheer quantity of digitized services to the quality, maturity, and user satisfaction of those services. This evolution from simple digitization to true service excellence is a cornerstone of the Kingdom's ongoing digital transformation and its alignment with Vision 2030.

The journey began with rapid digitization, successfully bringing 98% of all public services online by the end of 2022. The remaining 2%, which have a relatively lower impact, are on track to be fully digitized by the end of 2025. With this groundwork complete, the new strategy introduces a renewed focus on citizen experience. The Digital Government Authority (DGA), in collaboration with international organizations, developed key performance metrics like the Digital Experience Maturity Index (DEMI) and the Digital Transformation Measurement Index (Qiyas).

The updated strategy sets clear and ambitious targets: to achieve 90% citizen satisfaction and 90% service maturity by 2025, and to reach 95% for both by 2030. These goals are part of a broader aspiration to position Saudi Arabia among the top three countries

globally in digital government maturity. This transformation is not just about improved services; it is a significant economic drive. The DGA anticipates that by 2030, the cumulative impact of these efforts will contribute an estimated SAR 11.4 billion to the GDP and create more than 26,000 new jobs. This is a testament to the Kingdom's commitment to leveraging innovation, policy agility, and public-private partnerships to build a sustainable and thriving digital future.

4.7. E-Participation [EPAR]

The Digital Government Authority (DGA) has established a comprehensive framework to guide e-participation. Its Electronic Participation Controls document outlines a clear roadmap for increasing interaction between government entities and the public. A foundational element of this framework is the "Open-by-default" principle, which is embedded in the Digital Government Regulatory Framework. These principal mandates government data and policy-making processes, including the use of algorithms, should be made available for public consultation. This promotes greater transparency, accountability, and inclusion, ensuring that government decisions are not made in a vacuum.

The DGA's strategy extends beyond simply soliciting feedback. The "Engagement" pillar of the Digital Government Policy emphasizes collaboration among government institutions, the private sector, civil society, and the public. The goal is to build an innovative government culture where information and ideas are shared openly. The main objective of these efforts is to improve the performance of government agencies and enable social responsibility through direct interaction with beneficiaries. By providing a smooth and inclusive digital experience, Saudi Arabia is working to enhance communication with all stakeholders and ensure that government entities are more responsive to the needs and opinions of the community.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

The National Open Data Platform is the central initiative for implementing Saudi Arabia's open data strategy. This platform publishes a wide range of datasets from ministries and

government agencies in accessible formats. Its primary role is to promote transparency, encourage e-participation, and inspire innovation. The Saudi Data & AI Authority (SDAIA) serves as the national regulator for data and is a key driver of the open data agenda. SDAIA is responsible for setting policies, regulations, and standards, with the goal of maximizing the economic impact of open data.

Beyond simply providing data, Saudi Arabia is actively leveraging open data to develop innovative, AI-powered applications that serve both the public and private sectors.

- **Real Estate:** The Real Estate General Authority uses open data to develop AI models for real estate valuation. By analyzing public data on property sales, locations, and market trends, these models provide more accurate and transparent property appraisals. This benefits citizens by offering fair valuations and enhances market stability.
- **Public Health:** The Ministry of Health uses open data to develop AI tools for public health initiatives. By analyzing anonymized health records and demographic data, AI can predict disease outbreaks, optimize hospital resource allocation, and identify high-risk populations.
- **Agriculture and Water Management:** The Ministry of Environment, Water and Agriculture use AI and open data to manage resources more effectively. AI-powered systems analyze satellite imagery, weather patterns, and water usage data to optimize irrigation schedules and monitor crop health, contributing to national food security goals.

This strategic use of open data and AI fosters a vibrant ecosystem of innovation. Tech startups can use data from the Ministry of Transport, for example, to build smart transportation apps that provide real-time optimal routing. By creating this data-driven environment, Saudi Arabia is not just improving government services but also building a knowledge-based economy aligned with the goals of Vision 2030.

4.9. Cyber Security [CYB]

Saudi Arabia continues its strong focus on D-government cybersecurity in 2025, with a comprehensive strategy designed to build national trust in digital services. The Kingdom has secured top global rankings in cybersecurity, a testament to its proactive and holistic approach. This strategy is anchored by the National Cybersecurity Authority (NCA) and includes the implementation of advanced, AI-powered defenses, the Personal Data Protection Law (PDPL), and a focus on cultivating local talent.

The authority provides the Haseen platform, a centralized resource for government entities to access cybersecurity services and solutions. This platform is critical for enabling and empowering organizations to build their defenses. In response to the growing threat of AI-driven attacks, the NCA is specifically focused on developing advanced, AI-based defenses. This is a necessary step, as cybercriminals are increasingly using AI to launch sophisticated, hard-to-detect attacks. The Saudi Data and Artificial Intelligence Authority (SDAIA) also play a key role, developing AI threat intelligence and automated cyber defenses to predict and neutralize threats in real time.

A crucial component of building national trust is data protection. The Personal Data Protection Law (PDPL) provides a comprehensive legal framework for safeguarding personal data, which is essential for ensuring the integrity and security of digital systems. The success of e-government services depends heavily on users' perception of security and privacy, making the PDPL a vital tool for gaining public confidence. Beyond technology, Saudi Arabia places a strong emphasis on developing local cybersecurity expertise. There is a strategic focus on building a distinct skill set for cybersecurity leaders, combining technical skills, business acumen, and the ability to effectively communicate risk to stakeholders. This holistic approach ensures that cybersecurity is not just a technical issue but an integral part of the nation's overall digital and economic growth.

4.10. The use of Emerging ICT [EMG]

Saudi Arabia is actively implementing cutting-edge technologies across its government services. Artificial Intelligence (AI) is a core component, with applications aimed at improving efficiency and reducing costs. For example, a generative AI project was used in the Fasah content clearance system for books, which significantly streamlined the

approval process and lowered operational expenses. Another notable project is the Tawakkalna app, which has evolved into a comprehensive digital hub offering over 600 government services, many of which use AI for personalized user experiences and predictive analytics.

Big Data plays a crucial role in enabling data-driven decision-making and fostering growth in new sectors. The National Data Strategy ensures that government agencies have access to accurate data, which is then used for initiatives ranging from public health management to urban planning. Furthermore, the Internet of Things (IoT) is being utilized in "Truck Crossing Tracking" to enhance logistics and integration across different sectors. This is part of a broader push to create "smart city" initiatives, such as those planned for NEOM, where IoT will manage everything from traffic to waste collection.

The country's robust 5G networks provide the high-speed connectivity required to support these advanced digital services. This infrastructure investment, including the development of new data centers, is essential for the rapid expansion of cloud computing and AI capabilities, ultimately driving economic empowerment and improving the citizen experience through more accessible and personalized services.

Japan

1. General Information

Area: **377,975 km²**

Population: **123,103,479**

Government Type: Constitutional Monarchy

2025 Growth Rate: **1.1%**

GDP (IMF '25): **\$4.19 Tn**

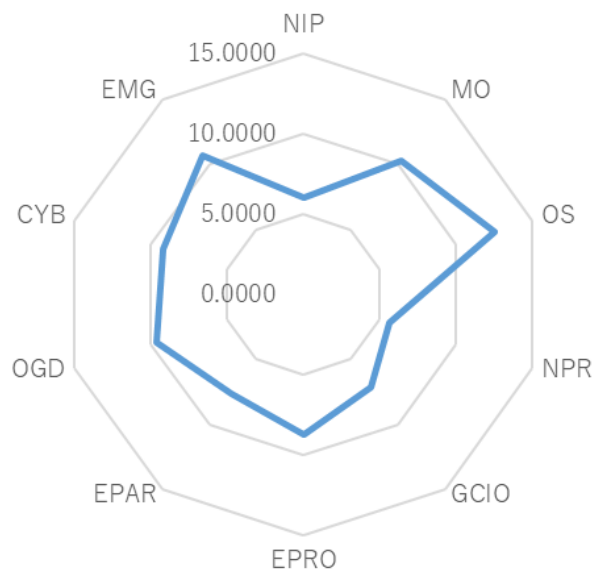
GDP Per Capita: **\$33,960**

Internet User: **87%**

Wired (Fixed Broadband User) per 100 people: **38.6**

Wireless Broadband User per 100 people: **249**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, Japan's D-government is undergoing a significant transformation, driven by a new strategy that emphasizes user-centered design and technological innovation. The government's goal is to create a safe, transparent, and inclusive digital society that

addresses critical challenges like an aging population and outdated legacy systems. This effort is spearheaded by the Digital Agency, which is overseeing reforms and promoting key initiatives.

The My Number card system is a central pillar of Japan's digital transformation. Serving as an individual identification number, the card is being expanded to provide seamless access to a wide range of administrative procedures and digital services. Recent updates in 2025 have made My Number card functions available on iPhones, further enhancing its usability. The government is committed to a human-centered approach, aiming to design all administrative services with the user experience as the top priority. This is being done to ensure that all citizens, regardless of age or digital literacy, can easily access public services.

Japan is strategically promoting the use of emerging technologies to drive economic growth and regional revitalization. Initiatives are underway to integrate generative AI into administrative procedures to improve efficiency and reduce bureaucracy. Additionally, the government is exploring Web3 and blockchain technologies to create new economic opportunities and support local communities. For example, some regional projects are using NFTs (Non-Fungible Tokens) to promote tourism by offering unique digital assets that can only be purchased in specific areas, effectively turning fan culture into a tool for regional revitalization. This forward-thinking approach aims to position Japan at the forefront of digital governance.

3.2. New Trends

Japan's 2025 Digitalization Strategy centers on creating a user-centric society by leveraging advanced technologies and agile governance. This is led by the Digital Agency's Priority Plan for the Advancement of a Digital Society and the 2025 Intellectual Property Strategic Program. The strategy prioritizes developing a robust digital infrastructure, migrating government systems to the cloud, and revising analog regulations to promote a Data Free Flow with Trust (DFFT). It also adopts a "light-touch" AI governance approach to foster innovation and aims to become a leader in global digital standards.

The strategic use of AI is a key trend in Japan's digital plan. The country is promoting a flexible, non-binding regulatory framework to encourage AI development and adoption without stifling innovation. This "light-touch" approach, formalized by the AI Promotion Act in 2025, aims to position Japan as a global leader in AI governance.

AI applications are being integrated across various sectors:

- **Administrative Efficiency:** The Digital Agency is exploring the use of AI to automate routine tasks within government, such as drafting official documents and summarizing meeting minutes. This frees up human resources to focus on more complex work.
- **Regional Revitalization:** In line with the Intellectual Property Strategic Program, AI is being used to strengthen intellectual assets in sectors like anime and manga. For example, AI-powered tools are being developed to streamline the creation and management of intellectual property, making it easier for creators to protect their work and for the government to attract international talent.
- **Urban and Mobility Solutions:** AI is central to smart city initiatives. In the transportation sector, it is used for traffic management, and in some areas, to optimize public transport schedules and even support the development of robot taxis.

These initiatives demonstrate Japan's commitment to using AI not just to improve government services but also to drive broader economic growth and create a more connected and efficient society.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

With high-capacity fiber optics and a mature 5G/Local 5G footprint, the government is confident in its ability to deploy mobile-first services that include video appointments, strong authentication, and real-time data checks. This infrastructure underpins Japan's shift toward continuous, high-uptime services, supported by a deliberate strategy to ensure stability and speed.

To ensure consistent service delivery, Japan's digital strategy prioritizes redundancy and speed. Multi-carrier backhauls and diverse peering agreements keep national portals responsive even during peak usage periods, such as tax season. The Government Cloud migration strategy, which uses a federated model with multiple hyperscale regions from both domestic and foreign providers, further strengthens this resilience. These systems are designed to meet identical compliance and interoperability tests, ensuring that services remain available and secure.

Japan is also leveraging cutting-edge technologies like edge computing to improve time-critical public services. Pilot projects at train stations, ports, and hospitals are shortening the round-trip time for crucial workloads like transport telemetry and emergency response. This enables faster decision-making and more efficient service delivery in critical situations.

4.2. Management Optimization [MO]

To enforce the country's vision, the government has given the Digital Agency unprecedented authority. Progress is tracked on a public KPI dashboard, and if a ministry fails to meet targets for two consecutive quarters, the Chief Digital Officer can redirect its IT budget to a central acceleration task force. This one-stop locus of authority simplifies things for overseas vendors, who only need to satisfy the Digital Agency's architectural requirements once to gain access to the entire national bureaucracy.

Japan's legal framework has been overhauled to support this digital push. The Digital Procedures Act states that ministries and municipalities offer web or native-app alternatives for all forms and permits, eliminating the need for PDF downloads. A revised Electronic Signatures Act officially recognizes remote electronic seals, replacing the centuries-old inkan requirement. These reforms provide a stable compliance baseline for all vendors.

4.3. Online Service [OS]

Japan is centralizing and modernizing its online services to improve user experience. A major initiative is the expansion of the Mynaportal with new online application functions, aiming to reduce the administrative burden on citizens and staff by coordinating data. The Digital Agency is also expanding the online processing of national qualifications, such as for "Tax Accountant," to make these procedures more accessible. For tourists, the Visit Japan Web service streamlines arrival procedures using unified 2D codes for immigration and customs, and the related JAPAN eVISA system was expanded to more countries in 2025.

The government has mandated that all central and local government data be migrated to a common Government Cloud by the end of fiscal year 2025 to increase efficiency and cut costs. However, a report indicates that about 30% of local governments are struggling to meet this deadline due to the high costs, personnel shortages, and the time-consuming nature of the transition. In digital healthcare, Japan is focused on accelerating digitalization (DX) through initiatives that support remote medical consultations and data sharing. The goal is to build a nationwide infrastructure for information sharing and standardize electronic medical records.

Japan is strategically adopting AI to improve government operations. The Digital Agency has developed guidelines for the safe and effective use of generative AI, and each ministry has appointed a Chief AI Officer (CAIO) to oversee implementation and risk management. This proactive approach with a flexible "light-touch" governance framework is intended to foster innovation without stifling it. Despite the challenges, a growing public demand for online services and strong government support are creating real momentum toward a more digitally integrated and efficient society.

4.4. National Portal [NPR]

Japan's D-government is centered on the My Number Card system, which has become the cornerstone of the country's digital infrastructure. The main online hub for citizens is the Mynaportal, managed by the Digital Agency. This portal provides a single point of access to a wide range of administrative services, allowing both citizens and foreign residents to

use their unique 12-digit ID to access government services, view their personal data, and receive official notifications.

Mynaportal offers a variety of user-friendly services designed to create a more efficient and paperless government. Users can apply for and receive documents like residence certificates at convenience store kiosks, file taxes online, and access personal medical information, including drug prescriptions and check-up results. This platform is part of a broader strategy to simplify administrative procedures, increase transparency, and create a more responsive and accessible government for all residents.

4.5. Government CIO [GCIO]

The GCIO is prioritizing the modernization of Japan's IT infrastructure. This includes a major push to migrate government systems to a federated Government Cloud model, which uses a mix of domestic and foreign providers to meet identical compliance and interoperability standards. The agency provides blueprints and tools to streamline this process, cutting migration times from years to months. The GCIO also recognizes the importance of digital talent and has a strategic focus on developing skills within the government workforce. It actively recruits professionals from the private sector to ensure the government has the expertise to manage its digital transformation and reduce its reliance on external vendors.

4.6. E-Government Promotion [EPRO]

The Digital Agency serves as the central control tower for digitalization, with the authority to issue policies that are binding across all government entities. This is most evident in the Digital Governance Implementation Plan, which sets a clear objective: all high-volume administrative procedures must be fully mobile-first by March 2027. To ensure compliance, the Digital Agency uses a public KPI dashboard to track progress and has the power to reallocate IT budgets from ministries that fall behind. This provides a clear framework and strong financial incentives for all government bodies to align with the national digital strategy.

Policymaking is guided by foundational principles, such as "Cloud-by-Default," which mandates that government agencies prioritize cloud solutions for all new IT investments. This principle is codified in documents like the "Standard Guidelines for the Promotion of a Digital Society," providing a common rulebook for all government IT projects. The government has also passed significant legal reforms to create a stable legal environment for digitalization. The Digital Procedures Act, for example, requires government agencies and municipalities to offer online alternatives for all forms and permits, eliminating the need for paper downloads. Similarly, the Electronic Signatures Act has been revised to officially recognize remote electronic seals, invalidating the century-old inkan requirement for most filings. These legal reforms turn broad digital visions into enforceable mandates, pushing the entire country toward a more efficient, digital-first operational model.

4.7. E-Participation [EPAR]

Japan's approach to e-participation in 2025 is focused on fostering a more user-centric and inclusive digital society. The government's strategy aims to increase citizen engagement by providing transparent access to information and creating digital channels for public consultation on policymaking and service design. A core component of Japan's e-participation framework is the Public Comment System. This official procedure allows administrative bodies to solicit feedback from the general public on drafts of new laws, orders, and regulations before they are finalized. Managed by the Digital Agency, this system ensures that citizens can actively shape government decisions. The use of digital platforms makes it easier for people to participate, promoting a higher level of transparency and accountability in government.

To ensure that e-participation is accessible to all, Japan's strategy places a strong emphasis on digital inclusion. This includes initiatives to improve digital literacy among the public and to design services that are user-friendly, regardless of age or physical ability. By making digital government services more intuitive and easier to use, the government aims to overcome public hesitation toward digitalization and encourage broader participation in the digital sphere. The strategy is to ensure that a "digital-by-default" society does not

exclude anyone, reinforcing a commitment to building an inclusive and participatory community.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

In 2025, Japan's digital transformation is accelerating by focusing on two key strategies: platform reuse and canonical data. The government provides foundational services like the My Number identity, messaging, and digital signatures as standardized building blocks. This allows development teams to concentrate on creating unique user experiences and core business logic, rather than spending time on underlying technical infrastructure.

The government is also ensuring that data is used efficiently across all agencies. Centralized sources, such as national registries and data catalogs like data.go.jp and e-Stat, enable the "once-only" principle. This means that a citizen or business only has to provide data once, as agencies can now pre-fill forms, cross-check information, and instantly validate data. For businesses, this includes using standardized formats for reporting, which reduces errors and improves the audit process. Internally, a shift to event-driven integration is replacing outdated batch jobs, ensuring data between ministries and prefectures stays accurate and up to date.

By systematically phasing out old systems, the government is reducing operational risk and freeing up teams to focus on building new services. The success of these initiatives is now measured with clear metrics like task completion times and user-friendly testing. Because technology, data, and design are all working in harmony, new services are launched faster and with less friction. This also benefits researchers and startups, as open data becomes more reliable and predictable. As a result, the government's digital and open data efforts are delivering quicker development, stronger evidence for decision-making, and a noticeably smoother experience for all users.

4.9. Cyber Security [CYB]

In 2025, Japan has enacted landmark legislation, shifting its cybersecurity posture to **"active cyber defense."** This new approach, a significant departure from its previous reactive stance, empowers the government to take pre-emptive actions against foreign cyber threats. This change is a direct response to the nation's rapid digitalization and the increasing sophistication of cyberattacks, including state-sponsored threats and ransomware. The government has also established a new national cybersecurity command post to enhance its defenses and protect essential infrastructure.

The new cybersecurity law, which came into effect in May 2025 and will be fully operational in 2027, allows Japanese authorities to detect and disrupt cyber threats before they cause harm. This strategic pivot is seen as a way to strengthen national security and ensure the integrity of the nation's digital economy. The move has also fueled significant growth in the Japanese cybersecurity market, which is projected to nearly double by 2030, reaching an estimated \$18.24 billion. This growth is driven by a high demand for advanced security solutions in critical sectors like finance and energy, as well as a greater focus on protecting emerging technologies like AI and IoT.

While rapid digitalization creates new opportunities, it also introduces new vulnerabilities. The increasing use of AI and IoT necessitates more sophisticated security solutions to protect these expanding digital infrastructures. In response, Japanese cybersecurity firms are increasing international collaboration to combat global threats, and the government is prioritizing the development of local expertise. This dual focus on legislative reform and market growth is designed to not only protect Japan's digital assets but also to position the country as a leader in global cybersecurity innovation.

4.10. The use of Emerging ICT [EMG]

Japan's Ministry of Internal Affairs and Communications (MIC) released its 2025 Information and Communications White Paper, which highlights the nation's evolving ICT landscape. The report frames digital technologies as a foundational element of society and points to an explosion in digital engagement across all demographics, including a significant rise in smartphone usage among the elderly. However, the MIC also emphasizes a critical need to boost AI literacy and foster local innovation to tackle

national challenges such as labor shortages and disaster response. On this regard, the Digital Agency announced in June this year to develop {AI action model}.

The country's strategy for digitalization involves a "light-touch" regulatory approach to promote innovation with emerging ICTs. Japan has made targeted investments in AI, with approximately ¥196.9 billion allocated in the 2025 fiscal year for related activities. This includes a notable ¥22 billion investment from the Cabinet Office to develop generative AI for medical diagnostic support, leveraging big data on healthcare. Beyond AI, Japan is exploring the use of blockchain technology for regional revitalization, including pilot projects that use NFTs to boost tourism and create new economic opportunities. This multi-faceted approach showcases Japan's commitment to using emerging ICTs as a central component of its future, with the goal of becoming the "most AI-friendly country in the world."

Finland

1. General Information

Area: **338,424 km²**

Population: **5,620,369**

Government Type: Parliamentary Republic

2025 Growth Rate: **1%**

GDP (IMF '24): **\$303.95 Bn**

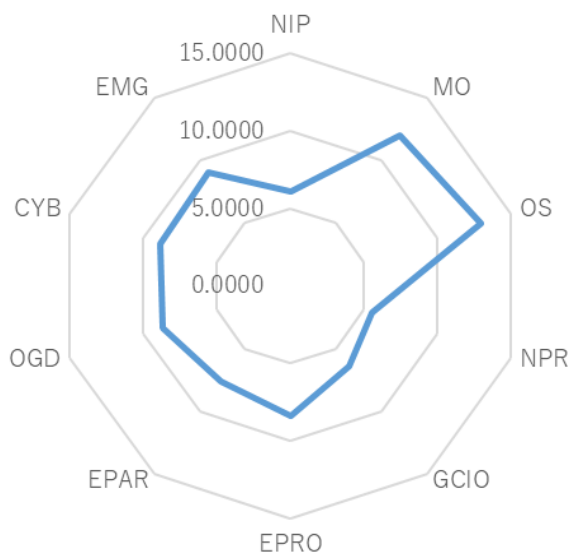
GDP Per Capita: **\$54,160**

Internet User: **93.5%**

Wired (Fixed Broadband User) per 100 people: **35.3**

Wireless Broadband User per 100 people: **160**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Finland's digital public services are not only widely available to citizens and businesses, but they are also considered to be at the highest standard within the EU. This success is underpinned by the solid digital skills of the Finnish population, with a significant

majority possessing the basic digital competence needed to navigate the online world confidently. This includes a high level of proficiency in evaluating online content and ensuring personal privacy. The widespread use of digital government solutions, even among the elderly, showcases a high degree of public trust in the country's digital infrastructure.

Finland has made significant progress in developing its technological backbone, with 5G networks providing almost complete nationwide coverage as of 2024. This achievement enables the seamless delivery of advanced digital services. Finland's commitment to innovation is evidenced by its developments in the semiconductor industry and its support for artificial intelligence (AI). The nation has strengthened European digital sovereignty in these key areas and, notably, hosts one of the first European AI Factories. This initiative supports the development of cutting-edge AI models and applications. This focus on technology is also reflected in the private sector, where three-quarters of Finnish businesses use cloud solutions, demonstrating a high reliance on and adoption of digital tools.

3.2. New Trends

Finland continues to solidify its position as a digital leader, with a strong focus on e-government services and an ambitious vision for 2030. The nation's approach is characterized by high alignment with European Union digital goals and a proactive stance in implementing new digital regulations. Finland has set 12 national targets to contribute to the EU's 2030 Digital Decade goals, with 100% of its targets aligned with EU objectives. The country is well on track to meet these aspirations, with 83% of its planned trajectories on track.

Finland is leveraging its strengths in technology and human capital to drive its digital agenda. The country's infrastructure is deliberately resilient, with 5G networks nearing 100% coverage in 2024. This supports its reputation as a global leader in telecommunications. Finland is also playing a key role in European technological sovereignty, particularly in the semiconductor industry and the development of disruptive technologies like AI. Notably, Finland hosts one of the first European AI Factories, a sign

of its commitment to becoming a leader in AI innovation. The population has strong basic digital skills and a high level of privacy awareness, which has led to a widespread use of digital government solutions. However, the nation recognizes the persistent need for more ICT specialists.

Looking ahead, Finland is actively preparing for the implementation of new EU-wide regulations, including the European Digital Identity (EUDI) Regulation and the European Health Data Space Regulation. A project launched by the Ministry of Finance in 2024 is already underway to develop a national digital wallet by late 2026, aligning with the EU's timeline. This proactive approach ensures that Finland remains at the forefront of digital governance while building a secure, trustworthy, and integrated digital ecosystem for its citizens and businesses.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Finland's infrastructure provides a solid foundation for digital services, with dense fiber networks in urban centers and broad 4G/5G coverage in rural areas. This ensures that services requiring high bandwidth, such as video appointments, strong identity verification, and real-time registry checks, function reliably on mobile devices. A key aspect of this resilience is the use of multi-region hosting and multi-carrier network paths, which keep vital portals like Suomi.fi, MyTax, and the national health record system, Kanta, responsive during seasonal peaks.

The country is not only building a robust network but also taking proactive steps to maintain its reliability. Edge computing nodes located at key sites like hospitals and public transit stations are used to reduce latency for time-critical workloads, such as transport telemetry and emergency response data. Regular disaster-recovery drills—simulating scenarios like power outages and floods—ensure that continuity plans are well-practiced. Furthermore, to prevent a digital divide, public Wi-Fi and municipal networks are in place to extend connectivity to areas where household access might be

limited. The government's policies on capacity upgrades and digital inclusion are closely aligned, leading to better user experience with fewer failed sessions and shorter task times.

4.2. Management Optimization [MO]

The Finnish government avoids a fragmented approach by having central bodies define key architectural, identity, and data baselines. Agencies then reuse these standardized "rails" rather than building custom systems from scratch. For instance, teams can easily integrate services like Suomi.fi e-ID, secure messaging, and e-Authorizations without having to re-tender an entire system. This modular procurement process significantly shortens lead times. By focusing on shared platforms and common practices—such as for API reuse and plain-language content—the government reduces duplication and avoids vendor lock-in, which lowers the overall cost of ownership.

Finland's management model is governed by data and metrics. Portfolio reviews now focus on measurable outcomes like completion times, error rates, and digital inclusion, moving beyond simply celebrating a new service launch. Telemetry from key services like MyTax and Kela provides real-time feedback, allowing leadership to link strategic intent directly to runtime performance. Risk is managed proportionately, with high-risk changes undergoing more scrutiny while low-risk iterations move quickly. Furthermore, the government invests in its own workforce through talent rotation programs and academies, building internal expertise in product, data, and AI. This reduces reliance on external vendors for core capabilities, which in turn boosts the reliability of services and reduces the total cost of ownership.

4.3. Online Service [OS]

The Finnish e-government model is built on shared, high-assurance services. Suomi.fi e-Identification provides a single login for accessing a wide range of government platforms, ensuring consistent and secure experience. This is complemented by Suomi.fi Messages, which serves as a secure, official inbox for all government correspondence. Furthermore, the e-Authorizations service allows individuals and businesses to legitimately grant proxy

access to others, such as family members or accountants, for managing official matters. These services reduce administrative complexity for everyone.

By leveraging authoritative national registers, the government ensures that forms are pre-filled with accurate information. This means users spend more time verifying data than typing it, leading to faster completion times and fewer errors. For example, in key services like MyTax, tax returns are automatically populated with prior data, while applications to Kela (the Social Insurance Institution) and the national health service, Kanta, benefit from instant data validation. To ensure all citizens can participate, services are designed with accessibility in mind and are available in multiple languages, including Swedish. For complex cases, assisted-digital desks provide crucial human support. Active monitoring and multi-zone hosting also ensure that these services remain reliable and responsive, even during seasonal peaks.

4.4. National Portal [NPR]

Finland's digital portal, Suomi.fi, is designed to help users move quickly from reading about a service to completing a task. The portal organizes services by major life events, such as "birth," "study," or "work," guiding users to the right transaction with the necessary authentication steps. For a more personalized experience, users can access personal dashboards that show pending steps and deadlines, helping to prevent them from missing important entitlements or payments. The portal is designed with a mobile-first approach and strict performance budgets, ensuring that it remains fast and usable even on lower-end devices during peak traffic. Continuous analytics track user behavior, allowing the government to fix content on pages with high bounce rates. As a result, Finland's national portal successfully converts a user's intent into a completed task with fewer clicks.

4.5. Government CIO [GCIO]

The Finnish government's management model works by having a central authority—like the Ministry of Finance and the Digital and Population Data Services Agency (DVV)—establish clear guardrails for cloud, interoperability, and security. Instead of commissioning custom systems, agencies reuse these shared "building blocks" for

identity, authorizations, messaging, and data exchange. This modular approach is reinforced by architecture reviews that favor open APIs, which limits vendor lock-in and simplifies future changes. The result is a unified digital ecosystem where services are built on a consistent, secure foundation, saving time and resources. The GCIO's effectiveness is further bolstered by its commitment to international cooperation. Close collaboration with Nordic and Baltic partners keeps Finland aligned with best practices for interoperable identity and data exchange, which is crucial for a globally connected society. This strategic alignment, combined with a data-driven approach, provides a powerful feedback loop.

4.6. E-Government Promotion [EPRO]

The primary promotional tool for Finland's e-government is its central national portal, Suomi.fi. This platform acts as a front door for action, not just a brochure. It promotes itself by providing a seamless, secure, and unified user journey. For example, the Suomi.fi e-Identification system provides a single, high-assurance login for a wide range of government services, which instills user confidence and encourages repeated use. This is complemented by Suomi.fi Messages, a secure digital inbox for official government correspondence, which builds trust by ensuring reliable and verifiable communication. By organizing services around major life events like "study" or "work," the portal's design intuitively promotes engagement by guiding users directly to the information and services they need.

Finland's promotional strategy also relies on proactive communication and a strong message of digital inclusion. Instead of waiting for users to seek out information, the government uses platforms like Suomi.fi to send official notifications directly, which reduces missed deadlines and improves transparency. This is being enhanced with AI applications. For instance, AI-powered analytics are used to predict a citizen's needs and push relevant information, such as notifying them about a benefit they might be eligible for or an upcoming deadline for a tax filing. This proactive outreach is a powerful form of promotion that shows the government is committed to serving its people efficiently. Furthermore, Finland promotes its digital services by ensuring they are accessible to

everyone. This includes providing multilingual options and design services that are user-friendly for people of all ages and abilities. By publicly demonstrating that its digital future is inclusive, the government fosters a strong sense of community and ensures that a "digital-by-default" approach benefit everyone.

4.7. E-Participation [EPAR]

Finland's approach to e-participation carefully balances integrity with openness. While identity-backed submissions may be required for sensitive or crucial issues, anonymous options are also available to ensure a wider range of opinions can be shared safely. To build public trust, government ministries are increasingly publishing clear statements about "what we heard and what we changed" in response to public input, effectively closing the feedback loop. Efforts are also underway to broaden representation by involving schools, migrant groups, and civil-society partners, ensuring that engagement reflects Finland's diverse population. This commitment to inclusivity and transparency is further supported by making official artifacts, such as datasets and transcripts, public and searchable, which allows researchers and journalists to easily trace how policy decisions were made.

Lausuntopalvelu.fi centralizes draft laws and regulations, allowing the public to provide formal comments during specific windows. For earlier-stage policy discussions, Otakantaa.fi hosts thematic dialogues that engage citizens at the beginning of the process. Additionally, the Kansalaisaloite.fi platform elevates citizen initiatives that reach a specific number of signatures, ensuring they receive official parliamentary attention. This model extends to the local level, where municipal platforms allow residents to actively participate in local planning and budgeting.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Finland has made significant strides in open government data through its national portal, avoindata.fi. This platform serves as a central hub for providing public data for reuse and analysis. The government's focus goes beyond simply publishing data; it is working to release higher-quality data, develop clear quality criteria, and establish interoperability

platforms. These efforts ensure that data is not only available but also easily reusable and integrated into various applications and services, fostering a more innovative and transparent ecosystem.

These open datasets have led to practical applications that benefit the public. For instance, developers have used open data to create popular apps like a trail map for hikers and a "Foliage Live" tool that uses location data to show the best spots for viewing autumn colors. Businesses also leverage this data. The Finnish Meteorological Institute, for example, makes its weather data open, which companies can use to create new services for agriculture or logistics. This approach shows how open data acts as a catalyst for innovation and economic growth beyond the public sector.

Despite its advancements, Finland acknowledges that achieving its ambitious goals requires continued effort. The country faces the challenge of further investment in foundational technologies like AI and semiconductors to meet the EU's 2030 targets. The strategy emphasizes that achieving these goals is a shared responsibility, requiring a broad approach that involves central and municipal governments, businesses, research institutions, and civil society. This collaborative model is crucial for overcoming remaining hurdles and ensuring that Finland's digital transformation benefits all segments of society.

4.9. Cyber Security [CYB]

Finland has significantly strengthened its cybersecurity in 2025 by enacting the Act on the Protection of Infrastructure Critical to Society and on the Improvement of Resilience. The new law, which took effect on July 1, 2025, is a strategic response to the evolving security threat landscape, particularly in the wake of geopolitical events like the Russian invasion of Ukraine. This legislation transposes the EU's Critical Entities Resilience (CER) Directive into national law, imposing new requirements on all entities that provide essential services to society.

The new act marks a pivotal shift toward a more proactive, all-hazards approach to national security. Its primary goal is to improve societal resilience by reinforcing the

protection of critical infrastructure. To implement the new legislation, the Ministry of the Interior will cooperate closely with other ministries to conduct a renewed national security assessment. This collaborative effort is part of a broader plan to strengthen Finland's preparedness for potential hybrid threats. By proactively defining and protecting essential entities, Finland aims to ensure that its society and economy can withstand a wide range of disruptions, whether they are physical or digital in nature. This systematic approach not only enhances national security but also supports the continued integrity and reliability of the country's digital services.

4.10. The use of Emerging ICT [EMG]

Finland's emerging ICT profile is also defined by its commitment to sustainability. The government's procurement includes "green-by-default" compute and energy-efficiency targets to ensure that digital services can scale without expanding their carbon footprint. This purposeful approach is supported by a robust innovation ecosystem, where institutions like universities, the Finnish Center for Artificial Intelligence (FCAI), and the VTT Technical Research Centre provide the secure computing resources and talent needed to accelerate the path from prototype to production. This strategic focus ensures that Finland's ICT development is not just fast, but also identity-centric and security-first.

Beyond AI, Finland is deploying IoT and edge computing for time-critical applications. Cities use these technologies for tasks like traffic optimization and winter road maintenance, which rely on the nation's strong 5G network. In the health sector, AI is used pragmatically for things like decision support and waiting-list optimization, all within strict safety and audit boundaries. The country's commitment to explicit consent for data sharing, championed by the MyData approach, is also being applied to new data spaces in mobility and health, ensuring that data is used ethically and transparently.

Canada

1. General Information

Area: **9,984,670 km²**

Population: **39,860,774**

Government Type: Parliamentary Democracy

2025 Growth Rate: **1.4%**

GDP (IMF '25): **\$2.23 Tn**

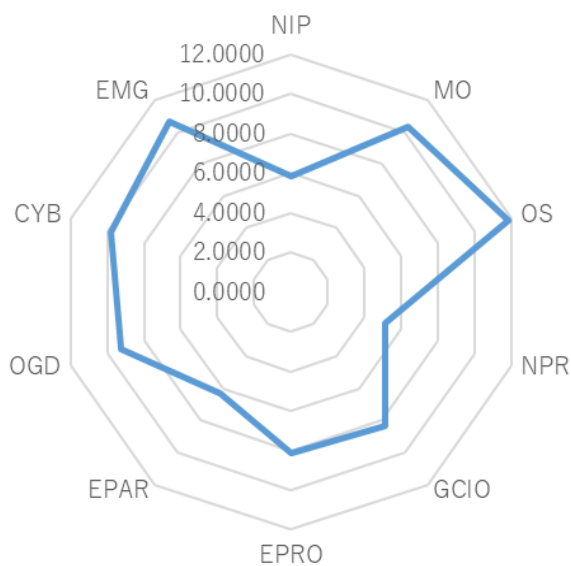
GDP Per Capita: **\$53,560**

Internet User: **94%**

Wired (Fixed Broadband User) per 100 people: **42.6**

Wireless Broadband User per 100 people: **83.4**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Canada's digital government transformation is focused on modernizing service delivery to better meet the needs of Canadians. This is driven by a renewed strategic plan, the Canada Digital Ambition, which now focuses on four specific outcomes: user-centric

services, data-driven decision-making, innovative technology, and a digitally savvy workforce. This dynamic vision aims to adapt to the fast-paced digital landscape, including the growing threat of cyber-attacks and the rapid advancement of generative artificial intelligence (AI).

Despite significant progress in recent years, Canada faces ongoing challenges in its digital transformation, including the need to accelerate its efforts to keep pace with other digitally advanced nations. There is also a continuous need to balance new digital approaches and agile methods with existing government rules and processes. To address this, the government is using new tools for oversight and performance measurement, such as the Enterprise Health Dashboard. Furthermore, a key component of Digital Ambition is the development of a digitally savvy workforce that is adaptable to the evolving digital landscape. This includes a focus on training and upskilling public servants to ensure they have the necessary skills to deliver high-quality, modern digital services.

3.2. New Trends

A core component of the strategy is the modernization of legislative frameworks to build a trusted digital environment. The Government of Canada prioritizes building public trust by integrating services with robust security measures. The strategy includes a proactive Enterprise Cyber Security Strategy to reduce cyber risks across the government. This is coupled with a focus on secure cloud environments and the use of multi-factor authentication. Policies like "open by default" are balanced with strong privacy protections, ensuring that as more services become digital, Canadians' personal information remains secure.

The Government of Canada's digital strategy is guided by a clear set of priorities. A central initiative in 2025 is the development and implementation of the AI Strategy for the Federal Public Service. This is Canada's first strategy of its kind, and it outlines how the government will leverage AI to boost productivity, improve services for citizens, and accelerate scientific research. The strategy is designed to be responsible, fair, and secure, ensuring that Canadians can trust how the government uses this technology. The Treasury

Board of Canada Secretariat is actively leading these efforts, with the goal of fostering a culture of trust, transparency, and collaboration across federal departments.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Canada's digital infrastructure is built on a foundation of high-speed fiber and mid-band 5G in metropolitan areas. At the same time, universal-access programs are extending reliable 50/10 Mbps service to remote and Indigenous communities. This network enables government agencies to confidently deploy services like real-time registry checks, video appointments, and strong-authentication flows on mobile devices. To ensure service continuity during high-demand periods like tax season, critical platforms such as Canada.ca, the Canada Revenue Agency (CRA), and Service Canada are supported by multi-region hosting and multi-carrier backhaul. Furthermore, community hubs and public Wi-Fi provide essential fallback access in areas where household connectivity is inconsistent.

Canada's network strategy is not just about speed but also about proactive resilience. Edge computing nodes at key locations like airports, ports, and hospitals are being used to reduce latency for time-critical workloads related to border security, public safety, and health. The government also conducts regular disaster-recovery drills for scenarios like wildfires, floods, and fiber cuts, ensuring that its failover systems are operational rather than just theoretical. This approach ensures that supply (network capacity) and demand (user adoption) policies are aligned, resulting in fewer failed sessions and shorter task times for citizens.

4.2. Management Optimization [MO]

The government has shifted its focus from celebrating launches to measuring real outcomes. Portfolio reviews now concentrate on metrics like completion times, error rates, and inclusion, ensuring that digital services are delivering tangible results. Telemetry from major platforms, including the Canada Revenue Agency (CRA) and Service Canada, provides leaders with real-time data to connect policy intent with actual performance.

This data-driven approach allows for quick intervention when services are underperforming. Furthermore, talent programs and academies are building critical product, data, and AI skills within government departments, which reduces reliance on external vendors and helps lower the total cost of ownership.

The Treasury Board of Canada Secretariat (TBS) and the Office of the Chief Information Officer (OCIO) provide the central leadership to ensure that policies and technology are aligned. This includes a new, outcome-based management model outlined in the Canada Digital Ambition, which uses data to measure the success of digital initiatives. This allows the government to make informed decisions and track progress on goals like improving client satisfaction and service accessibility. By building internal digital talent and modernizing IT systems, the government ensures that new policies and AI applications can be implemented effectively and securely, creating a more transparent and trustworthy digital experience for Canadians.

4.3. Online Service [OS]

Canada's online services are built to be inclusive and reliable. All content is available in both official languages (English and French), ensuring accessibility for official-language minorities and newcomers. For citizens who require assistance, assisted-digital counters are available to help with complex cases and appeals. The reliability of these services is ensured through active monitoring, rate-limit management, and multi-zone hosting, which keeps platforms stable even during high-traffic periods. Features like verified links and notifications bring users back to unfinished tasks, which helps to reduce abandonment and rework. By standardizing digital signatures and payments across government portfolios, the burden is shifted from citizens to the digital systems, resulting in shorter, more consistent user journeys.

The core of Canada's online service model is a unified login system. GCKey and Sign-In Partner are being migrated to the new Sign-in Canada, which provides a single, high-assurance login for accessing a wide range of government services. Other reusable tools like GC Notify keep official messages in a trusted, secure channel, while GC Forms moves paper intake online with built-in validation and pre-filled data.

By leveraging authoritative government registers, the system pre-populates forms, allowing users to simply confirm information rather than typing it repeatedly. This is evident in high-volume services like My Account, which pre-loads prior tax data and direct-deposit settings. Similarly, the My Service Canada Account centralizes information for services like Employment Insurance (EI), Canada Pension Plan (CPP), and Old Age Security (OAS), providing a unified view for the user. Immigration and passport processes have also been streamlined to reduce duplicate document uploads and the need for frequent status calls.

4.4. National Portal [NPR]

The portal is organized around a user's life events, making it easy to find relevant information and services without having to understand the government's internal structure. Canada.ca uses "scam-aware" design patterns, including verified sender notifications and consistent headers, to assure users that they are on an official and secure channel. The portal provides one-stop paths for businesses, connecting services for tasks like registration, payroll, and e-invoicing. For individual users, personal dashboards within agency portals show pending steps and deadlines, helping to prevent them from missing important entitlements. The site is also optimized for mobile devices and older technology, ensuring it remains fast and accessible for everyone, even during high-traffic periods. By using continuous analytics to fix content where bounce rates are high, the government ensures the portal is always improving, converting user intent into completed tasks with fewer clicks.

4.5. Government CIO [GCIO]

The GCIO's role is to convert Canada's high-level digital strategy into actionable plans. This is guided by the Canada Digital Ambition, which focuses on four specific outcomes: user-centric services, data-driven decision-making, innovative technology, and a digitally savvy workforce. The GCIO is at the forefront of modernizing Canada's legal and policy frameworks, such as with the development of the new AI Strategy for the Federal Public Service, which provides a clear framework for the responsible use of AI within

government. By setting these baselines and providing a clear vision, the GCIO empowers departments to align their work with national objectives.

The GCIO's office sets baselines for cloud, security, and interoperability. It also provides reusable digital "building blocks" that departments can consume as services. Examples include Sign-in Canada for a single, high-assurance login, and GC Notify for secure messaging. This modular approach to procurement reduces duplication, cuts down on vendor lock-in, and allows departments to focus on their core mission logic. The GCIO's team also manages by outcomes, using telemetry from major government portals like the Canada Revenue Agency (CRA) to ensure that digital services are delivering real, measurable benefits to Canadians.

4.6. E-Government Promotion [EPRO]

To promote its e-government, Canada is strengthening its internal operations to ensure a unified approach across its 161 federal organizations. This involves prioritizing key government-wide initiatives like updating the Policy on Service and Digital to align with national objectives and developing a comprehensive AI strategy for the federal public service. These initiatives, along with others focused on cybersecurity, data management, and talent development, are designed to create a common set of priorities that will help the government adapt to the rapidly evolving digital landscape and remain competitive globally.

The core of Canada's promotional strategy is a shift from simply showcasing features to delivering measurable outcomes. The Canada Digital Ambition has been streamlined from 17 priorities to four specific outcomes: services are user-centric and accessible; data is foundational to decision-making; technology empowers innovation; and the workforce is digitally savvy. By focusing on these outcomes, the government can track and report on tangible progress, ensuring transparency and accountability to Canadians. These annual reports will highlight not only achievements but also the challenges that remain, building public trust through honesty and demonstrating the government's commitment to continuous improvement.

4.7. E-Participation [EPAR]

Canada is a leader in e-participation, using digital tools to engage citizens in government processes. Its strategy is focused on leveraging Information and Communication Technologies (ICTs) to provide a more transparent, user-centric, and data-driven approach to governance. While the government has made significant progress in this area, it continues to face challenges in fully integrating digital tools with traditional processes and ensuring accessibility for all.

Canada's approach to e-participation is guided by its Digital Ambition, which prioritizes services that are designed with the user in mind. The government uses a variety of platforms and tools to facilitate citizen participation in policymaking, service development, and decision-making processes. This is supported by a foundational belief that data and information are crucial for both service delivery and informed decisions. Technological innovation, including the use of data analytics and social media, helps to boost citizen engagement and government responsiveness.

Canada still needs to address key challenges to strengthen its e-participation model. There is a continuous effort to better integrate digital tools with traditional governance methods and to ensure that all citizens, regardless of location or digital literacy, can access and influence public processes. The government's focus is on creating a digital environment that not only facilitates engagement but also builds trust and ensures that citizen input leads to tangible outcomes.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Canada's digital transformation is centered on treating data as a critical asset. The 2023–2026 Data Strategy for the Federal Public Service establishes a framework for using data to improve decision-making, enhance services, and empower public servants. The government is focused on improving data sharing and management, with the goal of creating a "tell us once" environment that reduces the administrative burden on citizens. This is supported by the adoption of emerging technologies like AI and quantum

computing to boost efficiency. Maintaining public trust is a key priority, with a strong focus on cybersecurity and protecting personal information as more services move online.

The government's commitment to open government is a core pillar of its transformation. Through initiatives like the National Action Plan on Open Government, Canada aims to increase public access to information and data. This plan outlines specific commitments in key areas such as climate change and fiscal transparency, with the goal of making data easily accessible for public use and analysis. By promoting transparency in government decision-making and making data open and understandable, Canada seeks to drive innovation and civic engagement, empowering the public to build upon existing data and fostering economic opportunities.

4.9. Cyber Security [CYB]

The government identifies two main challenges: the constant evolution of sophisticated cyber threats from state-sponsored actors and cybercriminals, and the increasing reliance of Canadians and critical infrastructure on interconnected digital services. To address this, Canada's strategy is guided by two core principles:

- **Whole-of-society engagement:** The government will deepen partnerships with all sectors—including private companies, academia, and Indigenous communities—to build national resilience. The goal is to improve public awareness and equip all Canadians with the knowledge to defend against cyber threats.
- **Agile leadership:** Rather than relying on a static plan, Canada will develop a series of issue-specific action plans in collaboration with partners. These plans will be dynamic, with clear outcomes and regular reporting to ensure solutions remain relevant as threats evolve.

This new approach is focused on three main pillars to deliver results:

- **Protecting Canadians:** Canada will forge partnerships, advocate for its interests internationally, and advance national cyber awareness to protect citizens and businesses from cyber threats.
- **Industry Leadership:** The country will aim to become a global leader in the cybersecurity industry by fostering a trusted innovation ecosystem, growing the future workforce, and supporting targeted research.
- **Detecting and Disrupting Threats:** The government will focus on identifying, deterring, and defending against cyber threats, while also improving its capacity to combat cybercrime and making critical systems more resilient.

4.10. The use of Emerging ICT [EMG]

The government's approach is to use technology to empower innovation, efficiency, and security. A key priority is the responsible adoption of generative AI, for which the government has developed its first-ever AI Strategy for the federal public service to enhance productivity and improve services. This push for modernization is happening against the backdrop of significant challenges, including a high number of "unhealthy" legacy IT systems that are costly and pose security risks. The government recognizes that improving these systems is essential for building a robust and resilient digital foundation.

Cybersecurity is a top priority due to persistent and complex threats. The government is focused on continuous monitoring and response to security incidents, understanding that building public trust requires the protection of personal information and data. The strategy also views data as foundational to service delivery, emphasizing that information should be used and reused to improve services and inform decision-making. To support these technological advancements, Canada is working to attract, retain, and upskill a digitally savvy workforce to ensure it has the necessary talent to navigate the rapidly changing digital landscape.

Germany

1. General Information

Area: **357,569 km²**

Population: **84,469,014**

Government Type: Federal Parliamentary Republic

2025 Growth Rate: **0.1%**

GDP (IMF '25): **\$4.74 Tn**

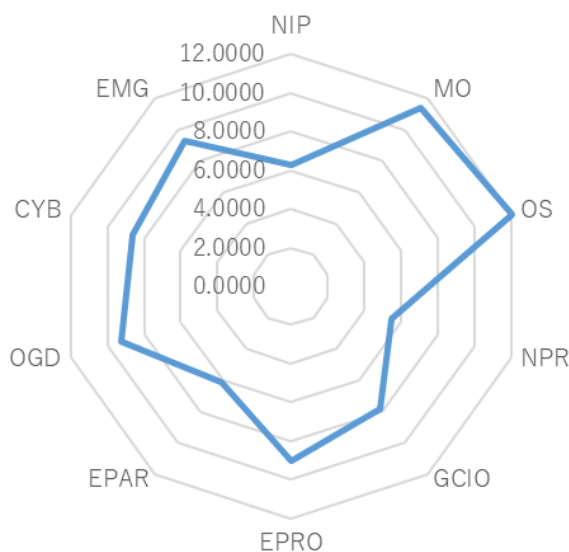
GDP Per Capita: **\$55,910**

Internet User: **93.5%**

Wired (Fixed Broadband User) per 100 people: **45.4**

Wireless Broadband User per 100 people: **96.8**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Germany's digital state is now functioning less like many separate websites and more like one stitched-together system. Core digital platforms have matured to provide a seamless user experience. BundID, for instance, is becoming the single sign-on for citizens and businesses, simplifying access to various services. The Online-Ausweis (eID), a secure

mobile identity solution, provides high assurance for online transactions. These are all integrated into the Bundesportal (service.bund.de), which acts as a centralized front door to federal and state services. This shift has made it easier for people to complete tasks in a single journey, with high-volume services like tax filing (ELSTER), student aid (BAföG-Digital), and vehicle registration (i-Kfz) serving as prime examples of success.

While Germany has made significant investments in its digital economy—worth over \$250 billion in 2024—it still faces challenges. According to a 2024 EU report, Germany lags behind the EU average in the digitalization of public services. However, a new federal government, led by a former private-sector executive, has made state modernization a key goal. The government has committed to massive investments in digital infrastructure, with a target of 100% fiber-to-the-premises (FTTP) coverage by 2030. New legislation passed in June 2025 gives fiber and mobile broadband expansion a "preeminent public interest" status, which will accelerate the rollout.

3.2. New Trends

Germany's government digitalization strategy for 2025 focuses on creating a modern, efficient, and inclusive state. The overarching approach, outlined in the 2025 Federal Government Digital Strategy, is built on three core pillars: a connected society, an innovative economy, and digital public administration. This strategy is an evolution of earlier plans and has been given a new sense of urgency and coordination.

A central component of the strategy is the rapid expansion of digital infrastructure. The plan calls for the nationwide expansion of high-speed fiber optic and 5G networks. Furthermore, the strategy places a strong emphasis on improving digital literacy and providing continuous digital education across all stages of life. The federal government is addressing the persistent shortage of ICT specialists by promoting digital skills and a common culture of digital cooperation among ministries. This is considered a fundamental building block for a modern and competitive digital economy.

The German government is committed to using digitalization to boost innovation and improve public services. The "Research and Innovation for Technical Sovereignty 2030"

strategy is a key initiative that provides more than €500 million annually to strengthen Germany's position in critical technologies like AI, quantum technologies, and microelectronics. On the public service front, the strategy aims to digitize administrative services to create a more efficient and user-friendly state. Projects such as the Consular Services Portal and the E-Rezept system are examples of this drive toward fully online services.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

A central part of Germany's infrastructure preparedness is its ambition to become Europe's leading data center hub. This initiative is not only about capacity but also about sustainability, with a focus on energy-efficient operations and integrating data centers into district heating systems. Simultaneously, the government is committed to accelerating the nationwide rollout of fiber-optic networks to ensure all households have access to high-speed internet.

Beyond fixed broadband, the government also focuses on improving mobile network coverage. Efforts are being made to enhance existing networks and explore new technologies, such as satellite communication, to provide internet access to areas that are currently underserved. This multi-pronged approach to connectivity is designed to bridge the urban-rural digital divide and ensure a reliable digital foundation for all of Germany.

4.2. Management Optimization [MO]

In 2025, Germany's government has made significant strides in optimizing its management of digital transformation by prioritizing smarter IT investments and streamlining procurement. This effort is driven by a unified strategy that aligns central policy with on-the-ground execution. A key focus of Germany's optimization is the modernization of public procurement to reduce bureaucracy and drive efficiency. In August 2025, a new law was passed to make public procurement simpler, faster, and more digital. This legislation aims to save administration and the economy hundreds of millions of euros annually. The new law increases the direct order value limit for federal contracts

to €50,000, reducing the need for a full tender process for smaller projects. It also creates exceptions to traditional bidding rules for urgent infrastructure projects, allowing for faster contract awards. This strategic change in procurement is designed to ensure that digital transformation projects and investments in infrastructure can be implemented more quickly.

Germany's digital leadership is institutionalizing this new approach. The country has established a dedicated Federal Ministry for Digital and State Modernization to consolidate digital policy and implementation, which now oversees IT procurement and federal IT management. This ministry, led by a former private-sector executive, is charged with attracting investment and cutting bureaucracy. The government has committed to massive investments in AI and cloud technologies, aiming to create a domestic technology stack to boost innovation and maintain national security. A key principle is to make it easier for companies to invest and for the government to move forward with projects that support a "new operating system" focused on growth, technology, and competitiveness.

4.3. Online Service [OS]

Germany's online services in 2025 present a mixed picture of significant progress and persistent challenges. While the country has made strides in areas like digital skills and health data, it still faces hurdles in the widespread adoption of key technologies and in addressing its shortage of digital specialists. Germany has made notable progress in improving the digital literacy of its population. Initiatives like the DigitalPakt Schule have helped to advance basic digital skills, laying a stronger foundation for a digitally capable society. On the service front, the country has successfully expanded its digital health infrastructure by connecting more healthcare professionals to centralized electronic health records. This development allows for the greater availability of health data, which is crucial for improving patient care and streamlining administrative processes.

Despite these advancements, the full potential of the digital public sector remains constrained by several issues. The use of electronic identification (eID) in Germany continues to lag behind the EU average, creating a reliance on other, less efficient

methods. This is a significant hurdle for creating a fully digital public sector. Compounding this challenge is a persistent shortage of ICT specialists. The country has been slow to implement effective measures to address this talent gap, prompting a recommendation from the European Commission to launch targeted initiatives to attract more young people, particularly women and girls, to careers in science, technology, engineering, and mathematics (STEM).

4.4. National Portal [NPR]

Germany's national portal is the central front door for citizens and businesses to access government services across federal, state, and local levels. Rather than being just an informational website, the portal is designed to be an action-oriented hub, helping users move quickly from finding a service to completing a task. The portal's design is driven by a user-centric philosophy. Services are organized by topics and life events, making it easier for users to find the correct administrative procedure without having to navigate a complex government structure. Recent features in 2025 have further enhanced its functionality, allowing users to upload documents to an existing request, withdraw an application, or even appeal a decision directly through the portal.

A key purpose of the Bundesportal is to unify a highly federated government system. The portal acts as a central point of access, which is crucial given that administrative responsibilities are shared between federal, state, and local governments. While some services can be completed directly on the Bundesportal, it also provides clear links and routing to services offered by individual states or local municipalities. This collaborative approach ensures that the portal fulfills its goal of providing a single, reliable point of access, reinforcing the government's shift away from a fragmented digital landscape to a more cohesive, "stitched" system.

4.5. Government CIO [GCIO]

In 2025, Germany's Government Chief Information Officer (GCIO) capability has driven a decisive shift from a fragmented digital landscape to a more coherent and production-grade e-government model. This year's focus has been on structural reform, platform

development, and outcome-driven management. The most significant action taken in 2025 was the establishment of a dedicated Federal Ministry for Digital and State Modernization. This new ministry, led by a former private-sector executive, has consolidated digital responsibilities from six different departments. This move has created a unified command center for digitalization, which is crucial for aligning federal and state (Länder) governments and accelerating the implementation of the 2025 Federal Government Digital Strategy.

The GCIO has also transformed its management model by tying project funding to measurable outcomes—such as completion time and user adoption—rather than simply celebrating new features. This data-driven approach ensures that digital investments provide real value. Furthermore, the GCIO has made a point of building inclusivity into the very fabric of its digital state. Services like the Bürgertelefon 115 and in-person municipal counters ensure that even as digital services become the default, no one is left behind, especially seniors, who may be less digitally savvy.

4.6. E-Government Promotion [EPRO]

Germany's e-government promotion strategy in 2025 is fundamentally about building public trust and encouraging widespread adoption by demonstrating the reliability and user-friendliness of its digital services. The core of its strategy is a shift from traditional advertising to one where the quality of the service itself is the primary promotional tool. This is best exemplified by the Bundesportal (service.bund.de), which acts as a central front door that guides users from a "read" state to a "do" state. By organizing content around major life events, the portal makes the complex world of government services approachable and intuitive, which is the most effective form of promotion.

The German government promotes its e-government by highlighting visible, high-volume successes. Flagship services like ELSTER for tax filing and i-Kfz for online vehicle registration are prime examples. The widespread and successful use of these platforms provides clear evidence that digitalization is not just a plan but a reality that saves citizens time and effort. This demonstration of tangible value helps to build confidence in the

broader digital transformation. Furthermore, the use of "scam-aware" design patterns on the portal helps to build trust by assuring users they are on an official and secure channel.

4.7. E-Participation [EPAR]

Germany's e-participation efforts in 2025 are still developing, but they are being driven by broader pushes for e-government and participation in the European Year of Digital Citizenship. The Bundesministerium des Innern (BMI) is leading digital sovereignty initiatives that are foundational to enabling more advanced forms of citizen engagement. The German government's e-participation strategy is closely linked to its overall e-government development. The expansion of digital public services and the launch of a new government cloud are seen as prerequisites for enhanced e-participation. These infrastructure and service improvements, overseen by the BMI, are designed to create a secure and reliable digital environment for citizens to interact with the government.

A key trend is the potential use of Artificial Intelligence (AI) to enhance e-participation. The government sees applications for AI in managing large datasets, improving responsiveness to public feedback, and facilitating more efficient policy-making processes. Furthermore, Germany is leveraging its participation in the European Year of Digital Citizenship to create opportunities for young people to become more involved in political and administrative processes through digital tools and platforms. This collaborative approach, both domestically and within the EU, is crucial for fostering a more participatory digital society.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Germany's government is strategically pursuing a comprehensive digital transformation (DX) and an open government data (OGD) agenda. The country's approach is to move away from a fragmented landscape of isolated digital projects towards a cohesive, production-ready model that delivers seamless services to citizens and businesses. The core of Germany's DX strategy is its shift to a "digital by default" model, led by the new Federal Ministry for Digital and State Modernization. This ministry works to align policies and platforms across the highly federated system of federal and state

governments. The effort is visible in the maturing of key digital services, such as the Bundesportal (service.bund.de), which acts as a central hub for all government services. This portal, combined with a single sign-on system like BundID, allows people to move quickly from "reading" to "doing," completing tasks in a single, streamlined journey. High-volume services like online vehicle registration (i-Kfz) and e-prescriptions (E-Rezept) are prime examples of this shift to a more user-centric and efficient digital state.

Open government data is a foundational element of Germany's digital strategy. The national portal, GovData.de, serves as a central platform for making public datasets accessible for reuse and analysis. The government's goal is to not only provide data but also to ensure it is of high quality and usefulness, thereby providing a reliable source of evidence for policymaking, academic research, and the private sector. By promoting transparency and the free flow of information, Germany aims to foster innovation and empower its citizens and businesses to create new solutions that benefit society.

4.9. Cyber Security [CYB]

In 2025, Germany's cybersecurity strategy is undergoing a major transformation, marked by the adoption of new legislation that takes a more proactive stance against digital threats. This shift is a direct response to evolving global security challenges and aims to significantly expand the scope of cybersecurity obligations for businesses and organizations. On July 30, 2025, the German federal government adopted the draft law "NIS-2 Implementation and Cybersecurity Strengthening Act (NIS2UmsuCG)." This law transposes the EU's NIS 2 Directive into German national law. This landmark legislation will dramatically expand the number of entities subject to cybersecurity regulations, from around 4,500 to an estimated 29,500 companies. The new law makes a key distinction between "essential entities" and "important entities," both of which must meet new, comprehensive cybersecurity obligations, with essential entities facing regular audits by the BSI (Federal Office for Information Security).

The new legislation imposes a series of demanding obligations on affected companies. These include establishing comprehensive risk management plans, implementing a three-stage process for reporting cybersecurity incidents to the BSI, and training employees and

management on new security requirements. A particularly significant new obligation is the need for companies to assess and enhance IT security within their supply chains. Businesses are advised to act immediately to determine if they fall under the new law's scope and to establish an Information Security Management System (ISMS) to ensure compliance and avoid sanctions.

4.10. The use of Emerging ICT [EMG]

The country is engineering a profile that is AI-forward, identity-centric, and security-first to build a digital state that is scalable, fast, and trustworthy. Under clear guidance, German government agencies are productizing AI where it measurably helps, with humans firmly in control. AI is being used to streamline processes such as triaging contact-center queues, routing benefit and permit cases, and extracting data from documents. These capabilities are designed to plug into existing systems using identity-linked rails like BundID and eID, preventing the creation of new data silos. This pragmatic approach is backed by rigorous assurance practices that turn AI ethics into day-to-day engineering standards, including model documentation, bias testing, and audit trails.

German cities and agencies are deploying IoT and edge computing for time-critical workloads such as flood sensing, traffic optimization, and energy balancing, supported by a robust 5G network. The government is also prioritizing digital sovereignty by using sovereign cloud and open-source stacks, like the Phoenix use case, to maintain control over data and keep costs manageable. This strategy aligns with a commitment to sustainability, as procurement processes now include "green-by-default" compute and energy-efficiency targets. These efforts ensure that digital performance scales are without expanding the nation's carbon footprint. GovTech initiatives and research partnerships further shorten the path from prototype to production.

Ireland

1. General Information

Area: **70,273 km²**

Population: **5,271,033**

Government Type: Parliamentary Democracy

2025 Growth Rate: **2.3%**

GDP (IMF '25): **\$589.84 Bn**

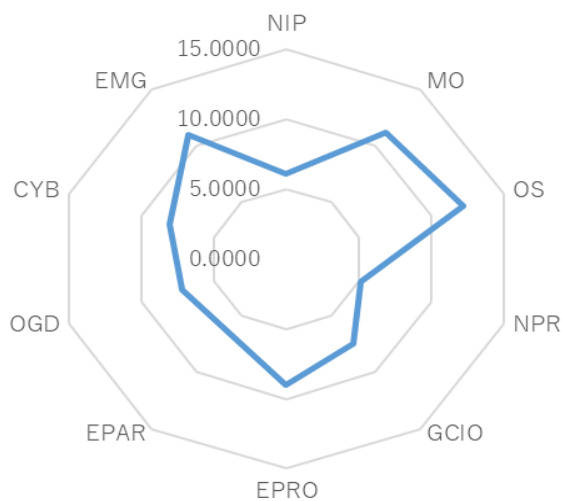
GDP Per Capita: **\$108,920**

Internet User: **96.5%**

Wired (Fixed Broadband User) per 100 people: **32.1**

Wireless Broadband User per 100 people: **119**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

Ireland's e-government in 2025 has moved from a focus on high-level strategy to delivering tangible, everyday improvements for citizens and businesses. This shift is driven by a coherent, centralized approach that aligns policy and platforms. At the center of Ireland's digital state are several foundational platforms that work together as a single,

stitched system. The MyGovID system, with its verified accounts via the Public Services Card, serves as a high-assurance anchor for identity, providing a single login for users. The gov.ie portal acts as the front door, guiding people to the services they need. For high-volume services, platforms like MyWelfare and Revenue's MyAccount/ROS handle benefits and taxes, while consistent credentials allow businesses to interact seamlessly with different state bodies. Additionally, central cloud "landing zones" provide a predictable and standardized hosting environment for all departments.

The coherence of this model is visible in several successful services. Passport Online has significantly shortened turnaround times, Motor Tax Online has reduced the number of in-person counter visits, and student support via SUSI proceeds with fewer errors. On the enterprise side, platforms like eTenders and e-Invoicing (Peppol) have cut administrative friction for businesses. Crucially, Ireland is treating inclusivity as a core part of its service delivery. Assisted-digital support is available at Citizens Information centers, library helpdesks, and Intreo offices, ensuring that digital services are accessible to all, including seniors and newcomers.

Ireland's commitment to open government is reflected in its data initiatives. Portals like data.gov.ie and GeoHive make open data easily discoverable for a wide range of uses, from academic research to startup projects. This ensures that evidence and information are readily available to support decision-making and foster a more transparent, data-driven society.

3.2. New Trends

Ireland's long-term strategy, Project Ireland 2040, represents a significant shift in the country's approach to national development and investment. Moving away from thinly spread funding, this overarching strategy provides a cohesive and defined framework to build a more resilient and sustainable future for all. The core of Project Ireland 2040 is the combination of two key documents: the National Planning Framework (NPF) and the National Development Plan (NDP) 2021-2030. The NPF sets the country's vision and strategic objectives for development up to 2040, while the NDP provides the necessary investment to implement that vision. This structured approach ensures that public funds

are strategically aligned with the national goals, supporting businesses and communities across the country.

The primary aim of this strategy is to prepare Ireland for a future that will see approximately one million additional people living in the country by 2040. To accommodate this population growth, Project Ireland 2040 is set to deliver hundreds of thousands of new jobs and homes, alongside enhanced cultural and social amenities. The plan also focuses on improving regional connectivity and environmental sustainability, ensuring that the country's growth is managed in a considered and deliberate manner.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Through the National Broadband Plan, Ireland is actively rolling out high-capacity fiber and expanding its mid-band 5G footprint to shrink the digital divide between urban and rural areas. This predictable bandwidth and low latency give government agencies the confidence to design services with strong authentication, real-time registry checks, and video appointments for phones. To ensure service continuity during peak periods, key government portals like gov.ie, MyWelfare, and Revenue are supported by multi-region hosting and multi-carrier network paths.

Ireland is also leveraging edge computing, with capacity at hospitals, ports, and councils to shorten round-trip times for time-critical workloads related to health, transport, and emergency services. The country's commitment to resilience is further reinforced by regular disaster-recovery drills for realistic hazards like storms and fiber cuts, ensuring that failover capabilities are operational rather than theoretical. To prevent a "digital-only" divide, public Wi-Fi and community hubs are available to provide fallback access for citizens with limited household connectivity.

By aligning network capacity with policies that promote digital adoption, the government ensures that its infrastructure investments directly translate into a better user experience. This coordinated approach leads to fewer failed sessions and shorter task times for citizens, showcasing a digital transformation that is both strategic and practical.

4.2. Management Optimization [MO]

Based on Germany's own strategy documents, its e-government management model in 2025 is a result of a deliberate shift from a fragmented approach to a coherent, production-ready system. This transformation is driven by a new, centralized authority that aligns policy, platforms, and portfolios for consistent execution across the country's federal system. Germany's management model works by having a central authority, primarily the new Federal Ministry for Digital and State Modernization, set strategic guardrails for cloud, security, and interoperability. Instead of each agency building its own isolated systems, they are now supplied with reusable digital "building blocks." For example, services like BundID for identity and e-Akte for digital workflows are provided as shared platforms that departments can simply consume. This modular approach is key to preventing redundant development, limiting vendor lock-in, and easing future changes.

The government has shifted its focus to an outcome-driven management model. Portfolio and budget reviews now concentrate on metrics like completion time, user adoption, and inclusion, rather than simply celebrating the launch of new features. This ensures digital projects deliver tangible value to citizens. To standardize processes, the government uses "playbooks" that convert high-level policies into practical patterns, ensuring different agencies don't rebuild the same solutions multiple ways. Furthermore, compliance for privacy and cybersecurity is embedded directly into these shared platforms from the start, rather than being added on as a late-stage hurdle. The government is also investing in its own workforce through talent programs to grow internal expertise in product, data, and AI, which reduces its over-reliance on external vendors.

4.3. Online Service [OS]

Ireland's GCIO (Government Chief Information Officer) capability is not just about setting policy; it's about being the central weaver that creates a seamless digital fabric out of disparate parts. The GCIO's model is evidenced by the visible, everyday improvements in how people access the state. The central authority, the OGCIO within the Department of Public Expenditure and Reform, works behind the scenes to align policy and standards,

allowing individual departments to build user-centric services that are part of a single, unified system.

The success of Ireland's GCIO is not measured in strategy papers, but in tangible outcomes for citizens. The MyGovID system, a high-assurance identity anchor, is a direct result of the GCIO's mandate for a single login. This enables end-to-end journeys for high-volume services. For instance, the GCIO's strategy is what makes it possible for Passport Online to shorten turnaround times, Motor Tax Online to reduce counter visits, and student support via SUSI to proceed with fewer errors. These improvements show that the burden has successfully shifted from citizens to digital systems themselves.

4.4. National Portal [NPR]

Ireland's national portal, gov.ie, serves as the core of the country's e-government strategy, designed to simplify interactions with the state by acting as a central gateway for action. It's built on the principle of a unified digital relationship between the citizens and the government, moving beyond simple information sharing to enable concrete tasks. The portal's success is anchored by the MyGovID identity system, which provides a single, high-assurance login for citizens and businesses. This single credential eliminates the need to manage multiple usernames and passwords for different government services, creating a streamlined and secure entry point. By leveraging this unified identity, gov.ie can consolidate content and services, ensuring users can find what they need in one trusted place instead of having to navigate a fragmented digital landscape.

The design philosophy of gov.ie focuses on being highly intuitive. The portal organizes services not by government department, but by a user's life events, such as starting a business or seeking healthcare. This contextual organization helps people find what they need more efficiently, reducing frustration. The site is optimized for mobile devices and older technology, ensuring it remains fast and accessible to everyone. The platform also features personalized dashboards that show pending steps and deadlines, which helps to prevent missed entitlements. By centralizing services and ensuring a seamless experience, the portal successfully converts user intent into a completed task, making it a vital pillar of Ireland's digital government.

4.5. Government CIO [GCIO]

Ireland's GCIO capability is not about building in isolation, but about being the central weaver that creates a seamless digital fabric out of disparate parts. The central authority works behind the scenes to align policy and standards, allowing individual departments to build user-centric services that are part of a single, unified system. The success of Ireland's GCIO is not measured in strategy papers, but in tangible outcomes for citizens. The MyGovID system, a high-assurance identity anchor, is a direct result of the GCIO's mandate for a single login. This enables end-to-end journeys for high-volume services. For instance, the GCIO's strategy is what makes it possible for Passport Online to shorten turnaround times, Motor Tax Online to reduce counter visits, and student support via SUSI to proceed with fewer errors. These improvements show that the burden has successfully shifted from citizens to digital systems themselves.

The GCIO's model also embeds inclusion and reliability into the core of its work. Instead of treating these as afterthoughts, the GCIO ensures that services are designed to be accessible to everyone, including seniors and newcomers. The availability of assisted digital support at places like Citizens Information centers is a key part of this model. The GCIO's focus on multi-region hosting and active monitoring also underwrites the reliability of critical portals like gov.ie, MyWelfare, and Revenue, ensuring they hold up under pressure and provide a continuous, high-uptime service.

4.6. E-Government Promotion [EPRO]

Ireland's e-government promotion strategy focuses on making digital services accessible to all without widening societal inequality. This approach ensures that adoption is broad by providing the support and tools necessary for citizens to confidently engage with the state's digital services. A core component of this strategy is providing in-person assistance to build trust and confidence. Public locations like Citizens Information centers, libraries, and Intreo offices serve as vital hubs where residents can get help activating their MyGovID accounts and using key portals. This is complemented by national campaigns that teach safe digital habits, such as identifying phishing attempts, which in turn encourages greater usage of online services.

The promotion model is designed to be deeply inclusive. For individuals, delegated access allows trusted proxies like family members or carers to act on their behalf, a crucial feature for those who need assistance. Content is also provided in bilingual and plain-language formats to reduce the cognitive load for newcomers and people with low literacy. For small and medium-sized enterprises (SMEs), the government provides practical toolkits that link the use of digital services like e-invoicing and eTenders directly to tangible benefits, such as fewer errors and faster payments.

The success of this strategy is a direct result of a continuous feedback loop. Feedback from helpdesks and call centers flows directly into product backlogs, turning user pain points into actionable fixes. The promotional message has shifted from "try online" to "finish online," reflecting the high reliability and end-to-end functionality of services. By funding including channel shift, the government ensures that cost savings are not achieved at the expense of equity, creating a positive flywheel effect where skills and trust drive usage, and that increased usage frees resources to further improve the services.

4.7. E-Participation [EPAR]

The central consultations hub on gov.ie makes it easier for citizens to get involved by posting draft policies with clear comment periods and background materials. This transparency is reinforced by departments that now publish "what we heard and what we changed," allowing contributors to see the direct impact of their feedback. This commitment to closing the feedback loop helps to build trust and transform e-participation from a symbolic gesture into a meaningful process.

Ireland uses a hybrid approach, combining livestream Q&A sessions with moderated workshops to balance broad reach with in-depth discussion. Citizens' Assemblies provide an additional, institutionalized pathway for public deliberation, with their recommendations requiring a formal government response. This participatory model also extends to the local level, where municipal platforms allow residents to vote or comment on planning and budgeting decisions directly from their phones. The system also carefully balances security and openness by requiring identity-backed submissions where integrity is crucial, while offering anonymous options for more sensitive topics.

To ensure that e-participation is substantive, the government works with universities and civic-tech groups to analyze public comments, prioritizing substance over sheer volume. After major consultations, datasets and transcripts are made public and searchable. This commitment to transparency allows journalists and researchers to trace the full lifecycle of a policy decision, ensuring accountability and reinforcing public confidence in the process.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Instead of each department building its own systems, Ireland's government provides foundational digital components as shared services. This includes services for identity, secure messaging, payments, and system monitoring. By reusing these pre-built "plumbing" components, development teams can focus on core mission logic and improving the user experience, which speeds up the creation of new services and reduces administrative friction.

A key part of the strategy is using a data-sharing framework to enable the "once-only" principle. This means citizens and businesses only have to provide their information once, as government systems can then pre-fill forms and perform instant validations, which significantly cuts down on the burden of form-filling. Internally, a shift to event-driven integration is replacing older, less reliable processes, which ensures data remains consistent across departments and local councils. As a result, portals like data.gov.ie and geospatial platforms like GeoHive are becoming more dependable and robust, not just larger, supporting better policy decisions, research, and innovation. The overall effect is faster development, stronger evidence for decision-making, and a visibly smoother experience for everyone.

4.9. Cyber Security [CYB]

In 2025, Ireland's cybersecurity sector is at a pivotal moment, characterized by rapid growth in the private sector and significant challenges in public defense and talent development. The landscape is being reshaped by the dual nature of emerging technologies and a reliance on complex, global supply chains.

The cybersecurity sector in Ireland is experiencing a boom, with revenue reaching approximately €2.7 billion, a 30% increase since 2023. This growth is expected to continue, with forecasts from Cyber Ireland predicting the creation of 10,000 new cybersecurity jobs by 2030. Despite this impressive expansion, the sector faces a critical shortage of skilled professionals. This widening skills gap underscores the need for more focused talent development, training programs, and stronger industry-academic collaboration to meet the future demand for a skilled workforce.

Even as the private sector thrives, Ireland's public cybersecurity infrastructure is lagging behind. An independent government review found that the National Cyber Security Centre (NCSC) remains significantly underfunded, with an annual budget of €5 million. This funding level pales in comparison to that of counterparts in the UK, Netherlands, and Germany. The funding gap is a major barrier to Ireland's public cyber capabilities, and experts believe sustained investment is required for the country to effectively compete with other EU nations and improve its overall cyber resilience.

4.10. The use of Emerging ICT [EMG]

The government's Industry 4.0 Strategy is a core initiative aimed at positioning Ireland as a leader in the fourth industrial revolution. This strategy drives the adoption of advanced digital technologies—including AI, big data, and robotics—by manufacturing firms to boost productivity, innovation, and competitiveness. A central pillar of the ICT strategy is addressing the critical demand for a new mix of skills. Training programs, such as those offered by Technology Ireland ICT Skillnet, provide essential technical and business skills needed for emerging technologies like cloud computing and cybersecurity. The strategy also includes a strong focus on risk management, particularly in addressing cyber threats and the vulnerabilities that come with evolving AI capabilities and complex supply chains.

The Irish public sector is actively embracing digital transformation to improve its service delivery. Initiatives focus on creating more sophisticated cloud solutions and enhancing digital governance. In 2025, an updated National Digital Strategy was agreed upon to accelerate the adoption of AI and other technologies in public services, with a goal of

becoming a global digital leader and an EU center of expertise for digital and data regulation. This concerted effort ensures that the government and its workforce are equipped to manage the digital landscape and deliver better, more resilient services to citizens.

New Zealand

1. General Information

Area: **268,021 km²**

Population: **5,225,335**

Government Type: Parliamentary Representative Democratic Monarchy

2025 Growth Rate: **1.4%**

GDP (IMF '25): **\$248.67 Bn**

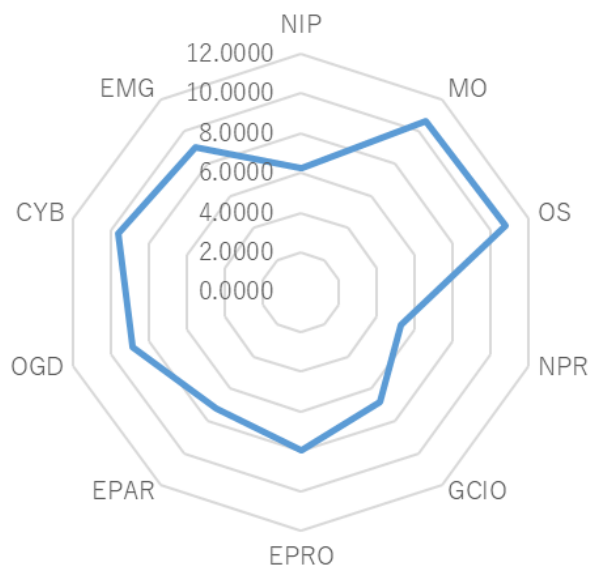
GDP Per Capita: **\$46,130**

Internet User: **96.2%**

Wired (Fixed Broadband User) per 100 people: **37.9**

Wireless Broadband User per 100 people: **102**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, New Zealand's digital government is making a strategic shift from a collection of agency-specific projects to a more unified, production-grade digital state. This transformation is led by the central government's Digital Public Service and the

Government Chief Digital Officer, who are aligning policies and platforms to create a cohesive system. A few key digital platforms are at the heart of this transformation. RealMe serves as the high-assurance identity anchor, providing a single login for citizens and businesses. The Govt.nz website acts as the central front door, guiding people to the services they need. High-volume services, such as those from Inland Revenue (myIR) and the Ministry of Social Development (MyMSD), are now part of this integrated system, while canonical business records managed by the NZBN/Companies Office ensure data consistency across government.

Services for immigration, transport, and vital records are progressively standardizing on the same sign-in and messaging patterns. On the enterprise side, e-invoicing via Peppol and structured filings are compressing administrative cycle times. Furthermore, open data initiatives, led by platforms like data.govt.nz, Stats NZ, and LINZ geospatial hubs, ensure that evidence is easily discoverable for policy, research, and civic technology.

Crucially, New Zealand is treating digital inclusion as a fundamental part of its service delivery. Assisted-digital support is widely available through partnerships with libraries and community organizations. The government has also formalized delegated access, which allows family members and carers to safely assist with digital tasks. For complex cases, phone and in-person office handoffs remain available. These measures ensure that the shift to a stitched digital system does not exclude seniors, newcomers, or other citizens who may need extra support.

3.2. New Trends

New Zealand's digital strategy for 2025 emphasizes a responsible and pragmatic approach to emerging trends, particularly in artificial intelligence (AI). The nation is focused on leveraging existing legal frameworks to guide AI deployment while fostering a skilled workforce and promoting international collaboration. New Zealand's approach to AI governance is characterized by its reliance on existing legislation rather than creating new, AI-specific laws. The Privacy Act 2020 ensures personal data is protected, the Fair-Trading Act 1986 prevents misleading AI-generated claims, and the Companies Act 1993 maintains director duties in AI decision-making. This "light-touch" regulatory approach,

which aligns with OECD AI Principles, is designed to build public trust and enable innovation. In a significant step in 2025, the government introduced a comprehensive Public Service AI Framework to provide a roadmap for safe and ethical AI deployment across government departments, leading by example for the private sector.

To address the global competition for AI talent, New Zealand is making targeted investments in its workforce. Universities are expanding software engineering programs with specialized training in machine learning and AI applications. In the public sector, the Government Chief Digital Officer leads AI masterclasses for leaders and foundational courses for public servants to enhance service delivery. The country's strategy also prioritizes international alignment, particularly through its collaboration with the Five Eyes nations. This positioning enables knowledge sharing and maintains regulatory consistency with key trading partners, ensuring that New Zealand's AI development remains trustworthy and innovative on a global scale.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

New Zealand is making targeted investments in its research capabilities and expanding telecommunications coverage, while also acknowledging key challenges that need to be addressed. The country's science and research community has been significantly boosted by recent investments in high-performance computing (HPC). In August 2024, the National Institute of Water and Atmospheric Research (NIWA) acquired a new \$20 million supercomputer, the largest research computer in the country. This system, which is 2.5 to 3 times more powerful than its predecessor, will enable advanced weather forecasting, climate modeling, and AI workloads. Its capabilities will support critical services like 24/7 weather predictions and the international MethaneSat mission. The new supercomputer is a cornerstone of the New Zealand eScience Infrastructure (NeSI), which on July 1, 2025, was integrated into REANNZ, a crown-owned company. This ensures that the entire science sector can benefit from enhanced computing power.

New Zealand boasts a high wireless broadband uptake, ranking fourth among OECD countries per capita. The country is actively working to expand network coverage to remote areas and is in the midst of ongoing 5G rollouts in urban centers. This robust connectivity positions New Zealand well for the economic opportunities presented by the Internet of Things (IoT). However, challenges remain, including the need for continuous investment in infrastructure, addressing issues with power and standards, and managing privacy and security concerns. New legislation is expected to further improve the country's telecommunications infrastructure and services, ensuring that the digital foundation is resilient and sustainable.

4.2. Management Optimization [MO]

The Government Chief Digital Officer (GCDO) provides a foundational framework by setting guardrails for key areas like cloud, security, and interoperability. Instead of each agency building its own isolated systems, central platform teams supply reusable digital components—such as services for identity (RealMe), payments, and notifications—that departments can simply consume. This modular approach is reinforced by a shift toward modular procurement, which means adding a new feature no longer requires re-tendering a massive, monolithic contract, ultimately reducing vendor lock-in and allowing new services to be deployed faster.

New Zealand's management model is governed by data and metrics. Portfolio reviews now focus on tangible outcomes like completion time, error rates, and digital inclusion, moving beyond simply celebrating a new launch. Telemetry from major portals for tax, benefits, and immigration provides leaders with real-time data to connect policy intent with actual performance. This data-driven approach allows for quick and informed decisions. Furthermore, the government is investing in its own workforce through talent rotations and academies to grow internal expertise in product, data, and AI. This reduces over-reliance on external vendors and helps ensure that the public service has the skills to manage its digital future.

4.3. Online Service [OS]

New Zealand's digital public service is expanding its portfolio of online services to address a wider range of needs. One new area of focus is proactive service design. The government is piloting services that use data to anticipate a citizen's needs and initiate a service before they even have to ask for it. This shift from reactive to proactive service delivery is a key trend in 2025. Additionally, new online services for the justice sector and specific health services have been launched to streamline processes and improve access to critical information.

Beyond the RealMe platform, New Zealand is maturing its national digital identity framework to encompass a wider range of verified credentials. The government is exploring the use of digital wallets that would hold not just a person's identity, but also their professional qualifications, health information, and driver's license in a secure, verifiable format. This framework is being developed with an emphasis on user consent and control, ensuring that individuals can choose what information to share and with whom. The goal is to create a digital identity that enables seamless and secure interactions with not only government agencies but also with private businesses and other organizations.

New Zealand's commitment to accessibility is a key feature of its online services. The government is actively working to ensure that all digital platforms comply with the highest international standards for accessibility. This includes designing services that are compatible with assistive technologies for users with disabilities and providing content in both official languages (English and te reo Māori). The government is also expanding its "assisted-digital" support model, training a network of community partners to help people who are not digitally confident to access and use online government services. This approach ensures that the digital-by-default strategy is inclusive and accessible to all.

4.4. National Portal [NPR]

New Zealand's national portal, Govt.nz, is designed to feel like a single, unified system rather than a collection of disconnected websites. This is achieved by creating a secure digital environment where a user's identity and data seamlessly follow them across different government platforms, which makes interactions simple, fast, and trustworthy.

The portal's success is anchored by the RealMe service, which provides a single, high-assurance digital identity for all users. This single key unlocks a wide range of services and enables systems to automatically pre-fill forms using authoritative data from government registers. This means people can confirm information rather than typing it, dramatically reducing form-filling and administrative effort. This approach is evident in major services, where a single sign-on can connect a user to their tax returns (myIR), benefits (MyMSD), and even immigration or vehicle licensing, which has led to fewer duplicate uploads and a smoother user journey.

The government's commitment to building a modern digital state is also reflected in its dedication to inclusivity. The Govt.nz portal and its related services are committed to being fully bilingual, with all key content available in both English and te reo Māori. The government has also implemented the Plain Language Act 2022, which mandates that public service agencies use clear, simple language to make their services and communications more accessible to all citizens. This focus on accessibility, combined with the evolution of the national digital identity framework to support new forms of verifiable credentials, ensures that New Zealand's digital services are inclusive, trustworthy, and future-ready.

4.5. Government CIO [GCIO]

The GCIO implemented a cross-agency data-sharing framework to improve coordination and policymaking. This framework allows government departments to securely share anonymized data, enabling better-targeted interventions for at-risk youth, for example, by linking data from the Ministry of Education and the Ministry of Social Development. This data-driven approach is supported by the Government Cloud Strategy, which mandates that new digital services be built on cloud infrastructure. This cloud-first policy has led to over 80% of government services being hosted on cloud platforms, creating a more agile and scalable IT environment.

To reduce costs and foster collaboration, the GCIO also oversaw a push for the adoption of open-source software. This strategic shift has saved the government millions on software licensing fees and provided more flexibility for customizing digital services. The

GCIO's office also focused on building public sector digital capability through regular training and certification programs. In 2024, over 3,000 government employees completed courses in cybersecurity and digital service design, demonstrating a strong commitment to cultivating internal expertise and a skilled workforce.

4.6. E-Government Promotion [EPRO]

New Zealand's e-government promotion is a multifaceted strategy that goes beyond website features. It is a continuous effort of strategic outreach, designed to build public trust and encourage adoption across all segments of society. This involves active communication with citizens through targeted campaigns and using digital channels to inform the public about new services and their benefits.

A core element of this promotion is its community-based approach. The government partners with local libraries and community centers to provide in-person support and training, which helps individuals gain the skills and confidence to use online government services. This strategy directly addresses the digital divide, ensuring that no one is left behind. The promotion also focuses on a message of inclusivity by providing services and information in both English and te reo Māori, and by designing services that are accessible to a diverse population.

4.7. E-Participation [EPAR]

In 2025, New Zealand is continuing to integrate emerging technologies into its e-participation framework. In 2024, the government successfully piloted the use of blockchain-based voting in local elections, which led to a notable 15% increase in voter turnout and improved public confidence in the electoral process. This success is paving the way for the broader adoption of secure digital voting in future national elections. Additionally, the government is utilizing AI-driven sentiment analysis to better understand public opinion on various policies, enabling more nuanced and data-informed policy adjustments. This was notably used during a public consultation on environmental policies, where citizen input directly influenced the creation of stricter regulations on carbon emissions.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

New Zealand's open government data strategy is a central pillar of its digital transformation, designed to be a catalyst for innovation and a tool for transparency. The national portal, data.govt.nz, serves as a hub for thousands of public datasets, making them accessible for reuse by researchers, civic-tech groups, and businesses. By publishing data in machine-readable formats, the government empowers external parties to create new services and applications that benefit the public.

The government's data management is guided by a refreshed Government Data Strategy and Roadmap, which is underpinned by a commitment to the principles of Te Tiriti o Waitangi (the Treaty of Waitangi). This is a unique and critical aspect of New Zealand's approach, ensuring that Māori data governance is recognized and respected across the system. The strategy also focuses on the "once-only" principle, which aims to reduce the burden on citizens and businesses by ensuring they only have to provide information once. The government works to make this a reality by improving data quality and establishing a framework for secure data sharing across departments.

4.9. Cyber Security [CYB]

New Zealand's cybersecurity profile is defined by a combination of robust domestic policies, advanced infrastructure, and a key role in international security. The nation is a significant player in the global cybersecurity landscape, actively working to safeguard its digital space from evolving threats. New Zealand has invested in an advanced internet infrastructure to support its digital resilience. This includes an expanding network of subsea cables that enhances international connectivity, as well as new satellite services from providers like SpaceX and Lynk to improve broadband access in rural and remote areas. This focus on widespread, high-quality connectivity is a foundational element of the country's cybersecurity strategy.

Positioned in the geopolitically sensitive Pacific region and as a member of the Five Eyes intelligence alliance, New Zealand plays a crucial role in safeguarding its digital space. The country's strong cybersecurity measures and commitment to international

cooperation are central to its strategy for addressing evolving cyber threats and foreign interference. This proactive stance ensures New Zealand is not only protecting its own interests but is also contributing to the collective security of its allies.

4.10. The use of Emerging ICT [EMG]

New Zealand's Information and Communications Technology (ICT) market is a rapidly growing sector, valued at US\$19.8 billion in 2024, with a projected annual growth rate of approximately 10%. This growth is driven by significant advancements in key areas like Software as a Service (SaaS), Cloud Services, and AI, making the technology sector the country's third-largest export industry. New Zealand's digital infrastructure is both advanced and strategically diversified. The country has improved its international connectivity with a network of high-capacity subsea cables, including the Hawaiki and SX Next, with a new Google-backed cable set to connect New Zealand and Australia by 2026. This infrastructure supports the growth of hyperscale data centers by major global players like Microsoft, AWS, and Google, particularly in the Auckland region. These data centers are crucial for the expansion of cloud computing and AI services.

A key focus of New Zealand's ICT strategy is ensuring that remote and rural areas are not left behind. The government, in partnership with private companies, is leveraging satellite technology to bridge this digital divide. An agreement with One New Zealand (formerly Vodafone) aims to provide 100% cell coverage via Starlink by 2026. Similarly, other telecommunications companies have also trialed satellite connections for areas lacking terrestrial coverage. This focus on improving rural connectivity is essential for the nation's goal of ensuring a seamless digital experience for all.

Switzerland

1. General Information

Area: **41,284 km²**

Population: **8,935,858**

Government Type: Federal Republic

2025 Growth Rate: **0.9%**

GDP (IMF '25): **\$947.13 Bn**

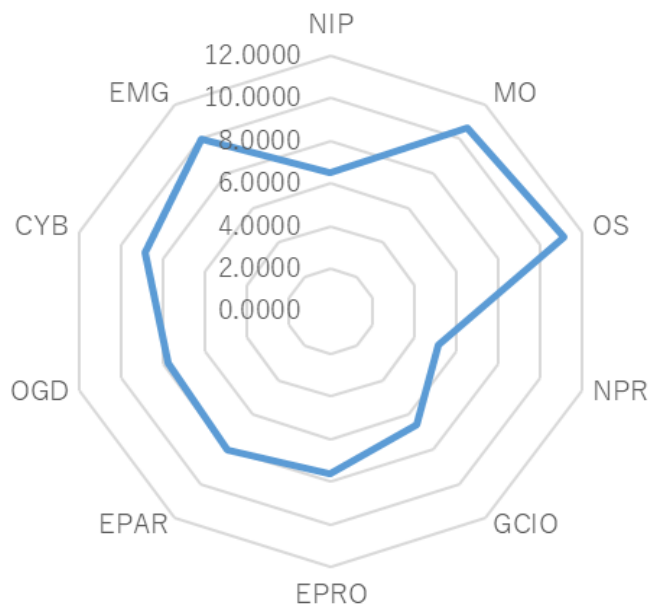
GDP Per Capita: **\$104,900**

Internet User: **97.3%**

Wired (Fixed Broadband User) per 100 people: **47.7**

Wireless Broadband User per 100 people: **105**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development:

Switzerland is making a concerted effort in 2025 to move from a collection of disparate digital projects to a unified, production-grade model of e-government. This strategic shift is led by a central authority—the Digital Transformation and ICT Steering (DTI) and the

Confederation–Cantons program (DPSS)—which is aligning policy with platforms to enable end-to-end user journeys. The country is moving forward with a new state e-ID and digital wallet initiative, designed to provide secure authentication for citizens. The ch.ch portal serves as the primary front door for citizens, while easygov.swiss consolidates and streamlines services for businesses. This ecosystem is supported by open data platforms like opendata.swiss and LINDAS, which make public data easily reusable for policy, research, and industry.

The impact of this shift is visible in high-volume services that are now more coherent. In the healthcare sector, the spread of e-prescriptions and e-patient summaries is improving efficiency. For businesses, eBill and structured e-invoicing are reducing friction in back-office operations. Crucially, cantonal governments are standardizing online tax and licensing flows by using shared components, which ensures a more consistent and reliable user experience across the country's federated system.

3.2. New Trends

The core vision of the Digital Switzerland Strategy 2025 is to prioritize digital offerings for the benefit of everyone, adopting a "digital first" approach regardless of age or background. The goal is for Switzerland to become one of the most digitally competitive and innovative countries in Europe. This strategy is also designed to be socially, economically, and ecologically sustainable, and it is explicitly aligned with the United Nations 2030 Agenda's Sustainable Development Goals and Switzerland's own climate targets. This holistic approach ensures that digital transformation benefits the entire population.

The strategy is distinguished by its dynamic nature. The Federal Council identifies a few key focus themes each year to drive specific topics. For 2025, these themes include:

- Artificial intelligence (AI): The government is working to reorganize the legal framework for AI to protect fundamental rights while strengthening innovation.

- Information and cybersecurity: The focus is on raising awareness, implementing basic protective measures, and creating new security structures for all levels of government.
- Open-Source Software: The federal administration is promoting the use of open source software to increase transparency, security, and innovation.

While these focus themes change annually, the overall vision and strategic domains of the plan remain stable, providing a consistent long-term direction.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Switzerland has a robust digital backbone, with dense fiber networks in cities and valleys, complemented by comprehensive 4G and 5G coverage across the nation. This allows government agencies to confidently deploy services that require high bandwidth, such as real-time registry checks, strong authentication, and video appointments. To ensure services are always available, critical portals like [ch.ch](https://www.ch.ch), [easygov.swiss](https://www.easygov.swiss), and canton tax platforms run across multiple regions and providers, which keeps them responsive during seasonal peaks and prevents service failures.

The country is also leveraging edge computing, with capacity at hospitals, rail hubs, and municipal centers to shorten response times for time-critical workloads in health, transport, and emergency management. The nation's commitment to resilience is further reinforced by regular continuity drills that simulate realistic hazards like power cuts and fiber breaks. These exercises turn theoretical continuity plans into practiced operations. To ensure no one is left behind, public Wi-Fi and community spaces provide fallback access where household connectivity may be lacking, ensuring that a "digital-by-default" approach never becomes "digital-only."

Switzerland's infrastructure strategy is successful because it aligns network capacity upgrades with policies on digital adoption and inclusion. This coordinated approach ensures that investments in technology directly translate into a better user experience for citizens, with fewer failed sessions and shorter task times. The result is a digital ecosystem

that is both strategic and practical, ensuring that the country's digital state is dependable for everyone.

4.2. Management Optimization [MO]

Switzerland's digitalization management in 2025 has moved away from isolated projects to a new collaborative model that aligns federal and cantonal governments. The Digital Transformation and ICT Steering (DTI) in the Federal Chancellery and the Confederation–Cantons program (DPSS / Digitale Verwaltung Schweiz) are the central drivers of this shift. Their role is to ensure a unified approach to digital services across the country's highly federated system.

Central guidance defines guardrails for cloud, security, and interoperability, which allows agencies to build end-to-end user journeys using reusable components instead of commissioning custom systems. The focus is on a modular approach, where services like the state e-ID and Bundesportal are provided as shared platforms. This strategy is also reflected in the government's approach to talent development and international cooperation, which keeps its digital services aligned with neighboring European countries.

Switzerland's management model is anchored in delivering measurable outcomes. Funding is tied to metrics like completion times, adoption rates, and inclusion, ensuring that digital investments provide tangible value. Furthermore, the government's approach to cybersecurity is proactive, with privacy and security embedded into shared platforms from the start. Telemetry from public services is used to monitor performance in real-time, allowing leaders to identify and fix underperforming services quickly, which ensures the system is resilient and trustworthy by design.

4.3. Online Service [OS]

A primary challenge for Switzerland is creating a unified online experience across the Confederation and its 26 cantons. To address this, the country has prioritized the development of a cohesive public services agenda. The Bundesportal (service.bund.de) and the ch.ch information portal are central to this effort, acting as the main gateways that

work to standardize and streamline access to services from all levels of government. The goal is to overcome organizational boundaries and provide end-to-end digital services, allowing citizens to navigate a complex system with fewer detours.

A cornerstone of Switzerland's digital strategy in 2025 is the development and implementation of a new state e-ID and digital wallet. This initiative is crucial for providing citizens with a secure, universal identity for all digital interactions. The new law, which will be subject to a public vote on September 28, 2025, proposes a state-operated infrastructure for the e-ID. Unlike a previous, rejected proposal, this new model is designed to be decentralized and gives users full control over their data, which is essential for building public trust and encouraging the widespread adoption of digital government services.

4.4. National Portal [NPR]

Switzerland's national portal strategy in 2025 is defined by its commitment to creating a unified front for public services, despite its highly federated structure of Confederation, cantons, and communes. The Bundesportal (service.bund.de) serves as the main gateway, working to standardize and streamline access to services from all levels of government. This strategic effort is crucial for overcoming organizational boundaries and providing citizens with a cohesive experience.

The portal's design is driven by a user-centric philosophy that aims to help people move from "reading" about a service to "doing" a task with fewer clicks. The content is organized around major life events and topics, which guides users to the correct transaction with minimal detours. To build trust, Bundesportal employs "scam-aware" design patterns, including verified senders and consistent headers, which assure users they are on an official and secure government channel.

The Bundesportal also serves a strategic role as a platform for continuous improvement. It is a central point of integration for key digital identity initiatives, such as the new state e-ID. The portal's infrastructure is monitored through continuous analytics, which tracks user behavior and bounce rates. This data-driven approach allows the government to

identify and fix content and workflow issues, ensuring that the portal is not a static information source but a dynamic tool that is constantly being refined to provide a better, more efficient user experience.

4.5. Government CIO [GCIO]

In 2025, Switzerland's Government Chief Information Officer (GCIO) plays an increasingly vital role in guiding the public sector's digital transformation. The Federal CIO, operating within the Federal Department of Finance, ensures the implementation of IT and digital strategies across all federal agencies, aligning their efforts with the broader Digital Switzerland Strategy.

A core initiative led by the GCIO in 2024 was the consolidation of the government's IT infrastructure to enhance cost-efficiency and security. This strategic shift involved championing the adoption of cloud-based solutions, which has improved data management, disaster recovery, and the scalability of digital services. This modernization effort is a foundational step in ensuring that the federal administration has a robust and agile IT environment to support its digital services.

The GCIO also played a critical role in promoting collaboration and innovation. The office has championed the use of open-source software within public institutions, which not only reduces dependency on proprietary systems but also fosters a more transparent and collaborative environment. GCIO has also been instrumental in launching innovation labs that bring together government, academia, and private industry. These partnerships are a key part of the strategy for developing new solutions using emerging technologies like AI and blockchain, aimed at improving public service delivery and driving the country's digital competitiveness.

4.6. E-Government Promotion [EPRO]

Switzerland's government is strategically promoting its digital infrastructure as a foundational element of its e-government agenda. This is part of the Federal Council's broader gigabit strategy, which aims to provide nationwide access to high-speed internet.

The centerpiece of this strategy is the new Broadband Promotion Act (BPA), which opened for consultation in March 2025. This legislation is designed to drive the expansion of fixed networks with download speeds of at least one gigabit per second (1 Gbit/s). The government's approach is not to replace market players, but to provide kick-start funding in sparsely populated areas where market investment is not financially viable, thereby counteracting the digital urban-rural divide.

The funding for this initiative, which totals around CHF 730 million, is structured as a collaborative effort. The federal government is set to cover 50% of an expansion project's financial shortfall, with the canton concerned covering the other half. To ensure effective competition, a key condition of the program is that operators of subsidized infrastructure must grant access to other providers. This temporary program, expected to last seven to ten years, is a targeted investment to ensure that all of Switzerland can benefit from a modern digital society.

4.7. E-Participation [EPAR]

The Digital Switzerland Strategy 2025 is the guiding framework for the country's e-participation. A major and unique aspect of this strategy is the popular vote on the Federal Act on Electronic Identification (eID Act), which is scheduled for September 28, 2025. This vote directly empowers citizens to decide on a foundational digital policy for the country, demonstrating a high level of public participation in a core government initiative. The e-ID is designed to provide a state-issued, secure digital identity that will be crucial for the future of all e-participation efforts.

Switzerland is actively engaged in international events to advance its e-participation goals. The country hosted the ITU Council Session 2025 in Geneva and the ICEDEG 2025 conference in Bern, which brought together experts to discuss e-democracy, AI in governance, and smart cities. These events provide a platform for knowledge sharing and collaboration. Furthermore, through a new agreement with the EU, Switzerland has secured renewed participation in key European programs like Horizon Europe and the Digital Europe Programme (DEP). This enhances its involvement in European digital and

research initiatives, ensuring that its e-participation strategies are aligned with a broader international context.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Switzerland's digital government progress accelerates where reusable platforms meet authoritative data sources—and open data is a core driver. Core enablers like the e-ID wallet, digital payments, notifications, and audit functions are offered as shared services, freeing teams to concentrate on mission delivery and user experience rather than infrastructure. Modernized registries and data-sharing agreements underpin the once-only principle, enabling pre-filled forms, instant validations, and cross-checks that ease the burden for citizens and businesses.

Business processes are streamlined through eBill, e-invoicing, and structured data submissions, which reduce errors and speed reconciliation. Within government, event-driven integrations are replacing fragile batch transfers, improving consistency across Confederation and cantons. Legacy systems are phased out systematically—wrapped, replaced, and retired—so risks decline while capacity to innovate grows. Quality is now measured at launch: telemetry, task-time targets, and plain-language testing are mandatory go-live checks. Platforms like opendata.swiss and LINDAS are making Switzerland's open data ecosystem more reliable and useful, not just larger—fueling research, civic technology, and commercial applications. By 2025, this alignment of digital transformation and open government data produces faster delivery, stronger evidence for policy, and noticeably less friction for users.

4.9. Cyber Security [CYB]

In 2025, Switzerland faces a deteriorating security environment shaped by global rivalries, the Russia–Ukraine war and escalating Middle East tensions. As an innovation hub and host of international organizations, Switzerland is a prime target for hostile intelligence services seeking access to federal authorities, businesses, and research institutions. The Federal Intelligence Service (FIS), working with the State Secretariat for Economic Affairs (SECO), focuses on detecting sanctions evasion, raising awareness among companies, and protecting sensitive sectors from exploitation.

At the same time, the terrorist threat remains elevated, with online radicalization of youth emerging as a key challenge. Cyberattacks against critical infrastructure, often tied to hybrid conflict strategies, pose growing risks to energy, finance, and communications systems. For the FIS, safeguarding Switzerland's role as a trusted innovation center means countering espionage, securing infrastructure, and strengthening prevention against radicalization. Technology is now viewed as a decisive key to power, and Switzerland's cybersecurity strategy emphasizes early detection, international cooperation, and resilience against a dense and complex threat landscape.

4.10. The use of Emerging ICT [EMG]

Switzerland positions emerging ICT as a cornerstone of its digital transformation, embedding artificial intelligence, blockchain, and quantum computing into both public services and the wider economy. The Swiss Federal Innovation Agency (Innosuisse) continues to drive this agenda by funding projects across finance, healthcare, and mobility, ensuring that advanced technologies translate into practical, citizen-facing improvements. Blockchain pilots in cantonal land registries are now moving toward production scale, offering secure and transparent property transactions, while AI systems in public health and transport enable real-time analytics, predictive planning, and more responsive service delivery.

At the same time, Switzerland strengthens its innovation ecosystem through a dense network of hubs and accelerators where startups, researchers, and government teams co-develop solutions. This ecosystem links experimentation with commercialization, ensuring breakthroughs do not remain confined to laboratories but enter mainstream use. The result is that Switzerland not only maintains its role as a trusted hub for digital services but also positions itself globally as a leader in next-generation ICT adoption, with measurable benefits for efficiency, trust, and economic competitiveness.

Sweden

1. General Information

Area: **450,295 km²**

Population: **10,622,043**

Government Type: Parliamentary Democracy

2025 Growth Rate: **1.9%**

GDP (IMF '25): **\$620.3 Bn**

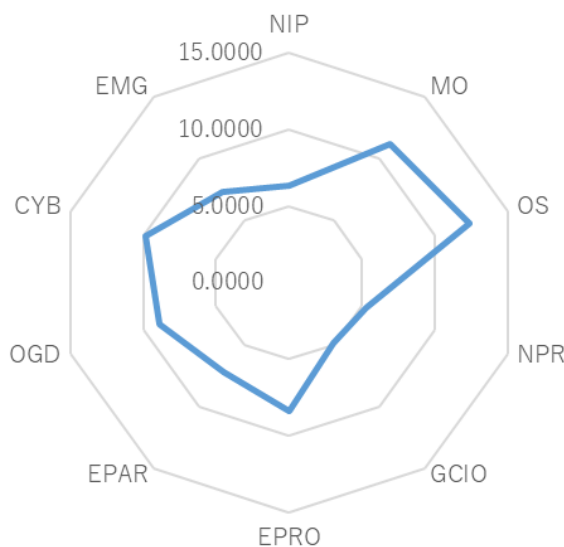
GDP Per Capita: **\$58,100**

Internet User: **95.7%**

Wired (Fixed Broadband User) per 100 people: **40.7**

Wireless Broadband User per 100 people: **132**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

By 2025, Sweden moves away from fragmented, agency-led IT toward a more unified and production-grade digital state. The center - anchored by DIGG (the Agency for Digital Government), the Government CIO, core IT providers, and municipal partners—aligns policy with shared platforms, enabling ministries and municipalities to focus on

end-to-end service journeys instead of custom infrastructure. National building blocks see broad reuse: BankID and Freja eID+ deliver secure identity; Gov.se and sector portals channel users into transactions; “Mina sidor” templates standardize personal account views; Kivra, Min myndighetspost, and Digimail handle secure digital mail; and Peppol e-invoicing with structured reporting lowers back-office load.

Concrete examples mark the shift: Skatteverket’s tax e-services pre-fill returns, Försäkringskassan simplifies benefit applications, verksamt.se packages business start-up and growth steps, and 1177 Vårdguiden anchors digital health with e-prescriptions, appointments, and patient records. Inclusion is embedded in delivery: libraries and municipalities offer assisted digital services, delegated access allows family support, and phone or in-person channels remain for complex needs. The result is a stitched-together system where people can actually complete tasks, rather than a patchwork of separate websites.

3.2. New Trends

In 2025, the Swedish Government set out its digitalization strategy for 2025–2030, prioritizing stronger digital skills for citizens, wider adoption of emerging technologies in workplaces, and greater support for innovation and competitiveness. For the business sector, the plan emphasizes enhancing companies’ capacity to innovate while reinforcing security, sustainability, and global competitiveness. Within the public sector, the focus is on building efficient, user-friendly services powered by AI and data-driven tools, alongside modernizing welfare delivery. A resilient and secure digital infrastructure remains a central pillar of the strategy.

Sweden’s digital path in 2025 is shaped by three mutually reinforcing shifts. First, artificial intelligence moves into everyday operations: under DIGG’s oversight and sector-specific rules, agencies apply AI for triage, routing, and document handling, while maintaining human review and clear appeal mechanisms to protect rights. Second, the “one front door” vision materializes on mobile, where BankID logins, life-event navigation, and verifiable documents integrate with shared notifications and payments, letting users move seamlessly from information to action. Third, resilience and trust are

built into the foundations: multi-zone cloud deployment, NIS2-compliant standards, and an expanding national cybersecurity center improve reliability and raise supplier accountability.

Alongside these shifts, Sweden pushes forward with EUDI wallet pilots for secure credentials, scales register reuse for once-only data, expands municipal adoption of common platforms, and adopts green-by-default computing to ensure digital growth supports climate commitments. The result is a 2025 model that is AI-enabled, identity-driven, security-first, and demonstrably inclusive.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Sweden's digital infrastructure in 2025 is built for both capacity and resilience, ensuring services stay reliable under stress. Extensive fiber and nationwide 4G/5G coverage enable secure logins, video consultations, and real-time registry checks across the country. Core portals such as Scatterer, Försäkringskassan, 1177, and verksamt.se operate across multiple cloud regions and carriers, keeping them responsive even during seasonal demand spikes. Hospitals, transport hubs, and municipal data centers add edge capacity to support time-sensitive workloads in health, mobility, and safety.

To prevent gaps, schools, libraries, and public Wi-Fi provide fallback access where households lack connectivity, ensuring that “digital by default” never becomes “digital only.” Continuity drills—simulating floods, outages, and fiber cuts—turn resilience plans into tested routines. By combining infrastructure upgrades with inclusion measures, Sweden reduces failed sessions and shortens task completion times. The National Infrastructure Plan (NIP) thus underpins the shift from browsing static sites to delivering seamless, continuous services.

4.2. Management Optimization [MO]

The Swedish government has sought to involve civil society through a co-creation process. The first consultation, organized by NOD, gathered civil society organizations with

expertise in digitalization for open and transparent governance to propose themes for the national action plan. A second meeting, led by the Ministry of Finance, presented the draft plan to the same stakeholders. While participants were able to raise questions, the ministry clarified that commitments would not be revised at that stage, with details to be addressed during implementation. This limited feedback loop underscored the need for more iterative engagement in future co-creation, ensuring both government and non-government actors can shape commitments jointly.

A central element of the strategy is Sweden's adoption of the Open Data Charter (ODC), particularly the principle of "open by default." Civil society has pressed for stronger legislation obliging public administrations to release key datasets, backed by enforcement mechanisms. DIGG (the Agency for Digital Government) is expected to design a roadmap for ODC implementation, provide technical assistance to municipalities, and establish measurable indicators of progress. Linking open data to anti-corruption measures—such as procurement, lobbying, and political finance—has been highlighted as a priority. To align with OGP standards, the Ministry of Finance must also institutionalize ongoing consultations: at least two meetings per year with civil society, semiannual updates to the OGP repository, and regular public reporting on progress.

4.3. Online Service [OS]

In 2025, Sweden's online services stand out for being secured, and user-centric, largely because identity and data follow the user across platforms. High-assurance sign-ins through BankID and Freja eID+ underpin trust, while secure digital post consolidates official communication into a single channel. Authoritative registers—covering population, business, and property data—enable once-only principles, allowing forms to be pre-filled so that citizens confirm rather than re-enter information. This approach reduces friction and highlights the state's shift toward system-driven rather than citizen-burdened processes.

Sweden is enhancing its national digital strategy with a focus on data sharing and AI. The government is launching a new inquiry to explore how agencies, municipalities, and regions can exchange more digital information, which is a prerequisite for developing AI

solutions in the public sector. Additionally, Sweden is a leader in promoting e-invoicing through the Peppol network. As of April 2025, the Swedish Customs Authority began exclusively using the Peppol format for customs invoices, further streamlining interactions between businesses and the government.

The benefits are most visible in high-volume services. Skatteverket simplifies tax filing by pre-loading prior data and issuing refunds directly to verified accounts. Försäkringskassan integrates life-event claims into Mina Sidor, avoiding redundant submissions. In healthcare, 1177 minimizes counter checks by digitizing prescriptions and referrals, while verksamt.se streamlines the business journey, linking seamlessly to Bolagsverket, Skatteverket, and Tillväxtverket without repeated data entry. Accessibility measures, including multilingual interfaces, extend reach to international residents, while assisted-digital counters and appeal mechanisms ensure inclusion for complex cases. Reliability is reinforced through continuous monitoring and multi-zone hosting, keeping systems responsive during peaks. Verified links and reminders nudge users back to unfinished tasks, reducing abandonment, while standardized payments and digital signatures create consistent experiences across portfolios. Together, these elements make Sweden's e-government journeys shorter, more dependable, and measurably more inclusive.

4.4. National Portal [NPR]

Sweden's national portal in 2025 is not a single, monolithic website but a decentralized, yet highly cohesive digital ecosystem. This approach, centered on a unified digital identity, allows citizens to access a wide range of government services seamlessly. The primary gateway for public services in Sweden is not a single portal but a collection of integrated e-services, often referred to as "E-tjänster." A cornerstone of this system is the widespread use of BankID, a mobile-based digital identity solution. This is a unique public-private partnership, as BankID is issued by a consortium of banks, yet it serves as the universal credential for accessing both public and private sector services. This high level of integration simplifies the user experience, allowing citizens to handle everything from filing taxes to managing healthcare in one digital space.

4.5. Government CIO [GCIO]

In Sweden, the Chief Information Officer holds a decisive position in shaping the country's approach to digital government. Anna Eriksson, who currently serves in this role, carries the responsibility of translating national digital policy into practice and ensuring that technology programs advance broader public goals. Under her stewardship, the CIO function has become a catalyst for modernizing administration and introducing new, citizen-oriented digital services.

A core part of this mandate is the work of the Digital Transformation Office, which acts as a coordinating hub across ministries and agencies. Its mission is to align projects with Sweden's long-term digital roadmap and to support their delivery. Among its signature undertakings is the Digital Government Services Platform, designed to consolidate services into a unified, efficient framework. Equally important is the CIO's focus on external collaboration: by engaging with private-sector innovators and technology providers, Eriksson's office has piloted advanced uses of AI and blockchain in government contexts. These partnerships not only expand the state's technical capabilities but also accelerate the creation of smarter, more resilient public services.

4.6. E-Government Promotion [EPRO]

This year, Sweden continues to promote e-government by raising awareness, supporting inclusion, and celebrating innovation. The Digital Engagement Campaign remains central, showcasing the convenience and efficiency of digital services through online media, outreach events, and real-life success stories from citizens and businesses. By highlighting tangible benefits, the campaign encourages broader adoption and builds public trust in digital interactions with government.

At the same time, the E-Government Outreach Program targets underserved groups to ensure no one is left behind. Community workshops, training sessions, and partnerships with local organizations provide practical support for individuals in remote or low-income areas, helping bridge the digital divide and expand access. To reinforce progress, the government also hosts annual Digital Innovation Awards, which spotlight exemplary

projects across agencies—from new e-services to cutting-edge applications of AI or blockchain. These recognitions not only reward achievement but also motivate other public bodies to pursue bold digital initiatives. Together, these promotion efforts make e-government in Sweden both more inclusive and more visible, advancing the country's broader digital modernization goals.

4.7. E-Participation [EPAR]

Sweden's approach to e-participation is built on providing clear and official channels for citizen dialogue. While the country does not have one single platform that centralizes all public consultations, a number of digital tools are used to gather feedback on draft legislation and policy. This approach is supported by a high level of public trust in government and a mature digital infrastructure. The government is also working to increase the accessibility of these platforms, ensuring that all citizens, regardless of their location or digital competence, can participate in the democratic process.

A key part of Sweden's e-participation strategy is its focus on local engagement. Municipalities use digital tools for local planning and budgeting, empowering residents to have a direct say in their communities. In 2025, a new inquiry is being launched to explore how local and regional governments can more effectively share digital information, a prerequisite for developing AI solutions in the public sector. The government's vision is to use AI to enhance digital services, which in turn will facilitate greater citizen engagement and participation in the life of society.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

In 2025, Sweden demonstrates its strong commitment to digital transformation by continuing to modernize public administration and improve service delivery with advanced technologies. The national Digital Transformation Strategy provides a framework for integrating digital platforms across government, with initiatives such as cloud adoption, data analytics, and AI-driven solutions to streamline operations and

strengthen policy decisions. AI-enabled predictive tools are already supporting areas like emergency response coordination and urban planning, making services more efficient and responsive.

Open government data remains a central pillar of Sweden's approach, driving both transparency and innovation. Through the national open data portal, agencies publish datasets in machine-readable formats covering transport, health, and environmental indicators. Real-time resources such as public transport timetables and air quality readings enable citizens, researchers, and developers to create new applications and foster civic engagement.

Equally important is Sweden's emphasis on digital inclusion. The government enforces accessibility standards to ensure digital services work for all, including people with disabilities and those with limited digital skills. Guidelines on screen reader compatibility, keyboard navigation, and user-friendly design help create services that are both inclusive and practical. By pairing technological innovation with openness and accessibility, Sweden's digital transformation in 2025 aims to deliver a more transparent, efficient, and equitable digital society.

4.9. Cyber Security [CYB]

Sweden has introduced a new National Cybersecurity Strategy (2025–2029) that sets a more structured course for protecting critical systems and strengthening national resilience. The plan prioritizes better knowledge sharing, expanded training for cybersecurity professionals, and improved incident management, ensuring that both public and private actors are prepared to handle increasingly complex digital threats.

To anchor these efforts in law, the government is advancing a Cybersecurity Act that will replace the 2018 NIS Act. This legislation, which transposes the EU's NIS2 and Critical Entities Resilience (CER) directives, was referred to the Council on Legislation in June 2025 and is expected to take effect in January 2026. The Act will broaden security obligations, introduce stricter reporting requirements, and strengthen accountability across sectors. Together with closer public–private cooperation and enhanced response

frameworks, these measures signal Sweden's determination to build a resilient and future-ready cybersecurity ecosystem.

4.10. The use of Emerging ICT [EMG]

Sweden's approach to emerging technologies is deliberate and well-structured, ensuring that initiatives move past pilot stages and deliver lasting value. Agencies apply AI only where it provides measurable benefits—such as prioritizing contact-center requests, routing benefits and permit applications, or extracting data from documents—always under human oversight. Core digital rails like BankID and Freja eID+ identities, along with verifiable documents, allow these tools to integrate smoothly into existing service journeys rather than create isolated systems. Municipalities and agencies also deploy IoT and edge solutions for critical use cases like flood monitoring, traffic management, and energy balancing, enabled by strong 5G connectivity.

In healthcare, AI is cautiously expanded for tasks like clinical decision support and managing waitlists, all within strict safety and auditing frameworks and accessible via 1177 platforms. Sweden is also advancing EUDI wallet pilots to enable instant cross-border verification of licences and diplomas, aligning national systems with EU trust frameworks. Sustainability is built in: “green by default” computing standards and efficiency requirements are embedded in procurement to keep growth compatible with climate goals. Universities and research institutes provide secure computing environments and skilled talent, helping projects move quickly from testing to operational use. Together, these measures define Sweden's 2025 model for emerging technology—AI-driven, identity anchored, security focused, and built for both scalability and public trust.

Thailand

1. General Information

Area: **513,120 km²**

Population: **71,655,697**

Government Type: Constitutional Monarchy

2025 Growth Rate: **1.8%**

GDP (IMF '25): **\$546.22 Bn**

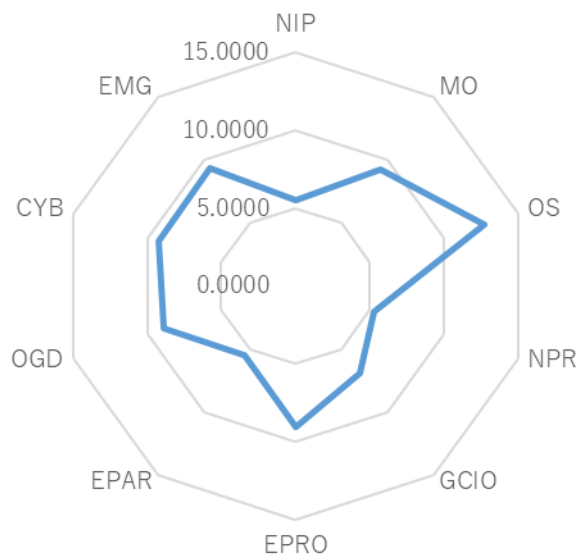
GDP Per Capita: **\$7,770**

Internet User: **89.5%**

Wired (Fixed Broadband User) per 100 people: **15.7**

Wireless Broadband User per 100 people: **122**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

By 2025, Thailand shifts from fragmented agency-led systems toward a more integrated, production-level digital government. The central bodies—MDES guiding policy, DGA setting service standards and shared platforms, ETDA ensuring trusted e-transactions,

NCSA overseeing cybersecurity, and the GDCC providing hosting—are now aligned, allowing ministries to focus on complete user journeys instead of custom back-end fixes. This coordination enables broad reuse of national digital rails: ThaiID/ThaID and NDID secure digital identity and remote e-KYC, PromptPay underpins standardized payments, Biz Portal and e-GP streamline business licensing and procurement, while GCC 1111 directs citizens efficiently to the right services.

The transformation is most visible in high-demand services. Revenue e-filing pre-populates returns, welfare payments are delivered through trusted wallets like Paotang, DOPA e-services cut down on counter visits, and immigration or transport renewals avoid repeated document uploads by reusing verified identities. At the same time, open data initiatives like data.go.th and geospatial platforms such as One Map (with GISTDA) support evidence-based policymaking, research, and civic innovation. Inclusion remains a core principle: district offices, libraries, and community hubs assist those less digitally confident, delegated access allows families to help seniors, and in-person or phone channels remain for complex cases. Overall, Thailand's e-government increasingly operates as a connected system where people can complete tasks end to end, rather than navigating a patchwork of separate sites.

3.2. New Trends

Thailand's digital transformation is guided by fresh strategies approved by the National Digital for Economy and Society Committee (DE Board). Under the leadership of Deputy Prime Minister Prasert Chanthararuangthong, the government has adopted a new three-year National Data Strategy and created a National AI Committee to drive forward the digital agenda. The data strategy sets a comprehensive framework for stability and sustainability, emphasizing four pillars: building strong data infrastructure, enforcing clear data governance standards, promoting secure and broad-based data utilization, and developing a capable digital workforce.

The establishment of the National AI Committee signals Thailand's intent to anchor AI at the core of national competitiveness. Its priorities include cultivating local expertise and innovation, deploying AI to strengthen economic performance, and addressing social

and environmental challenges through applied technologies. At the same time, the DE Board reaffirmed its commitment to smart cities, officially certifying 16 projects nationwide and awarding the first “Smart Area” designation to the Phuket Tinicon Valley Project, recognized for its successful integration of digital solutions into daily life.

Another key decision was the approval of an Open Access Network model for the public internet, expanding the Net Pracharath initiative to guarantee equitable and universal digital access. The Office of the National Digital Economy and Society Commission (ONDE) will oversee this rollout. Collectively, these measures—spanning data, AI, smart cities, and digital access—reflect Thailand’s strategy to unlock economic opportunities, raise global competitiveness, and deliver a more inclusive and sustainable digital society.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Thailand enters 2025 with a significantly stronger digital infrastructure, reflecting major advances in both connectivity and capacity. The rollout of the 5G Master Plan has brought near universal 5G coverage, positioning Thailand as a regional leader in advanced mobile networks. This backbone now supports innovation across sectors such as healthcare, agriculture, and manufacturing, enabling IoT deployments and AI-powered applications that drive productivity and service improvements. Parallel progress in broadband has extended affordable, high-speed internet into rural areas through the Pracharat Internet Project, ensuring that more than 90% of Thai households are online and narrowing the digital divide between urban and rural communities.

Beyond connectivity, Thailand has invested heavily in data centers and cloud infrastructure to meet rising demand for digital services, storage, and processing. Expanded cloud capacity enhances inter-agency data sharing, streamlines government operations, and underpins the growth of data-driven policymaking. Together, these measures illustrate Thailand’s preparedness to handle the demands of a digital economy: reliable nationwide access, resilient high-speed networks, and robust back-end infrastructure capable of scaling as new services and technologies emerge.

4.2. Management Optimization [MO]

Thailand's e-government emphasizes streamlined service delivery and smarter management of public resources. A major step forward is the GovChannel portal, which integrates services from multiple agencies into a single platform, enabling citizens and businesses to complete administrative tasks more efficiently. This consolidation reduces duplication, shortens processing times, and gives users a more consistent digital experience across government.

Data-driven governance is another cornerstone of Thailand's approach. By applying big data analytics and AI, agencies can detect trends, anticipate citizen needs, and improve policy responsiveness. The Ministry of Finance, for example, uses advanced analytics to strengthen tax collection and curb evasion, ensuring revenue is both accurate and fair. Internally, the rollout of tools such as the e-Budgeting System and e-Procurement Platform enhances transparency, accountability, and resource allocation. These platforms standardize processes, reduce costs, and make procurement more competitive. Together, these initiatives signal Thailand's shift toward a more efficient, transparent, and citizen-focused digital government.

4.3. Online Service [OS]

The Thailand Digital Arrival Card (TDAC) exemplifies this shift, enabling travelers to submit, update, or correct arrival information entirely online through a unified portal. Identity systems like ThaiID and NDID provide high-assurance authentication across ministries, while consistent SMS and in-app notification patterns maintain trust in official communications. Authoritative registers now pre-fill core data for services in tax, benefits, licensing, and immigration, leaving citizens to confirm rather than re-enter details.

The approach is visible in high-demand services: e-filing automatically loads prior tax data and processes refunds to verified accounts; wallet-based rails deliver targeted benefits; transport and immigration renewals eliminate repetitive uploads through identity reuse; and local permitting processes move faster with standardized checklists. Accessibility measures, including bilingual interfaces, broaden reach, while assisted-

digital counters ensure complex cases are handled fairly. Reliability is reinforced through active monitoring and multi-zone hosting, which keep services stable during peak usage. Verified links and reminders also reduce task abandonment, and as payments and digital signatures become standardized, user journeys grow shorter and more consistent. Overall, Thailand's digital state is shifting the burden from citizens to systems, making online services both easier and more dependable.

4.4. National Portal [NPR]

Thailand's national portal in 2025 is a critical component of the country's broader digital transformation, with a strategic focus on streamlining government services and improving the user experience for both citizens and visitors. The portal is a centralized platform designed to simplify access to a wide range of services.

The Digital Government Development Agency (DGA) has been instrumental in creating a unified digital front door for the Thai government. This includes a citizen portal and a "Super App" called "Thang Rath", which aims to consolidate services from various agencies into a single platform. This strategic approach is designed to provide a cohesive experience, eliminating the need for citizens to navigate multiple, siloed government websites. The portal and app feature a digital identity proofing and authentication method that complies with national standards, which is crucial for building public trust and ensuring the security of online transactions.

In 2025, the portal offers a variety of services, including checking government rights and welfare, paying bills via QR codes, reporting complaints, and tracking the status of service requests. The government is also exploring the use of AI to further enhance these services. A new National AI Committee has been established to foster local AI talent and innovation and to apply AI to solve social and environmental challenges. In partnership with Microsoft, the DGA launched the "Tech for Gov 2025" program to equip government officers with advanced AI skills, with the goal of improving service delivery and operational efficiency.

4.5. Government CIO [GCIO]

Thailand's Government Chief Information Officer (GCIO) remains central to advancing the country's digital transformation agenda in 2025. Building on the Thailand 4.0 vision and the Digital Government Plan, the GCIO ensures that ICT projects across ministries and agencies align with national priorities and follow a coordinated approach. This role includes harmonizing digital strategies between central government, local administrations, and private-sector partners to foster an integrated ecosystem rather than fragmented initiatives.

Under the GCIO's guidance, government agencies continue to adopt emerging technologies such as AI, blockchain, and advanced data analytics to modernize service delivery. Dedicated digital transformation offices within key ministries now identify innovation opportunities, oversee digital projects, and accelerate the deployment of scalable solutions. GCIO also leads capacity-building programs to raise digital literacy among public servants, empowering them to apply new technologies effectively in daily operations.

Cybersecurity is another cornerstone of the GCIO's mandate. With rising cyber risks accompanying expanded digital platforms, the GCIO enforces stronger protocols and promotes resilience across government systems. By strengthening security frameworks and ensuring sensitive data protection, the GCIO safeguards both the reliability of public services and citizen trust. Taken together, these efforts position the GCIO as a driving force behind Thailand's push for a secure, innovative, and coherent digital state in 2025.

4.6. E-Government Promotion [EPRO]

Thailand's promotion of e-government in 2025 builds on nationwide efforts to expand access, strengthen digital literacy, and improve the quality of digital interactions. The Digital Government Development Agency (DGA) continues to lead these initiatives, focusing on making digital platforms usable for citizens in all regions, including rural and underserved communities. Awareness campaigns, training programs, and outreach activities equip people with the skills needed to confidently engage with online public services, narrowing the digital divide.

Programs such as the Smart Village initiative highlight Thailand's commitment to inclusive digitalization. By deploying internet-connected kiosks in remote areas, the government enables residents to complete essential tasks—such as business registration, land record access, or social welfare applications—without needing to travel to urban centers. At the same time, platforms like GovChannel are evolving with more personalized features tailored to user groups including entrepreneurs, older citizens, and students. Backed by data analytics, these services are continuously monitored and refined to improve performance and user satisfaction. Through these combined efforts, Thailand positions itself as a regional leader in e-government, demonstrating how digital transformation can deliver tangible benefits for both citizens and businesses.

4.7. E-Participation [EPAR]

In 2025, Thailand's e-participation agenda continues to evolve, expanding the ways citizens can engage with government and contribute to policymaking. Building on the introduction of online voting for local referendums in 2024, the government is working to make digital democratic participation more secure and widely accessible. Social media remains a vital channel for real-time dialogue, with agencies increasingly using it not just for announcements but also for structured consultations and interactive feedback sessions. This ongoing two-way communication strengthens transparency and accountability, giving citizens greater influence in monitoring public officials and shaping local decisions.

The government is also deepening its use of artificial intelligence and data analytics to enhance e-participation platforms. These tools allow public feedback to be analyzed on a scale, highlighting recurring issues and emerging concerns, and helping agencies respond more effectively. By embedding advanced digital capabilities into engagement mechanisms, Thailand is shaping a governance model that is both more inclusive and participatory, where citizens are not passive recipients of policy but active contributors to decision-making.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

This year, Thailand continues to advance its digital transformation by expanding the role of open government data and embedding digital tools across the economy. The Open Government Data Platform remains a cornerstone of this agenda, now offering thousands of datasets in key sectors such as health, transport, education, and finance. By widening access, the platform not only strengthens transparency and public trust but also fuels innovation by giving startups, researchers, and civic tech developers the raw material to build solutions for national challenges.

Public-private collaboration remains central to Thailand's Digital Transformation Strategy, with new partnerships encouraging the development of data-driven applications that tackle issues like congestion, disaster management, and public health monitoring. At the same time, government operations are being streamlined through the Digital Service Framework, which promotes cloud adoption, AI, and automation to reduce delays and enable more agile, evidence-based decision-making. Taken together, these measures highlight Thailand's ambition to position itself as a regional hub for digital innovation, where open data, advanced technologies, and collaborative ecosystems combine to enhance service delivery, drive economic growth, and strengthen resilience.

4.9. Cyber Security [CYB]

Thailand's cybersecurity posture in 2025 is defined by heightened vigilance and rapid-response capabilities in the face of ongoing regional cyber conflict. Following repeated attempts by Cambodian hackers to disrupt national systems, the National Cyber Security Agency (NCSA) and ThaiCERT have placed more than 1.5 million servers under continuous monitoring, operating around the clock. While the number and impact of Distributed Denial of Service (DDoS) attacks have declined, agencies remain on high alert as adversaries increasingly aim to deface websites and spread disinformation through social media.

ThaiCERT has strengthened coordination with 30 core government agencies, enabling early detection and faster forecasting of risks. Thanks to advanced legal and technical tools under the Cybersecurity Act, the agency can now contain an incident within five minutes of detection. Over just two months, monitoring systems recorded more than 500

cyberattack attempts, including 1 million DDoS events and 500,000 failed intrusion attempts—the vast majority thwarted before damage could occur. According to NCSA Secretary-General Air Vice Marshal Amorn Chomchey, most claims of successful breaches are exaggerated, with hackers often recycling stolen personal data to create a false impression of success. Thailand’s proactive monitoring, legal enforcement, and investment in advanced defenses illustrate a maturing cybersecurity framework that balances resilience with transparency, ensuring public trust in the country’s digital infrastructure.

4.10. The use of Emerging ICT [EMG]

Thailand enters 2025 as one of ASEAN’s emerging leaders in advanced ICT adoption, with investments in 5G, artificial intelligence (AI), blockchain, and the Internet of Things (IoT) driving its transformation into a regional digital innovation hub. Under the Thailand 4.0 initiative, these technologies are increasingly embedded across key sectors such as healthcare, manufacturing, and agriculture, boosting productivity and opening new opportunities for growth. Expanded 5G coverage now supports IoT-enabled smart farming, AI-assisted diagnostics in healthcare, and factory automation, strengthening both competitiveness and economic resilience.

Progress in AI remains particularly significant. Guided by the government’s AI Development Plan, collaboration between academia, industry, and the public sector is accelerating research and application development. AI is now widely used in finance, education, and public services to streamline processes and create new business opportunities, while also being deployed in national efforts to tackle social challenges like environmental monitoring and rural healthcare access. Blockchain adoption continues to expand as well, with public procurement pilots improving transparency and accountability, and private firms in finance and logistics enhance efficiency and traceability through distributed ledger technologies.

By integrating these technologies, Thailand in 2025 is consolidating its role as a digital economy leader in ASEAN, advancing both innovation-driven growth and the resilience of its public and private sectors. The country’s focus on ICT not only supports economic

competitiveness but also underpins a broader vision of sustainable and inclusive digital development

Norway

1. General Information

Area: **323,802 km²**

Population: **5,592,267**

Government Type: Constitutional Monarchy

2025 Growth Rate: **2.1%**

GDP (IMF '25): **\$504.28 Bn**

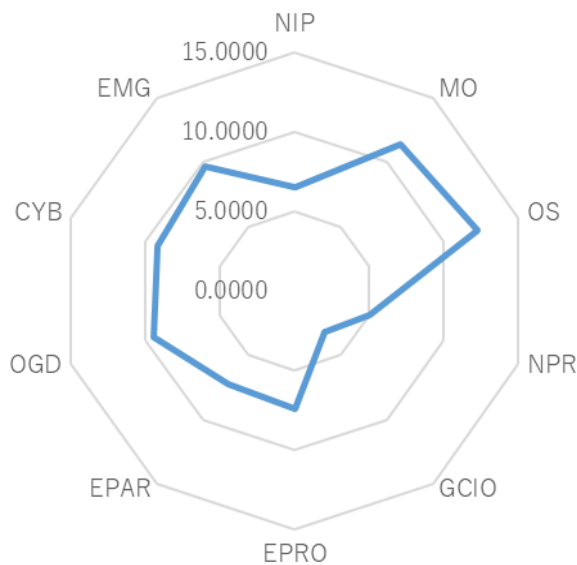
GDP Per Capita: **\$89,690**

Internet User: **99%**

Wired (Fixed Broadband User) per 100 people: **45.9**

Wireless Broadband User per 100 people: **117**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

By 2025, Norway evolves from strong digital foundations into a more integrated, AI-enabled state. Central coordination—through Digdir, the Government CIO, the Brønnøysund Register Centre, Norsk Helsennett, and core suppliers—ensures that policy

and platforms align, freeing ministries to design complete service journeys rather than isolated systems. Core digital rails are now tightly connected: ID-porten supports secure authentication, Altinn manages complex forms and case exchanges, Maskinporten provides system-to-system APIs, the Contact and Reservation Register maintain official addresses, and Digital Post (Digipost/e-Boks) delivers secure communication.

Artificial intelligence has shifted from pilot to practice, speeding up triage, document handling, duplicate detection, and status updates across high-volume domains like taxation (Skatteetaten), social benefits (NAV), healthcare (Helsenorge), and transport (Statens vegvesen), while final decisions remain human and contestable. Business interactions are equally streamlined, with the Norwegian Business Register (Enhetsregisteret) and EHF/Peppol e-invoicing reducing turnaround times and AI spotting irregularities early. Open data platforms such as data.norge.no and GeoNorge keep evidence machine-readable for policy, research, and civic tech use. Importantly, inclusion is built into delivery: municipal service desks, libraries, helplines, and delegated access ensure that seniors, immigrants, and Sami speakers are not excluded by strict assurance requirements. Overall, Norway in 2025 resembles a single, AI-assisted ecosystem where people can complete tasks end to end, rather than a patchwork of disconnected portals.

3.2. New Trends

Norway's national digitalization strategy sets a course toward 2030, aiming to make the country one of the world's most advanced digital societies. The government views digitalization not as an end in itself but as a tool to solve critical societal challenges—from an ageing population and workforce shortages to the need for sustainable growth and climate adaptation. Key priorities include strengthening the business sector with better access to data and skills, investing in safe and resilient digital infrastructure, and fostering innovation in areas such as artificial intelligence (AI), which is expected to drive productivity, efficiency, and smarter public services.

Equally important, the strategy emphasizes that digitalization must serve people first. It calls for building a safe, fair, and inclusive digital society, where children develop critical

digital thinking, young people gain digital confidence, and older adults are supported in navigating online services. Risks such as disinformation, deep fakes, and digital exclusion are addressed directly, with AI both seen as a solution for smarter services and as an area requiring ethical oversight to preserve trust. Technology, including AI, should remain a means to achieve societal goals, not a force that shapes society unchecked.

Implementation will be carried out in close collaboration with local authorities, social partners, and the private sector, ensuring that initiatives are anchored across society. By deliberately steering technological development—especially in AI and data-driven services—Norway seeks to harness digitalization as a foundation for innovation, resilience, and sustainability, positioning itself as a leader in the responsible use of advanced technologies.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Norway has put major investments in broadband expansion and advanced data centers. The Broadband Expansion Program has extended fiber-optic networks and next-generation connectivity to rural and underserved areas, ensuring reliable, high-speed internet access nationwide. This effort reduces regional disparities and positions Norway as one of Europe's most connected countries, where both citizens and businesses can depend on robust digital infrastructure.

Alongside connectivity, the Norwegian Data Center Initiative has accelerated the development of state-of-the-art, energy-efficient facilities designed to handle massive data flows and ensure uninterrupted availability of services. These centers underpin cloud computing, government applications, and big data analytics, boosting the efficiency of public administration and strengthening Norway's digital economy. Complementing these efforts is the Cybersecurity Enhancement Program, which embeds advanced threat detection, stronger network protection, and resilience measures for critical infrastructure. Together, these investments ensure that Norway's infrastructure in 2025 is not only fast and accessible but also secure, sustainable, and resilient against emerging digital threats.

4.2. Management Optimization [MO]

In 2025, management optimization remains a central pillar of Norway's digital transformation, with the government leveraging integrated platforms and data-driven tools to streamline public sector operations. The e-Government Management System (EGMS) has matured into a cornerstone of administrative modernization, unifying project management, resource allocation, and performance monitoring into a single digital framework. This integration allows agencies to coordinate activities more effectively, track outcomes with precision, and base decisions on reliable data. Norway now ranks at the top globally for management optimization, reflecting its ability to apply advanced strategies consistently across government.

A key achievement is the Unified Administrative Services Platform, which consolidates procurement, budgeting, human resources, and other functions into one accessible interface. By automating repetitive tasks and simplifying workflows, the platform reduces bureaucratic complexity and frees up capacity for higher-value work. Complementing this, the Government Performance Dashboard provides real-time visibility into service delivery and institutional performance, enabling agencies to monitor progress against strategic objectives, detect inefficiencies early, and act on evidence-based insights.

4.3. Online Service [OS]

Norway continues to expand and refine its online services, consolidating its position as one of the most advanced digital states. The Digital Public Services Initiative has matured into a nationwide framework, offering citizens and businesses a comprehensive suite of solutions across health, education, and social sectors. Services are increasingly accessible through unified portals and mobile applications, designed to let users manage tasks anytime and anywhere with security and reliability.

Healthcare remains a leading example. The Digital Health Portal now offers not only access to medical records, appointment scheduling, and telemedicine consultations but also AI-assisted decision support for patients and clinicians, creating more proactive and efficient care experience. Businesses benefit from the e-Services for Business Portal,

which integrate tax filing, registration, licensing, and compliance management into a single workflow, reducing time and administrative overhead.

Central to this development is Norway's strong focus on user experience and inclusion. The User Experience Design Guidelines ensure that all platforms remain intuitive, multilingual, and fully accessible to people with disabilities, while assisted digital channels provide alternatives for those who require support. By combining inclusive design with advanced functionality, Norway in 2025 delivers online services that are seamless, trustworthy, and widely adopted, turning digital access into a default mode of interaction between the state and its citizens.

4.4. National Portal [NPR]

Altinn stands as Norway's central e-government portal, offering citizens and businesses a single-entry point to services from more than a thousand public agencies. In 2025, the platform is undergoing a major upgrade to enhance simplicity, security, and usability, reinforcing its role as the backbone of the country's digital administration. Secure access is enabled through the national identity infrastructure, with BankID—developed through public-private collaboration—serving as the primary authentication method. This system not only ensures safe logins but also enables millions of Norwegians to sign binding documents online. A defining feature of Altinn is its digital inbox (Mina Meddelanden), which centralizes official correspondence, notifications, and forms in one trusted channel.

The portal integrates a wide spectrum of public services, from tax reporting and corporate registration to sustainability disclosures and welfare applications. To meet rising expectations and new security demands, Altinn is in the midst of a modernization program. The redesign introduces stronger safeguards, a more mobile-optimized interface, and an improved inbox that gives users a clearer overview of messages. These upgrades are being introduced gradually to ensure continuity and user comfort. By pursuing continuous development, Altinn guarantees high availability, resilience against digital threats, and a consistent, efficient experience—cementing its role as a cornerstone of Norway's digital state.

4.5. Government CIO [GCIO]

The Chief Information Officer (CIO) plays a decisive role in steering Norway's digital transformation. At the center of this effort is the Norwegian CIO Council, which coordinates IT strategies across government bodies, sets common standards, and ensures that agency-level initiatives align with national digitalization priorities.

The CIO office drives the government's IT agenda, guiding the rollout of digital infrastructure, promoting best practices, and strengthening collaboration between ministries and agencies. Under her leadership, the Council has become a catalyst for ensuring that projects are delivered efficiently and that digital investments generate measurable value for citizens and businesses alike.

An important part of this mandate is the advancement of Digital Governance Frameworks, which establish guidelines for managing IT projects and resources within the public sector. These frameworks standardize practices, safeguard quality, and ensure that digital initiatives remain closely tied to strategic objectives. Together, they reinforce Norway's ability to execute a cohesive and future-ready IT strategy.

4.6. E-Government Promotion [EPRO]

In 2025, Norway continues to advance the E-Government Promotion Strategy, designed to boost awareness and adoption of digital services among citizens and businesses. A centerpiece of this effort is the National E-Government Campaign, which leverages television, online media, and social platforms to demonstrate the benefits of digital interactions with government. Campaign materials showcase practical examples—such as the simplicity of online tax filing and the efficiency of managing healthcare appointments via digital portals, making the value of e-services more visible and relatable to everyday life.

The government also strengthens its public engagement mechanisms, using consultations, surveys, and focus groups to capture citizen perspectives. This feedback loop allows services to be continuously refined, ensuring that digital platforms meet user expectations

and maintain high levels of trust. Complementing this, the Digital Inclusion Partnerships program expands its collaboration with libraries, community centers, and non-profits, offering training and guidance for groups with limited digital skills or access.

4.7. E-Participation [EPAR]

A central pillar of Norway's digital democracy in 2025 is the Public Consultation Platform, which gives citizens a direct channel to comment on draft legislation, policy reforms, and government initiatives. Through the platform, users can review official documents, provide written feedback, and join structured discussions with policymakers. Recent consultations on climate policy and urban development illustrate how the tool enables communities to shape decisions that affect their daily lives.

E-participation is further strengthened by Digital Democracy Tools, such as secure online voting systems and interactive engagement platforms. The Norwegian Digital Voting System expands accessibility by allowing citizens to cast ballots online during local and national elections, while Interactive Town Hall Meetings connect residents with officials through live streams and digital Q&A sessions. To ensure broad participation, the government advances the Digital Engagement Initiative, which raises awareness and builds digital literacy. Partnerships with libraries and community groups deliver workshops and online tutorials, helping citizens navigate participation platforms and contribute effectively. Together, these measures make e-participation in Norway more accessible, transparent, and impactful in 2025.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Norway's digital transformation in 2025 reflects a broad, coordinated effort to embed technology throughout public services and government operations. Through the Digital Transformation Initiative, the state continues to apply advanced tools to boost efficiency, improve service quality, and stimulate innovation. Core projects include the use of AI for data-driven insights, blockchain to secure digital transactions, and the Internet of Things (IoT) to manage and optimize infrastructure.

A leading example is the Smart City Program, where IoT sensors combined with AI are used to improve traffic flow, streamline waste management, and reduce energy consumption. These applications aim not only to make urban services more effective but also to promote sustainability and enhance residents' quality of life.

Norway also reinforces its commitment to open data through the Norwegian Open Data Portal, which offers thousands of datasets across sectors such as transport, environment, and the economy. By making this information widely accessible, the portal strengthens transparency while enabling researchers, businesses, and citizens to drive innovation and support evidence-based policymaking.

4.9. Cyber Security [CYB]

Norway in 2025 is strengthening its cybersecurity framework through a mix of new regulations, market growth, and sector-specific resilience measures. The introduction of the Digital Security Act marks the country's first cross-sectoral law for digital protection, creating a unified framework for safeguarding critical infrastructure and public services. Alongside this, Norway is aligning closely with the EU, implementing NIS1 and selected elements of NIS2, to harmonize standards and improve cross-border cooperation. In the financial sector, the Digital Operational Resilience Act (DORA) will come into effect in July 2025, mandating stricter safeguards for operational resilience, risk management, and incident reporting.

The cybersecurity market is also expanding, with revenues projected to reach US\$568 million this year, reflecting significant investment in cloud security, operational technology (OT) protection, and hybrid threat defense. Particular attention is being given to emerging risks such as disinformation campaigns, which challenge trust in institutions. Industry collaboration and knowledge-sharing play an important role in this landscape: events such as NFEA's Cyber Security Conference and reports like Sopra Steria's State of Cyber Security 2025 provide strategic insights and practical tools for both public and private actors.

4.10. The use of Emerging ICT [EMG]

Norway continues to lead in the integration of emerging Information and Communication Technologies (ICT) into public sector operations, using them to foster innovation, strengthen efficiency, and deliver higher-quality services. The government's strategy emphasizes the adoption of artificial intelligence (AI), blockchain, and the Internet of Things (IoT) to modernize infrastructure and enhance public administration.

A flagship effort remains the Smart City Oslo Project, where IoT sensors and AI analytics are deployed to monitor traffic, air quality, and energy usage. Real-time adjustments, such as adaptive traffic lights, have cut congestion and emissions, while broader data analysis supports sustainable urban planning. Beyond cities, Norway is scaling up the Blockchain for Public Services Initiative, with pilots in land registration, supply chain monitoring, and even secure digital voting. Blockchain-based land registries, in particular, are reducing fraud risks and boosting trust in property transactions.

The National Digital Infrastructure Strategy underpins these advances by expanding broadband coverage, investing in energy-efficient, AI-enabled data centers, and developing interoperable digital platforms to ensure that government systems can communicate seamlessly. To further accelerate adoption, the Innovation and Technology Fund support R&D across startups and research institutions, with current projects ranging from machine learning applications in predictive analytics to the development of quantum-encrypted communication protocols.

Iceland

1. General Information

Area: **103,000 km²**

Population: **394,936**

Government Type: Parliamentary Republic

2025 Growth Rate: **2%**

GDP (IMF '25): **\$35.31 Bn**

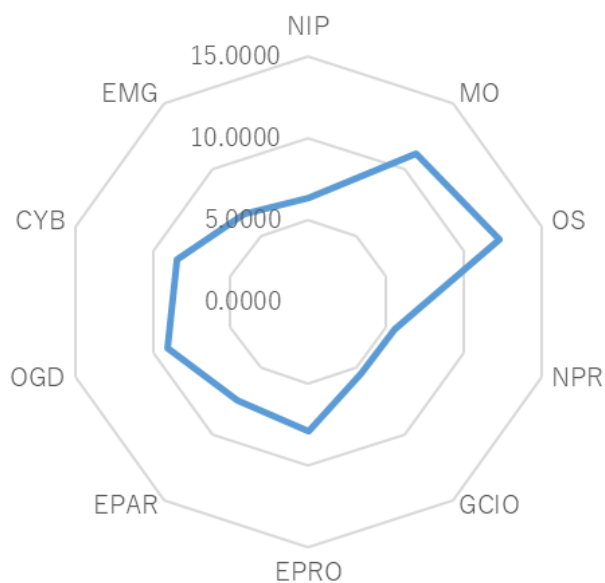
GDP Per Capita: **\$90,280**

Internet User: **99.8%**

Wired (Fixed Broadband User) per 100 people: **38.2**

Wireless Broadband User per 100 people: **126**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

By 2025, Iceland has moved from strong digital foundations to a visibly joined-up system where citizens experience government as one service rather than many. Digital Iceland (Stafránt Ísland), within the Ministry of Finance and Economic Affairs, coordinates

Registers Iceland, Skatturinn, healthcare via Heilsuvera, and core platform providers under shared standards. At the front, island.is serves as the digital gateway, supported by secure credentials (Íslykill and rafræn skilríki), unified payments and signatures, and a growing mobile app that embeds everyday credentials like the digital driver's license.

Artificial intelligence is embedded across operations rather than treated as experimental. Models handle intake, triage, and document extraction in taxation, social services, and municipal permits, while human officials retain final decision-making authority. Business processes benefit from the same coherence: the Company Register (Fyrirtækjaskrá) and Icelandic Business Number underpin filings, Peppol-based e-invoicing reduces back-office load, and anomaly-detection systems flag risks before they escalate into audits.

Open data and inclusion complete the system. Datasets from Statistics Iceland and Landmælingar Íslands keep policymaking evidence-based, while assisted-digital support through libraries, service centers, and helplines ensures accessibility. Delegated access allows families to act securely on behalf of others, and bilingual content (Icelandic/English) eases use for newcomers. In effect, Iceland in 2025 has become less a patchwork of websites and more a single, AI-enabled public service environment where people reliably finish tasks.

3.2. New Trends

Iceland's 2025 progress is shaped by three interlinked shifts. First, artificial intelligence is embedded directly into operations: agencies now use model-assisted triage, routing, translation, and data extraction—supported by Icelandic language technologies—to cut queues while preserving accountability through logs, transparency notes, and clear appeal channels. Second, the vision of a “single trusted entry point” is realized on mobile, with island.is providing navigation, eID authentication, payments, notifications, and verifiable documents in one streamlined flow. AI supports this by suggesting next steps and clarifying requirements in both Icelandic and English, while consent and control remain firmly with the user.

Third, resilience and trust are built into the architecture from the ground up. Multi-zone cloud landing zones, zero-trust principles, and supplier safeguards ensure continuity during peak tax filings, benefit payments, and seasonal travel surges. Security operations centres deploy AI-driven detection to identify and contain threats earlier. Alongside this, Iceland scales register reuse to deliver once-only data sharing, expands e-invoicing across SMEs, and extends the island.is app to carry more credentials beyond the driver's licence.

Crucially, inclusion develops in step with technology. Assisted digital channels, delegated access for families, and tools that explain automated decisions ensure that AI enhances service quality without excluding users. The result is a public system that is identity-centric, AI-enabled, security-first, and consistently inclusive.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Iceland's digital infrastructure is built for capacity with continuity, ensuring that services function smoothly from Reykjavík to the most remote towns. Dense fibre coverage in the capital and reliable 4G/5G across the country make secure authentication, video consultations, and real-time registry checks routine. Critical platforms such as island.is, Skattur, and Heilsuvera are distributed across multiple regions and providers, keeping them responsive during seasonal peaks. Sector backbones in health and emergency services add priority lanes for time-sensitive traffic, while edge capacity at hospitals, airports, and municipal hubs reduce latency for essential services. AI further strengthens resilience by flagging failing connections early and auto-scaling resources during tax filing surges or heavy travel periods.

At the household level, Iceland achieves near-universal digital access. In early 2025, there were 585,000 mobile connections, equal to 148 percent of the total population, though not all supported internet use. Internet penetration stood at 99 percent, with 392,000 individuals online, and social media reached 79 percent of the population. Fixed connections are equally robust: Ookla recorded a median download speed of 241.45 Mbps in January 2025, an increase of 6.8 percent over the previous year. Where gaps remain,

fallback channels through public Wi-Fi, schools, and libraries ensure that “digital by default” does not become “digital only.”

Preparedness extends beyond connectivity into operational culture. Regular continuity drills—including storm response, fibre cuts, and power outages—are institutionalized so that resilience is not just designed but practiced. By pairing infrastructure upgrades with adoption support and inclusive access, Iceland reduces failed sessions, shortens transaction times, and sustains trust in digital government. As a result, the National Infrastructure Plan underwrites the shift from browsing static sites to experiencing continuous, AI-assisted public services.

4.2. Management Optimization [MO]

Management of Iceland’s digital state has become more disciplined, and outcome oriented as policy, platforms, and portfolios align. Digital Iceland now defines guardrails for cloud adoption, interoperability, accessibility, and AI assurance, while Registers Iceland and core platform teams provide shared rails that agencies can reuse instead of rebuilding. This shift enables ministries and municipalities to focus on user journeys rather than plumbing. Portfolio reviews increasingly measure success by completion times, error rates, inclusion, and the quality of AI outputs, rather than by project launches alone.

Procurement practices have also matured. Instead of monolithic contracts, agencies now acquire modular components such as eID sign-in, digital signatures, payments, or AI-based extraction services. This modularity reduces vendor lock-in and accelerates upgrades. Communities of practice reinforce these gains by sharing patterns for API reuse, content design, Icelandic-first language technologies, and accessibility, ensuring that lessons travel quickly across the public sector. Risk management is proportionate: high-risk changes are subject to stricter oversight, while low-risk iterations can move forward rapidly striking a balance between assurance and agility.

4.3. Online Service [OS]

Iceland's public services are anchored in island.is, where the digital inbox has become the state's primary communication channel. A law introduced in 2021 mandated a phased transition, and by early 2025 all state and municipal institutions now deliver notifications exclusively through the inbox, accessible via "My Pages" on the web portal or the island.is mobile app. This consolidation removes reliance on physical mail and ensures that individuals and businesses receive secure, traceable communication from government in one place.

The digital power of attorney system strengthens inclusion and practical usability. Custodians of children, legal guardians of disabled individuals, and company representatives automatically gain access to the relevant inboxes, while users can grant delegated access to others directly through eID. For those without an eID, the physical power of attorney can still be lodged, bridging the digital divide. These arrangements allow families, carers, and businesses to manage obligations efficiently, while maintaining accountability through the national registry system.

4.4. National Portal [NPR]

Managed by Digital Iceland under the Ministry of Finance and Economic Affairs, the portal reflects a deliberate shift from agency silos to an integrated front door where citizens can complete essential tasks without navigating fragmented systems. Its purpose is clear: increase efficiency, improve accessibility, and ensure public services are delivered with the same simplicity and reliability people expect from modern digital platforms. Access rests on near-universal electronic identification (eID), which enables secure login for applications, certificates, and entitlements. A mobile app extends these capabilities, placing licenses, documents, and notifications directly on users' phones.

The impact is tangible. By early 2025, most administrative interactions—from applying for parental leave to requesting a criminal record certificate—can be completed digitally, while Icelanders abroad access the same services with their eID. The portal reduces time spent on government transactions, increases consistency across agencies, and improves transparency through direct access to personal data. Importantly, digital inclusion remains

a guiding principle: assisted-digital routes and design for accessibility ensure that “digital first” does not exclude those less confident online.

4.5. Government CIO [GCIO]

By 2025, Iceland’s Government Chief Information Officer (GCIO) has become the key integrator of the country’s digital state. Operating within the Ministry of Finance and Economic Affairs, the GCIO role is closely tied to Digital Iceland (Stafrænt Ísland), ensuring that policy, platforms, and delivery converge rather than compete. Instead of functioning as a back-office coordinator, the GCIO sets national guardrails for interoperability, cloud adoption, accessibility, and AI assurance, while empowering agencies to build shared rails like Ísland.is, the digital mailbox, and eID authentication.

At the same time, the GCIO promotes a culture of reuse and collaboration. Communities of practice spread standards for API design, Icelandic-first language technology, and accessibility, while modular procurement makes it easier for ministries to plug in services like eID sign-in, payments, or AI extraction tools without large-scale re-letting. Risk is governed proportionately, allowing low-risk innovation to move quickly while critical changes face stricter assurance.

4.6. E-Government Promotion [EPRO]

Iceland has made digital the primary channel for interaction between citizens and the state. Digital Iceland coordinates the core platforms—Ísland.is, national authentication, the Straumurinn/X-Road interoperability layer, and the digital mailbox—that together form the backbone of service delivery. Already, more than 649 applications are catalogued on the portal, underpinned by eID coverage above 95 percent of the eligible population, making scalable pilots both realistic and inclusive.

Promotion is not confined to platforms alone. The state actively engages the market, as shown by a recent request for information on AI chatbot solutions to support more than 50 agencies migrating to Ísland.is. In parallel, Digital Iceland is embedding AI in the Ísland.is Service System, where models draft responses, analyze incoming cases, and

handle routine questions, freeing staff for complex matters. Early results show the impact of digitalization: moving criminal record certificates online saved the equivalent of 2,250 staff hours and cut 189,000 km of citizen travel. Workforce preparation is also on the agenda—short, work-focused courses such as AI Essentials for Work train staff in prompt engineering and safe tool use, translating national AI policy into practical service delivery.

Promotion is anchored in ethics and compliance. Iceland's AI strategy stresses inclusion, transparency, and education, while legal foundations rest on GDPR via Act No. 90/2018. This framework requires agencies to appoint data protection officers, record processing activities, and conduct Data Protection Impact Assessments for high-risk AI use. Automated decision-making safeguards, explainability rules, and limits on cross-border data transfers all shape procurement and system design. Enforcement is credible: six-figure fines, daily penalties, and even operational suspensions underscore that compliance is a governance priority.

4.7. E-Participation [EPAR]

Iceland has emerged as a northern leader in digital civic engagement, demonstrating how online platforms can extend democracy beyond voting into everyday participation. The roots of this development lie in the aftermath of the 2008 financial crash, when the non-profit Citizens Foundation launched digital platforms to rebuild trust in politics and give citizens a stronger role in decision-making. The flagship, Better Reykjavik, built with the city council, has reached over half the capital's population and today maintains regular engagement from 12–15 percent of residents—a strikingly high figure in global terms. Users submit policy or investment proposals, debate arguments for and against, and vote; the most popular ideas are channeled to the council and often implemented. To date, more than 700 projects—from disability-friendly parks and water fountains to street art and mini-libraries—have been delivered through this process.

The Icelandic experience has drawn international attention. In practice, Iceland shows that small states can leverage digital tools not only to deliver services but also to strengthen participatory democracy, provided political leaders commit to enacting citizen input. Challenges remain outreach to migrant communities, stronger inclusion for non-

native speakers, and ongoing support for digital literacy will be needed to sustain broad participation. Nonetheless, by 2025 Iceland has demonstrated that digital democracy is replicable, scalable, and capable of producing tangible results when embedded in real political processes.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

In 2025, Iceland has positioned open data as a pillar of its digital transformation, coordinated by Digital Iceland under the Ministry of Finance and Economic Affairs. A forthcoming Chief Data Officer role signals a strategic push to embed data-driven decision-making, accelerate AI adoption, and standardize governance across ministries. Secure exchange is supported by the X-Road platform, adapted from Nordic neighbors, which enables traceable data sharing between public organizations while maintaining high security standards.

Investments in fiber networks and broadband strengthen the backbone for data-driven services, while framework agreements with private-sector experts expand the government's capacity to deliver digital projects. Training programs for digital skills and stronger ties between research institutions and business aim to ensure that open data underpins not only public service efficiency but also broader economic competitiveness. International recognition reinforces this trajectory. In 2025, Digital Iceland was nominated for the Future of Government Awards in categories such as Digital Team of the Year and Open-Source Creation Award, underscoring the value of its open-source approaches for reuse abroad. With duplication reduced, interoperability strengthened, and open data promoted as a national asset, Iceland is moving from fragmented systems to a coherent, innovation-ready data ecosystem.

4.9. Cyber Security [CYB]

Cybersecurity, resilience, and infrastructure form the backbone that enables Iceland to scale its AI-enabled digital state safely. The National Cybersecurity Strategy 2022–2037, published in places trust, human rights protection, and resilient critical infrastructure at its core. It calls for stronger digital skills, closer law-enforcement cooperation, and more

rigorous risk management to ensure that essential services remain reliable under attack pressing issue for a nation whose global connectivity relies on just four undersea cables, where a single disruption could affect government platforms, financial transactions, and news media alike.

In 2025, the country's cybersecurity market is projected to generate US\$40.37 million, with Cyber Solutions accounting for the largest share at US\$24.42 million. Average spending is expected to reach US\$159.91 per employee, reflecting strong investment in protective measures across organizations. With a compound annual growth rate of 10.96 percent, the market is forecast to expand to US\$67.91 million by 2030, indicating sustained demand for advanced cyber capabilities.

This growth is underpinned by Iceland's commitment to robust infrastructure and regulatory safeguards. Data protection frameworks rooted in the GDPR and the Icelandic Data Protection Act, combined with secure platforms like X-Road for information exchange, reinforce resilience across government and business operations. Public agencies increasingly rely on multi-zone cloud landing zones, zero-trust baselines, and AI-driven threat detection, ensuring continuity during tax peaks, benefit payments, and travel surges.

4.10. The use of Emerging ICT [EMG]

Iceland's ICT landscape in 2025 is marked by purposeful adoption of emerging technologies under firm governance. Agencies move beyond pilots to deploy AI where it delivers measurable value: triaging contact-center queues, routing benefits and permits, extracting data from documents, translating content, and drafting plain-language notices. Human oversight remains central, supported by audit trails to preserve accountability. Identity-linked infrastructure—Íslykill and rafræn skilríki—ensures that AI-enabled functions integrate into existing service journeys rather than create new silos, while verifiable digital documents provide secure cross-sector reuse.

Emerging technologies extend into infrastructure and public services. Cities and agencies apply IoT and edge computing for flood and volcanic hazard monitoring, traffic

optimization, and energy balancing—use cases where millisecond responsiveness is critical and supported by robust national 5G coverage. In healthcare, AI is deployed pragmatically in decision support, wait-list management, and image triage, always within strict safety parameters. Meanwhile, the island.is app is evolving into a comprehensive credential wallet, holding licenses, certificates, and other proofs for everyday use without compromising privacy.

Sustainability and innovation are also embedded in ICT strategy. Green-by-default computing standards and efficiency targets guide procurement so that performance scales without exceeding environmental goals. Universities and research institutes supply both secure computing capacity and skilled talent, shortening the journey from prototype to production.

The United Arab Emirates (UAE)

1. General Information

Area: **83,600 km²**

Population: **11,136,218**

Government Type: Federal Absolute Monarchy

2025 Growth Rate: **4%**

GDP (IMF '25): **\$548.60 Bn**

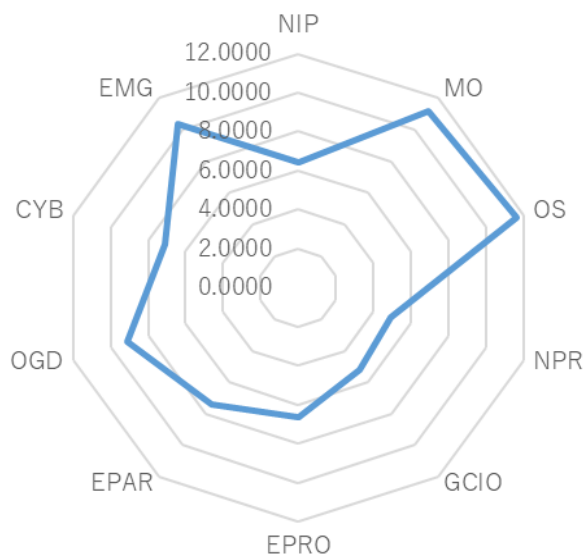
GDP Per Capita: **\$49,500**

Internet User: **100%**

Wired (Fixed Broadband User) per 100 people: **40**

Wireless Broadband User per 100 people: **235**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

The United Arab Emirates has transformed a decade of smart-city initiatives into a unified, production-grade digital state. A coherent federal framework—anchored by the Digital Government policy, the Government CIO, the Cybersecurity Council, and platform

leaders such as UAE PASS, u.ae, TAMM (Abu Dhabi), and DubaiNow/Dubai Digital—now drives entities to design complete service journeys rather than isolated apps. This alignment has created interlocking digital rails: UAE PASS provides high-assurance identity and a growing wallet of verifiable documents; instant payments and the Digital Dirham streamline fees and disbursements; and shared government cloud landing zones ensure predictable, scalable hosting.

Artificial intelligence has moved from pilots to everyday operations. Ministries and emirate platforms now use AI for contact-center triage, document extraction, multilingual translation, traffic analytics, and permit routing, with human officials retaining accountability for final decisions. High-volume platforms showcase the change: TAMM consolidates dozens of Abu Dhabi services into one seamless flow, DubaiNow integrates payments, licensing, and utilities, while MOHRE and immigration e-services pre-fill forms using authoritative registers. In healthcare, Malaffi and Nabidh exchanges enable data reuse and reduce counter checks.

The enterprise environment benefits as well. Free-zone business formation in ADGM and DIFC reuses the same identity and payments rails, while e-invoicing and structured filings compress processing times. Open-data portals—data.gov.ae and emirate-level hubs—support evidence-based policymaking and research. The overall result is that the UAE no longer feels like a patchwork of “smart” applications but a stitched, AI-enabled system where citizens and businesses can reliably complete tasks end-to-end.

3.2. New Trends

The UAE’s National Digital Government Strategy 2025 sets a comprehensive framework for transforming public services, built on eight dimensions: inclusive by default, resilient, fit for the digital age, user-driven, digital by design, data-driven, open by default, and proactive. Inspired by the OECD Digital Government Policy Framework yet tailored to the UAE’s post-pandemic context, these dimensions ensure that services are not only digital-first but also inclusive, transparent, and resilient. The focus is on leaving no one behind, particularly elders, people of determination, and vulnerable groups—while embedding accessibility, ethics, and accountability into every digital initiative.

To operationalize these principles, the strategy defines clear objectives: world-class digital infrastructure, a unified platform with shared enablers, legislation readiness, and a workforce equipped with digital and AI skills. Progress is measured through strategic KPIs such as 90 percent public satisfaction with digital services, 100 percent end-to-end digitization of federal services, and universal training of government employees in digital capabilities. The roadmap organises delivery into six pillars—unified platform, shared enablers, infrastructure, digital engagement, capacity, and governance—supported by 64 national enablers. A maturity model with five levels guides agencies, with the goal that all federal and local entities reach “very high maturity” by 2025.

The plan is fully aligned with broader national visions including We the UAE 2031, the UAE Centennial 2071, the Strategy for Artificial Intelligence, and the Fourth Industrial Revolution Strategy. Policies such as the “Once Only” principle simplify user journeys by eliminating repetitive document submission, while the Digital Participation Strategy opens space for citizens to contribute ideas and feedback. Combined, these initiatives aim to position the UAE as a globally competitive digital nation—one that balances innovation with trust, efficiency with resilience, and service excellence with inclusivity.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

The UAE enters 2025 with a network infrastructure designed for both resilience and future readiness, anchoring its ambition to remain a global leader in digital transformation. Investments target an AI-native, 6G-enabled ecosystem that will shape the next generation of communication and digital experiences. At the same time, strong emphasis is placed on Zero Trust cybersecurity, where identity intelligence, network segmentation, and anomaly detection strengthen resilience against advanced threats. These foundations are essential as the country aims to double the digital economy’s contribution to GDP by 2030.

Preparedness is supported by a broad policy framework. The National Digital Government Strategy, the Dubai Cyber Security Strategy, and the UAE 2031 AI Strategy

embed security, innovation, and resilience into every layer of the digital state. Infrastructure upgrades are not just technical but also human-centric: by using AI and automation to anticipate needs, the UAE designs services that are tailored, seamless, and trusted. Physical and digital infrastructure are jointly protected, ensuring stability in the face of economic competition, rising cyber risks, and global disruptions.

Evidence of progress is visible. The UAE ranks first globally in mobile internet speed according to the Speedtest Global Index, reflecting the scale of its investment in connectivity. Cities such as Dubai and Abu Dhabi also perform strongly in the IMD Smart City Index, highlighting advanced deployment of smart infrastructure. On the international stage, the UAE participates in initiatives such as the Global CyberDrill 2025, reinforcing both preparedness and its role as a cooperative global actor in cybersecurity.

4.2. Management Optimization [MO]

The UAE continues to embed digital-first management practices across government, using technology and data to raise efficiency and responsiveness. Cloud computing, AI, and big data analytics are applied to streamline service delivery, reduce administrative burdens, and optimize the allocation of resources. This first digital ethos ensures that services are designed for speed, scale, and citizen convenience rather than manual or paper-based processes.

A central pillar of this approach is the deployment of real-time government dashboards. These provide leaders with live data on service performance, citizen engagement, and resource utilization, enabling faster and more evidence-based decision-making. Predictive analytics strengthens this capacity by forecasting demand for services and guiding resource distribution, reducing waste while ensuring services are delivered on time. To sustain momentum, the UAE advances the Digital Government Excellence Program, which instills a culture of continuous improvement across institutions. The program invests in training and upskilling public servants on digital tools, analytics, and AI applications, equipping them to manage transformation effectively.

4.3. Online Service [OS]

By 2025, the UAE established online services as the default mode of citizen interaction with government, consolidating hundreds of processes into unified digital journeys. The federal portal u.ae acts as the central gateway, complemented by emirate platforms such as TAMM in Abu Dhabi and Dubai Now in Dubai, each designed to bring licensing, payments, utilities, and permits into one seamless flow. Citizens and businesses no longer navigate multiple agency websites; instead, they complete transactions through a single login, backed by UAE PASS, which provides high-assurance digital identity and a growing wallet of verifiable credentials.

End-to-end digitization is now standard. Services that once required counter visits—such as residency renewals, labor permits, or health certificates—are handled entirely online, with forms pre-filled from authoritative registers and digital signatures eliminating paper requirements. Healthcare exchanges like Malaffi and Nabidh further reduce friction by sharing records across providers, ensuring that citizens receive faster, safer care without repeated documentation. For businesses, online services extend to company formation, e-invoicing, and structured filings in free zones, compressing processes that previously took weeks into hours.

The service layer is also becoming more proactive. Instead of waiting for users to apply, the government anticipates life events and sends tailored notifications, for example, reminders when a child approaches school age, or when a license is due for renewal. Multilingual AI-powered assistants are embedded across platforms to answer common questions and route complex cases, ensuring inclusivity in a linguistically diverse society. Public satisfaction surveys show rising trust in digital channels, as convenience, speed, and transparency reinforce the UAE's reputation for service excellence.

4.4. National Portal [NPR]

In 2025, the UAE stands as the UAE's single-entry point to government, reflecting a decade-long effort to replace fragmented apps with a truly national platform. Rather than serving as just a directory, the portal now hosts the full cycle of interactions—applications, payments, notifications, and follow-ups—linked directly to UAE PASS for high-assurance identity. Citizens and residents' complete renewals, licenses, and registrations

without repeating data entry, as information is pulled automatically from authoritative registers.

What sets u.ae apart is its role in closing the loop between services and participation. Alongside more than 5,000 digitized services, the portal invites users to comment on draft policies, join consultations, and submit feedback through structured forums. This blend of service delivery and civic voice has made u.ae a visible space where efficiency and accountability meet.

Recent upgrades have moved the portal beyond static menus. AI-driven assistants guide users through complex processes, surface the most relevant services for their situation, and provide proactive reminders tied to life events. For government, this generates anonymized insights on demand patterns and service quality. For people, it means fewer missed deadlines and faster outcomes. In short, u.ae in 2025 is not positioned as “one website among many” but as the operating layer of daily life in the Emirates—a portal where administration, participation, and trust are stitched together.

4.5. Government CIO [GCIO]

The Government Chief Information Officer (GCIO) has become a central architect of the UAE’s digital state, ensuring that transformation is not only ambitious but coordinated. GCIO leads the push for digital-first policies, embeds emerging technologies such as AI and blockchain into public operations, and strengthens cybersecurity across agencies. Acting as the custodian of the National Digital Government Strategy, the GCIO ensures every ministry and authority aligns with shared standards and best practices for digital governance.

A defining feature of the role is fostering inter-agency collaboration. Under the GCIO’s leadership, silos are dismantled, data is shared more systematically, and departments co-design services to deliver unified digital journeys for citizens and businesses. This approach has accelerated the rollout of AI-enabled services, streamlined administrative processes, and created the foundation for blockchain-based recordkeeping where trust and traceability are paramount.

Workforce development is another area of priority. The GCIO's office drives capacity-building programs, providing training and certifications to equip public servants with digital, data, and AI skills. Partnerships with private-sector technology firms and academic institutions expand this ecosystem, ensuring innovation pipelines are tailored to the UAE's needs.

4.6. E-Government Promotion [EPRO]

The UAE uses its strong digital foundations not only to deliver services but also to project its model internationally. Its top-tier ranking in the UN E-Government Development Index (EGDI) is a key promotional asset, demonstrating credibility in content provision, institutional design, and service delivery. The government highlights these achievements at global forums and regional workshops, positioning the UAE as both a practitioner and a mentor in digital transformation.

Flagship initiatives serve as live showcases. Programs such as the Zero Government Bureaucracy initiative and integrated digital services like Mabrouk Ma Yak are promoted as examples of how cumbersome procedures can be simplified into proactive, citizen-friendly journeys. Likewise, the National Digital Government Strategy 2025—aligned with We the UAE 2031—is marketed as a blueprint for creating advanced, AI- and blockchain-enabled government systems. These narratives emphasize not only efficiency but also inclusiveness, with attention to vulnerable groups and the removal of digital divides.

4.7. E-Participation [EPAR]

The UAE Government Portal (u.ae) will continue to serve as the main hub for this effort, offering a range of tools like surveys, public consultations, and interactive forums. This expansion of digital engagement aims to foster a more inclusive form of governance, reaching a broader audience, including those in remote areas.

A key focus for 2025 is the integration of advanced e-participation tools, such as real-time polls and feedback mechanisms, to allow for more direct citizen input on policy.

Beyond technology, the government will continue to prioritize educational programs to boost digital literacy and civic engagement. By empowering citizens with these skills, the UAE aims to ensure that e-participation is effective and that active public involvement remains a cornerstone of its digital strategy for building trust and accountability.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

The UAE has built a comprehensive legal and institutional framework to support open government data. Key initiatives include national and emirate-level data strategies, protection laws, Dubai Data Law, and open data policies and guidelines led by the Telecommunications and Digital Government Regulatory Authority. Platforms such as Dubai Pulse, Bayanat, Abu Dhabi Data, Ajman Data, and the UAE SDG Data Hub serve as central repositories, offering datasets, analytics, and tools for citizens, businesses, and researchers. Federal ministries also provide open data in sectors including health, education, labor, finance, environment, justice, and telecommunications.

The benefits of open data are wide-ranging: it increases transparency and accountability, enables citizen participation, and helps prevent mismanagement. Economically, it fosters job creation, supports new business models, attracts investment, and improves efficiency across sectors. Socially, it strengthens public services such as healthcare, education, and food security, while environmentally it supports sustainability and resilience to climate change. Open data also improves information-sharing within government, laying the foundation for smart cities and effective disaster response.

Globally, open data has shown significant economic impact—estimated by the World Bank at up to €40 billion annually across the EU. The UAE aligns with this trend, maintaining two major national portals (UAE Numbers and Bayanat) and actively contributing to global benchmarks. To sustain progress, frameworks such as the Dubai Data Change Management Framework and National Open Data Guidelines provide practical tools and standards to embed a culture of openness across government entities.

4.9. Cyber Security [CYB]

The country's cybersecurity framework is focused on national security, overseen by agencies like the Cyber Security Council and the Signals Intelligence Agency (SIA). Recent legislation, such as the Federal Decree Law No. 34 of 2021 on Combating Rumors and Cybercrimes, aims to regulate digital activity but has also been criticized for limiting online speech and enabling state control. The UAE has invested in advanced surveillance technologies and offensive cyber capabilities, as seen in initiatives like Project Raven. While data protection laws exist, they contain broad exemptions that allow the government to access personal data, prioritizing state control over individual digital rights.

The UAE's international stance on internet governance is one of internet sovereignty. It actively participates in international forums like the UN Group of Governmental Experts and the Open-Ended Working Group, emphasizing the importance of international cooperation on cyber threats while upholding national control. The UAE is a signatory to the Paris Call for Trust and Security in Cyberspace but has not joined the Budapest Convention, which highlights its reluctance to accept externally imposed regulations that might infringe on its sovereignty. It also leads regional cybersecurity efforts within the Gulf Cooperation Council (GCC).

4.10. The use of Emerging ICT [EMG]

The UAE has become a leading ICT hub in the MENA region, using free trade zones like Dubai Internet City and Dubai Silicon Oasis to attract global firms and support its shift from oil dependence to a knowledge-based economy. Government incentives include tax exemptions, foreign ownership rights, and strong investments in ICT sectors such as healthcare, aviation, finance, and retail. Data protection laws, the ICT Fund, and the UAE's AI Strategy 2031 further reinforce this innovative-driven environment.

Key growth sectors include:

- Cloud computing: UAE is a regional data center hub with major investments from Microsoft, Oracle, AWS, and local players, forecast to grow rapidly alongside 5G and smart city projects.

- Cybersecurity: Driven by rising threats to critical infrastructure, the market is projected to reach \$4.51 billion by 2025, with mandatory compliance standards and opportunities for global firms.
- IoT: Expanding in smart cities, healthcare, utilities, and industrial applications, with Dubai leading as a testbed for large-scale deployments.
- Artificial Intelligence: Expected to contribute 14% of GDP by 2030, AI is integrated across sectors like education, health, transport, and energy, with institutions such as the Mohamed bin Zayed University of AI building talent pipelines.
- Smart Cities: Projects such as Digital Dubai and the Dubai Paperless Strategy showcase investments in smart infrastructure, public Wi-Fi, electric mobility, and digital services.
- 5G/6G telecoms: UAE was first in the Arab region to launch 5G and is already investing in 6G, with initiatives like Open RAN driving flexibility and innovation.

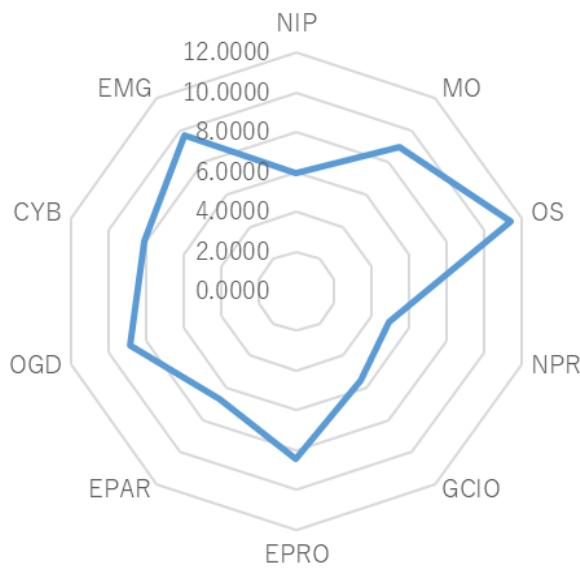
Overall, the UAE's commitment to digital transformation, diversification, and cutting-edge technology adoption creates significant opportunities for international companies, especially in cloud services, cybersecurity, AI, IoT, and enterprise software solutions.

Taiwan

1. General Information

Area: **36,193 km2**
Population: **23,184,788**
Government Type: Semi-Presidential Republic
2025 Growth Rate: **2.9%**
GDP (IMF '25): **\$804.89 Bn**
GDP Per Capita: **\$84,080**
Internet User: **93.1%**
Wired (Fixed Broadband User) per 100 people: **29.3**
Wireless Broadband User per 100 people: **122**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, Taiwan has further consolidated its role as a regional leader in digital governance, building years of investment under the Digital Nation and Innovative Economic Development Program (DIGI+). The program continues to serve as the cornerstone of

Taiwan's digital agenda, driving the integration of advanced technologies such as artificial intelligence (AI), blockchain, and big data into core government operations. These measures are not only modernizing public administration but also laying the groundwork for a more connected and resilient digital society.

Public service delivery has become markedly more accessible and efficient. Citizens can now conduct a wide range of government interactions online, spanning healthcare, education, taxation, and beyond—without the burden of in-person bureaucracy. The Taiwan Cloud Marketplace, serving as a central gateway to e-government services, has matured into a reliable one-stop platform that streamlines processes and enhances the overall user experience.[Smart Nation Program](2021-2025) organized by the government has indicated many successful examples to understand the action plan cases issued “2024 Interim Progress report” in Feb. 2025

Sustainability has also been woven into Taiwan's digital transformation. Smart technologies are applied in energy conservation, waste management, and urban planning, aligning digital innovation with climate action goals. These initiatives reinforce Taiwan's commitment to the UN Sustainable Development Goals (SDGs) and have elevated the nation's international reputation as a forward-looking digital state that couples technological progress with environmental responsibility.

3.2. New trends

Taiwan's digital trajectory is marked by the evolution of its DIGI+ framework, which continues to guide the nation toward becoming a fully integrated “smart society.” The Smart Government initiative has matured, embedding AI, IoT, and big data analytics into routine operations, making public services faster, more responsive, and tailored to citizen needs. This shift reflects a growing emphasis on digital equity, ensuring that efficiency gains are balanced with inclusion across all regions and social groups.

The rollout of nationwide 5G coverage has emerged as a defining trend. Beyond improving connectivity, it underpins Taiwan's smart city development, with projects like the Taoyuan Aerotropolis showcasing how advanced networks can transform traffic

management, emergency response, and urban sustainability. By bridging rural-urban gaps, expanded 5G access has become both an enabler of digital innovation and a tool for closing the digital divide.

International collaboration also shapes Taiwan's new digital trends. Under the Asia Silicon Valley Development Plan, partnerships with global firms and research institutions drive breakthroughs in AI, robotics, and cloud computing, reinforcing Taiwan's reputation as a hub for advanced technology.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

In 2025, Taiwan continues to solidify its position as a globally connected nation by advancing its digital infrastructure. A key focus will be the ongoing expansion of its 5G networks, which have already reached over 90% of the population, providing citizens with high-speed internet and supporting the development of smart cities.

Taiwan's commitment to universal connectivity will also be seen in its fiber-optic broadband network, which will ensure that even rural areas have access to high-speed internet. This robust connectivity is essential for supporting the digital economy and enabling services like remote work and online education.

Furthermore, in 2025, Taiwan will continue to develop its smart infrastructure. The government is investing in upgrades to its power grids and transportation networks to integrate IoT devices and smart sensors. This will lead to increased energy efficiency, lower costs, and a higher quality of life for citizens. The government will also be working with private companies to expand smart transportation systems, like autonomous vehicles and AI-powered traffic management, in its major cities.

4.2. Management Optimization [MO]

By using new technology, Taiwan has significantly cut down the time it takes to process services like permit applications and business registrations. For instance, the Smart Permit System has reduced approval times from weeks to just a few days by automating

the process. This system also connects with the Taiwan Cloud Marketplace to help government agencies share data and work together more effectively.

The government is also using big data and AI to monitor public programs in real-time. This data-driven strategy, which includes tools like the Taiwan Performance Dashboard, helps officials make better decisions and ensures that resources are used efficiently. By tracking key performance indicators, the government can find ways to improve service delivery and become more agile in meeting the needs of its citizens.

4.3. Online Service [OS]

In 2025, Taiwan continues to strengthen its position as a digital-first government by expanding the breadth and depth of its online services. At the center of this progress is the Taiwan Cloud Marketplace, which has evolved into a comprehensive one-stop portal that unifies applications, payments, and service access across government agencies. Citizens can manage everything from tax filing and permit applications to healthcare and direct consultations with officials, all through a single secure platform.

Healthcare digitalization stands out as a defining achievement in 2025. The National Health Insurance (NHI) digital platform, integrated with the NHI Card as a universal digital health ID, now offers seamless access to personal medical records, appointment scheduling, and telemedicine services nationwide. These innovations not only streamline the healthcare system but also extend high-quality care to rural communities, closing gaps in accessibility.

Education has also advanced significantly, with the national e-learning platform expanding its reach and content offerings. Students now benefit from a wider range of interactive courses, digital textbooks, and online learning tools, reinforcing Taiwan's commitment to preparing future generations for a knowledge-driven economy. Together, these initiatives illustrate how Taiwan in 2025 is transforming online services into a core pillar of inclusive, efficient, and citizen-centered governance.

4.4. National Portal [NPR]

In 2025, the portal puts a strong emphasis on accessibility and inclusivity, ensuring it meets the needs of all citizens, regardless of their location, age, or digital skills. The website will be available in multiple languages and optimized for mobile devices. To accommodate Taiwan's aging population, the government will introduce features like larger text, voice navigation, and simpler processes specifically for senior users.

A key feature of the portal will be its focus on transparency and open government data. The platform will provide citizens with access to a wide range of public information, including government budgets and environmental data. This dedication to transparency builds trust between the government and its people and encourages civic engagement by allowing citizens to participate in decision-making and hold officials accountable.

4.5. Government CIO [GCIO]

Taiwan's GCIO now extends beyond setting technical standards to shaping how ministries govern algorithms, manage data responsibly, and measure the public value of digital initiatives. Instead of counting new systems delivered, the GCIO evaluates outcomes like reduced service backlogs, greater citizen uptake, and measurable error reduction.

A strong emphasis is placed on governance by design. Privacy, cybersecurity, and accessibility are integrated at the outset of every project, while algorithmic accountability requires agencies to document purpose, datasets, and safeguards for bias. Dashboards track service quality in real time, making underperformance visible and actionable. At the same time, the GCIO invests in workforce skills—providing common playbooks, language resources in Mandarin, Hokkien, and Hakka, and continuous training to ensure civil servants can use AI and data tools confidently.

The result is a forward-looking GCIO function that blends stewardship with speed. Taiwan's digital strategy is no longer just policy on paper—it is translated into reliable, trustworthy delivery at scale, ensuring public trust in both government services and the technologies that underpin them.

4.6. E-Government Promotion [EPRO]

Taiwan's e-government strategy has achieved considerable success in the area of digital identity. The National Identification System integrates a digital ID card with a variety of e-government services, thereby simplifying online access for citizens. This secure platform enables users to authenticate their identity, electronically sign documents, and perform tasks such as tax filing, social benefit applications, and license renewals, significantly reducing the necessity for in-person visits to government offices. This approach results in notable time and resource savings for both the public and the government.

Furthermore, Taiwan is actively promoting its e-government services to the business sector, with a specific focus on small and medium-sized enterprises (SMEs). The government has introduced multiple initiatives, including the E-Tax Filing System and the Online Business Registration Portal, to encourage SMEs to adopt digital tools for their interactions with government agencies. These platforms streamline administrative processes, enabling businesses to register, file taxes, and access support programs with greater efficiency. This strategic promotion of e-government has contributed to the expansion of Taiwan's digital economy and reinforced its status as a regional leader in e-governance.

4.7. E-Participation [EPAR]

By 2025, Taiwan's approach to digital participation is marked by practical integration into policymaking rather than being treated as an experimental add-on. Online platforms have matured into predictable stages of consultation—citizens to know when to contribute, how their input will be processed, and what decisions will follow. This reliability has turned participation into a routine part of governance rather than occasional exercise.

A notable shift is the broadening of participation channels. Beyond standard surveys, ministries now combine open calls for input with structured deliberation sessions, some online and others community based. This mix ensures that technical issues receive expert

scrutiny while everyday concerns are still captured. Importantly, the government has invested in translation and facilitation so that Taiwan's Indigenous communities, migrant workers, and other under-represented groups are not sidelined.

What sets Taiwan apart in 2025 is the traceability of outcomes. Policy proposals are published alongside records of public input, expert commentary, and decision rationales, allowing citizens and researchers to see how debates shape final rules. This visibility, together with safeguards for privacy where needed, has made participation both credible and consequential, reinforcing Taiwan's reputation as a digital democracy with substance rather than show.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Taiwan's open government agenda is spearheaded by the Ministry of Digital Affairs (MODA) and the National Development Council (NDC), building momentum from the Digital Government Program 2.0 and the new phase of the Open Government National Action Plan (2025–2028). These initiatives focus on strengthening transparency, broadening open data use, and addressing challenges in data privacy and digital inclusion.

Progress is visible across several fronts. The MyData platform, now integrating data from more than 80 agencies, offers citizens practical services such as applying for parking permits or obtaining police certificates entirely online. Meanwhile, the release of 55,000+ open datasets has fueled applications ranging from AI-assisted healthcare advice to tools that help citizens recover lost pets. By encouraging public code adoption, Taiwan is also making government digital services more accountable, reusable, and open to public scrutiny.

Looking forward, MODA is advancing digital credentials to give citizens secure, privacy-protecting digital identities, while AI adoption in government is expanding from chatbots to decision-support systems. The Open Government National Action Plan adds new priorities—climate governance, personal data transparency, and bridging the digital divide—to ensure that digital transformation is not only efficient but also equitable.

4.9 Cyber Security [CYB]

Taiwan's push to remain a global tech leader is challenged by a severe shortage of cybersecurity professionals, turning workforce gaps into one of the country's most urgent national security and economic risks. Despite rapid market growth—valued at over US\$1.17 billion in 2022 and projected to reach US\$3.4 billion by 2032—the supply of trained personnel lags far behind demand. Fewer than 2,000 professionals enter the workforce annually, leaving critical roles in government and industry unfilled, while many skilled workers are drawn abroad by higher salaries.

To address the shortage, the Ministry of Digital Affairs (MODA) has set a target of training 5,000 cybersecurity specialists per year, supported by an NT\$8.8 billion resilience package and new programs such as Hack The Box certification and the seventh-phase National Cybersecurity Development Program. Private players are also stepping in: Google Taiwan plans to train 2,000 cyber workers by the end of 2025, and Cisco is opening a cybersecurity center in Kaohsiung focused on maritime security.

The stakes are heightened by AI-driven threats, including deepfakes and advanced phishing campaigns, which demand new skills like adversarial model auditing and AI-integrated risk analysis. MODA is linking scholarships to service in critical infrastructure and promoting gender diversity through initiatives such as the Girls in Cyber Security competition, but long-term success depends on aligning education with practical training, tying funding to measurable outcomes, and incentivizing both large and small firms to invest in talent pipelines. Taiwan's challenge is urgent but solvable—requiring coordinated public-private action to turn investment into a sustainable, skilled cybersecurity workforce.

4.10. The use of Emerging ICT [EMG]

Taiwan's strong manufacturing capabilities in sensors and IoT terminals give it a significant advantage in the global market. With the support of the "Asia Silicon Valley" policy, led by the Asia Silicon Valley Development Agency (ASVDA), the country is expected to achieve a complete IoT ecosystem by 2025. This initiative, supported by

partnerships with global leaders like Microsoft and Qualcomm, aims to expand Taiwan's global IoT business by 30%. The ASVDA, with over 140 members, is a central force in integrating hardware and software to build a robust IoT value chain.

As the world fully embraces the 5G era, Taiwan's long-standing experience and advanced hardware manufacturing capabilities position it for success. The country is a key partner in the global ICT industry and a leader in information hardware output. Its expertise in mobile communications and smart devices gives it a powerful advantage in developing and deploying 5G and IoT technologies, which are expected to create a digital economy worth trillions of dollars by 2025.

Australia

1. General Information

Area: **7,692,024 km²**

Population: **26,789,675**

Government Type: Constitutional Monarchy

2025 Growth Rate: **1.6%**

GDP (IMF '25): **\$1.77 Tn**

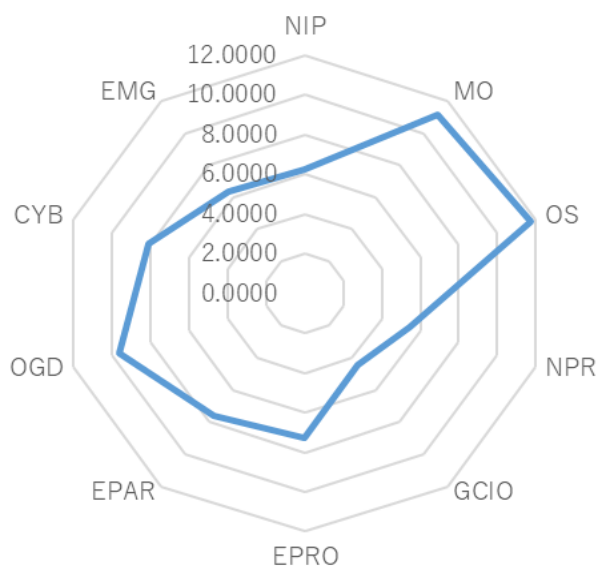
GDP Per Capita: **\$65,550**

Internet User: **97.10%**

Wired (Fixed Broadband User) per 100 people: **36.6**

Wireless Broadband User per 100 people: **129**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, Australia's digital government agenda is shaped by a strong focus on citizen experience, productivity, workforce development, and investment discipline. The launch of the Digital Experience Policy in July 2024 marked a turning point, mandating that from

January 2025 all new digital services meet the Digital Inclusion, Digital Access, and Digital Performance Standards. This shift ensures that government platforms are consistent, user-friendly, and accessible to every Australian, regardless of location or ability.

A parallel focus is on productivity and efficiency. Through the Investment Oversight Framework (IOF) and new Digital Investment Plans (DIPs), agencies are required to set clear goals and align their projects with national priorities by mid-2025. This disciplined approach to investment, paired with the retirement of legacy systems and accelerated cloud adoption, is expected to unlock more than \$1 billion in annual savings, while strengthening service resilience. The Data and Digital Government Strategy, refreshed with an implementation plan in late 2024, provides the overarching architecture for these reforms.

3.2. New trends

The Strategic Planning state of the Investment Oversight Framework (IOF) aligns digital and ICT investments with national priorities and builds a long-term view of the government's digital pipeline. Anchored by the Data and Digital Government Strategy (DDGS) and the Australian Government Architecture (AGA), it guides agencies in standardizing proposals, sharing solutions, and avoiding duplication. The DDGS serves as a "north star," ensuring that projects contribute to the government's 2030 digital objectives, while its implementation plan provides measurable indicators for performance.

Artificial intelligence now plays a growing role in this stage. AI is being used for horizon scanning to identify upcoming demand, predictive analytics to forecast the lifecycle costs of systems, and risk modelling to detect vulnerabilities in critical projects before budget approval. AI tools also support portfolio monitoring, automatically flagging underperformance or delays in agency plans, and improving contestability by comparing proposals against benchmarks in real time. These applications enable the DTA and agencies to make more evidence-based decisions and strengthen accountability across the investment cycle.

The integration of AI into Strategic Planning enhances transparency and efficiency but also demands stronger digital skills within agencies. Mature agencies are adapting quickly, while less experienced ones require additional guidance to align with the DDGS. The next step is to embed AI capabilities into mandatory Digital Investment Plans from mid-2025, ensuring consistency and trust in how data and digital investments are prioritized and managed.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Australia faces mounting risks to its electricity and critical infrastructure from climate change, with extreme weather events—bushfires, floods, storms, and heatwaves—expected to grow in frequency and severity over the coming decades. These events threaten not only energy assets such as poles, substations, and cables but also community access to vital services including communications, water, and banking. Long-term risks like drought, sea-level rise, and coastal erosion further underscore the need for resilient systems.

Energy providers, including CitiPower, Powercor, United Energy, and Australian Energy Operations, are adopting resilience frameworks that prioritize preparation, adaptation, and customer resilience. Measures include hardening at-risk assets against fire and flood, designing new infrastructure with climate risks in mind, and expanding alternative supply options like feeder tie lines and microgrids. Hazard mapping under both moderate (RCP 4.5) and high-risk (RCP 8.5) climate scenarios to 2070 is guiding these investments, ensuring that future designs account for evolving conditions rather than outdated historical norms.

Australia's preparedness strategy highlights the importance of forward-looking planning. Integrating climate projections into infrastructure design and maintenance, strengthening emergency response, and improving community resilience tools (e.g., deployable response units and liaison officers) are key steps. By embedding climate adaptation into

energy network planning, Australia aims to reduce outages, safeguard long-life assets, and ensure reliable supply in a disaster-resilient future.

4.2. Management Optimization [MO]

In 2025, Australia is pushing hard to make management smarter and more efficient, using a mix of AI, data, and advanced optimization tools. Companies and government agencies alike are looking at how to solve complex challenges with mathematical modeling, streamline services with digital tools, and manage people and resources in ways that boost productivity. Techniques like Workforce Optimization (WFO) and FinOps (cloud financial management) are moving from niche practices to mainstream, helping organizations cut waste, control costs, and improve outcomes.

The momentum is clear across industries. Retailers are using optimization to rethink logistics, service providers are adopting field service management tools to deliver faster and better, and airports are rolling out next-generation software to improve operations. National and international events in 2025 — from Gurobi’s Optimization Community meetups in Sydney and Perth to the big IEOM and ICAPS conferences in Melbourne — show how Australia is building a community of practice around planning, scheduling, and AI-driven decision-making. The result is a shift in culture: management optimization is no longer about fine-tuning processes at the edges, but about redesigning how work gets done at scale, making Australia a leader in this transformation.

4.3. Online Service [OS]

In 2025, online services in Australia remains the cornerstone of the government’s digital service delivery, offering a single access point for a wide range of essential services. The platform supports millions of Australians with programs like Medicare, Centrelink, and Child Support, making it one of the most heavily used government service hubs in the country. The focus is on ease of access and user experience. Citizens can manage benefits, submit claims, update details, and access health or financial records entirely online, often without needing to visit a service center. Integration with myGov and myGovID ensures

secure, single sign-on access to multiple government services, while digital notifications, document uploads, and online forms streamline previously complex processes.

AI-powered tools and real-time service dashboards provide quicker responses, from automating eligibility checks to offering guided claim support. Accessibility is central, with digital standards ensuring services are usable for people with disabilities, those in rural areas, and linguistically diverse communities. Services Australia leverages cloud infrastructure and robust cybersecurity measures to guarantee reliability and protect sensitive citizen data. Mobile-first design ensures Australians can interact with services anywhere, anytime.

4.4. National Portal [NPR]

Australia's myGov platform stands at the center of the nation's digital service ecosystem, giving citizens a single gateway to interact with government. By 2025, the portal has evolved into a fully integrated hub, consolidating services from multiple agencies and reducing the need for paper forms or in-person visits. Its role is pivotal in advancing Australia's digital government agenda, helping citizens manage essential tasks through one simple and consistent interface.

Recent upgrades focus on personalization and usability. Citizens now benefit from customizable dashboards that display their active services, application progress, and timely reminders, ensuring smoother interactions with government programs. These features highlight the shift toward a citizen-centric model, where accessibility and convenience guide design choices.

At the same time, security and trust remain central. Multi-factor authentication, encrypted storage, and expanded cloud infrastructure safeguard sensitive data, while ongoing monitoring protects against cyber risks. Together, these measures have positioned myGov as a trusted, secure, and indispensable tool in everyday life, with government plans pointing to even broader capabilities in the years ahead.

4.5. Government CIO [GCIO]

This year, the Government Chief Information Officer (GCIO) continues to lead Australia's digital future, ensuring every public sector agency moves in step with the country's national digital strategy. Working alongside the Digital Transformation Agency (DTA), the GCIO is driving the modernization of government operations, building a secure, consistent, and citizen-first digital environment.

A key focus this year is on bringing emerging technologies into everyday government services. From AI that helps predict demand in healthcare and social programs, to advanced data analytics that guide resource planning, and cloud platforms that make services faster and more reliable—the GCIO is turning innovation into practical benefits for Australians.

At the same time, the GCIO is investing heavily in the public sector workforce of the future. Nationwide programs in digital skills, cybersecurity, and data management are preparing government employees to design, deliver, and protect next-generation services. These efforts ensure that every initiative is backed not just by technology, but by people with the expertise to use it responsibly.

4.6. E-Government Promotion [EPRO]

In 2025, Australia is strengthening its e-government promotion through the Digital and ICT Investment Oversight Framework (IOF), which places more projects under central monitoring and strategic review. The framework ensures that every digital initiative is not only aligned with national priorities but also designed to meet best-practice standards and deliver measurable benefits for citizens. By tying digital investments directly to the goals of the Data and Digital Government Strategy, the IOF reinforces a whole-of-government approach to modernization.

A core feature of this system is its rigorous evaluation process. Through the Digital Capability Assessment Process (DCAP), agencies must demonstrate how new projects comply with digital policies and standards. For complex or high-risk proposals, the ICT Investment Approval Process (IIAP) adds another layer of scrutiny, requiring business cases that are grounded in robust policy design, detailed implementation planning, and

clear benefit tracking. This tiered approach helps reduce risk, build confidence in delivery, and ensure that taxpayer investments achieve intended outcomes.

Beyond oversight, Australia's e-government promotion emphasizes benefits management and capacity-building. The government requires all digital projects to define baselines, targets, and measurable outcomes before funding is approved. The Digital Transformation Agency (DTA) not only monitors delivery but also provides training, advice, and support to agencies, fostering a culture of accountability and continuous improvement.

4.7. E-Participation [EPAR]

Australia is deepening its commitment to digital democracy by expanding e-participation initiatives that give citizens a stronger voice in public decision-making. At the heart of this effort is the AUSGov Engage platform, which consolidates consultations, surveys, and petitions into a single, user-friendly portal. By enabling Australians to provide input on policy and legislative proposals online, the platform has become a cornerstone of participatory governance, ensuring that citizen perspectives inform government priorities.

Accessibility remains a key focus. The government is investing in digital literacy programs and outreach campaigns to reduce barriers to participation, particularly for those in rural areas and disadvantaged communities. At the same time, transparency is being reinforced through the regular publication of consultation results and government responses, making it clear how public feedback influences policy outcomes. This feedback loop strengthens trust and demonstrates that e-participation is more than symbolic—it is directly shaping governance.

Beyond formal platforms, agencies are making greater use of social media and interactive digital tools to foster real-time engagement. By sharing updates, answering questions, and crowdsourcing opinions across multiple channels, the government is moving toward a more dynamic, responsive, and inclusive model of citizen engagement. Together, these initiatives reflect Australia's ambition to embed participation into the fabric of its digital government, turning consultation into an ongoing, transparent dialogue with the public.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Australia's digital transformation (DX) agenda continues to reshape government into a more open, data-driven, and innovative public sector. Guided by the Digital Transformation Strategy, the government is deepening its use of technology to improve service delivery, raise productivity, and stimulate economic growth. At the core of this effort is open government data, with the national portal data.gov.au remaining the central hub for public access to thousands of datasets that support transparency and empower citizens, researchers, and businesses alike.

The scope and quality of open data have expanded significantly, with high-value datasets in health, environmental management, transport, and energy now widely accessible. These datasets are fueling new applications in areas such as predictive healthcare, smart mobility, and climate resilience, while also enabling the growth of AI and machine learning ecosystems that depend on large-scale data availability. Collaboration between the public and private sectors is increasingly supported through open data initiatives, generating both civic value and commercial innovation.

Equally important is the government's focus on interoperability and standardization, ensuring that data from different agencies can be shared, integrated, and reused without silos. This cross-agency alignment is proving critical for tackling national challenges—from coordinating disaster response to managing public health emergencies.

4.9. Cyber Security [CYB]

Australia faces growing cyber threats and stricter legislative obligations, pushing businesses and citizens to strengthen resilience. CGI supports this effort with end-to-end IT and OT cybersecurity programs, built on over three decades of expertise. Its services focus on three areas: assessing risk, protecting businesses, and enabling confident operations. With strong operational technology (OT) credentials, CGI has delivered solutions for utilities, transport networks, water systems, and substation automation, including developing its own Remote Telemetry Units (RTUs) and SCADA solutions.

Recognized as a leader in strategic and managed cybersecurity services, CGI integrates ISO27001 and ISO22301 standards to safeguard critical infrastructure. Its capabilities include risk advisory, OT cybersecurity, industrial control and SCADA protection, and managed security services—ensuring high availability and uninterrupted mission-critical operations across Australia’s essential sectors.

4.10. The use of Emerging ICT [EMG]

In 2025, Australia is no longer just experimenting with emerging ICT—it is scaling them to reshape its economy and public services. Under the Digital Economy Strategy 2030, technologies like AI, blockchain, quantum computing, and 5G are moving from labs into daily use, giving citizens faster services and businesses new ways to grow.

Artificial intelligence sits at the heart of this push. From helping doctors spot health risks earlier to guiding farmers with real-time insights, AI projects are becoming everyday tools. Government programs work hand-in-hand with universities and tech companies, while the AI Ethics Framework keeps fairness and transparency at the center of deployment.

Meanwhile, 5G has become the digital spine of smart cities, powering autonomous transport, IoT networks, and real-time public services. Blockchain pilots have matured into secure systems for supply chains and digital identity. By weaving these technologies into its digital fabric, Australia is turning ICT into a competitive edge—making life more connected, services more responsive, and its economy more resilient.

Indonesia

1. General Information

Area: **1,904,569 km²**

Population: **284,146,367**

Government Type: Presidential Republic

2025 Growth Rate: **4.7%**

GDP (IMF '25): **\$1.43 Tn**

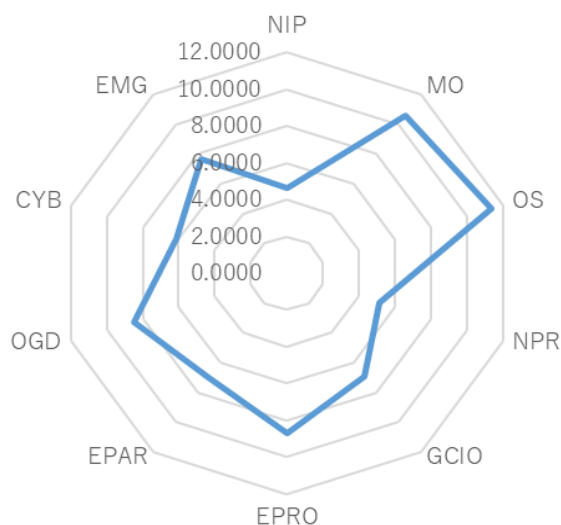
GDP Per Capita: **\$5,030**

Internet User: **69.2%**

Wired (Fixed Broadband User) per 100 people: **4.88**

Wireless Broadband User per 100 people: **118**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, Indonesia is stepping firmly into the digital era, with its digital economy projected to reach between \$130 and \$146 billion by year-end—making it one of the fastest-growing markets in Southeast Asia. Driving this growth is a dual focus on Digital Public Infrastructure (DPI) and a vibrant private sector, both of which are laying the

foundation for a more inclusive and competitive economy. The government's Digital Nusantara initiative is central to this push, aiming to build a unified, interoperable, and secure system that brings services such as health, civil registration, and social protection under a single digital framework.

Indonesia is also investing heavily in connectivity and infrastructure. Projects like the Palaparing fiber optic network, the Satria satellite, and the expansion of 5G towers are improving nationwide digital access, bridging gaps between urban and rural areas. To sustain this momentum, the government is doubling down on digital talent development, expanding programs such as the Digital Talent Scholarship (DTS) in collaboration with tech leaders like Google and Microsoft. These efforts are designed to create a workforce skilled in AI, cloud computing, and coding, ensuring that Indonesia can keep pace with global digital innovation.

The country is also embracing emerging technologies to transform daily life and governance. Smart city and IoT adoption is expanding across sectors, from healthcare and education to transport and security, making cities more efficient and livable. Meanwhile, AI applications are gaining traction across industries, creating new demand for expertise and innovation. On the regulatory side, the government is prioritizing consumer protection in e-commerce and new rules for child protection in electronic systems, underscoring its commitment to building a safe and trustworthy digital environment.

3.2. New Trends

Indonesia's 2025 Digitalization Strategy marks a pivotal step toward building the largest digital economy in Southeast Asia while fostering an inclusive and sustainable digital society. Anchored in initiatives such as Making Indonesia 4.0 and the long-term National Strategy for AI (2020–2045), the government is working to unify public services, strengthen infrastructure, and promote innovation across the archipelago.

The Digital Economy continues to surge, driven by rapid growth in e-commerce, fintech, online media, and logistics platforms. Indonesia is positioning itself as a regional leader, capitalizing on the country's young, tech-savvy population and growing startup

ecosystem. The Digital Society pillar emphasizes inclusion, expanding digital literacy and reducing disparities between urban centers and rural or remote regions. Programs focus on ensuring that all citizens can access the opportunities created by the digital era.

For governance, Digital Government reforms are underway to standardize tools and platforms across ministries and agencies. By creating a unified digital backbone, the government aims to deliver seamless, user-centric services and improve operational efficiency. Meanwhile, Digital Infrastructure investments—ranging from 5G and future 6G expansion to sub-sea cables and broader ICT upgrades—are being prioritized to strengthen connectivity and resilience nationwide.

Supporting these pillars is a strong commitment to cybersecurity and data governance, ensuring that rapid growth does not compromise trust or safety. With AI adoption accelerating in healthcare, education, transportation, and public administration, Indonesia is also laying the foundation for a secure and innovative digital ecosystem that supports long-term, inclusive growth.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

In 2025, Indonesia's network infrastructure strategy reflects the country's determination to drive digital transformation and harness the power of artificial intelligence. Major investments are reshaping the ecosystem, most notably Microsoft's launch of the Indonesia Central cloud region in April 2025. Valued at USD 1.7 billion, this development strengthens the digital backbone of the country and supports Indonesia's AI ambitions by providing scalable cloud services for both the public and private sectors. Alongside these advances, the government and UNESCO have jointly assessed Indonesia's AI readiness, pointing to opportunities for innovation while also highlighting risks such as labor displacement, algorithmic bias, and insufficient research funding. Cybersecurity remains an ongoing concern, with talent shortages and underfunded systems slowing efforts to modernize defenses.

Indonesia's geography adds another layer of complexity. With more than 17,000 islands, building and maintaining fixed-line networks is both costly and logistically difficult. This reality makes a mobile-first approach essential, particularly as demand for reliable internet connectivity continues to grow. To address these gaps, the government has set out several priorities. Expanding equitable internet access remains central, with initiatives to deploy BTS towers in underserved areas using machine learning and geospatial mapping to optimize placement. Efforts are also being directed toward building infrastructure that is resilient to disasters, while enhancing cybersecurity to guard against increasingly complex threats. Public-private partnerships are another critical element, mobilizing capital and technical expertise to accelerate infrastructure development across the archipelago. Taken together, these priorities reflect Indonesia's broader vision: to build an inclusive, resilient, and secure digital ecosystem that balances rapid innovation with nationwide accessibility.

4.2. Management Optimization [MO]

In 2025, Indonesia's public sector management is becoming more efficient through the widespread use of digital tools. The government is executing its e-Government Master Plan, a strategic initiative designed to simplify administrative processes and reduce bureaucracy. This plan involves creating integrated digital platforms that allow for smoother, faster, and more transparent communication between government agencies and the public. Indonesia's strategy also heavily relies on automation and data analytics to improve management. These technologies are being used to make better decisions and allocate resources more effectively. For example, automated systems are already in place for tax and social welfare programs, which has significantly cut down on processing times and improved accuracy.

A critical part of this transformation is building digital skills within the public sector workforce. The government is providing training and professional development to ensure that employees are proficient with new digital tools. This is a vital step toward meeting the goals of the e-Government Master Plan and making sure public services are both efficient and responsive to citizens' needs.

4.3. Online Service [OS]

This year, Indonesia has taken major steps to strengthen its online services, making them more integrated, accessible, and secure. A standout initiative is the launch of the “All Indonesia” digital portal, designed to streamline the arrival process for international travelers. This platform consolidates immigration, customs, health, and quarantine services into a single digital interface, simplifying procedures and reducing paperwork. From September 1, 2025, travelers arriving at Jakarta, Denpasar, and Surabaya will be required to complete a mandatory digital arrival card via the portal or its mobile app. By October 1, 2025, this requirement will be extended to all international airports and border posts across the country. In addition, travelers can apply and pay for their eVisa through the official immigration site, further modernizing the entry process.

Beyond travel, Indonesia is also enhancing digital protections for its citizens. The government issued Government Regulation 17/2025 (GR 17/2025), which introduces stricter online child safety measures. Under this regulation, electronic system providers must implement age verification and parental consent mechanisms, ensuring that children are better protected in the digital space. This step reflects the government’s commitment to building a safer online environment while supporting responsible digital use.

The country is also investing in broader digital infrastructure to expand access to online services. Efforts are underway to connect 300,000 schools nationwide and deliver 100 Mbps internet speeds to remote areas. These initiatives aim to close the digital divide, enabling students, families, and communities across Indonesia’s vast archipelago to participate fully in the digital economy. By focusing on both international travelers and domestic users, Indonesia is positioning its online services as a cornerstone of its broader digital transformation strategy.

4.4. National Portal [NPR]

The national portal serves as Indonesia’s primary digital entry point for government services, offering a unified, transactional interface. Through [Indonesia.go.id](https://indonesia.go.id) and its expanding “one front door” model, services are organized around life events, guiding

users directly to the appropriate transactions while maintaining their IKD (digital identity) context. Information is structured to support decision-making—clearly outlining requirements, estimated processing times, and next steps—while AI-driven readability checks ensure content remains simple and free of bureaucratic jargon.

The portal also features intent-aware search, meaning a query like “open a restaurant in Bandung” generates a consolidated checklist that spans OSS-RBA registration (NIB and risk classification), municipal hygiene permits, and tax obligations. For example, an entrepreneur in Bandung can complete the entire process in one seamless flow, making payments through QRIS and submitting documents only once, without redundancies.

4.5. Government CIO [GCIO]

In Indonesia, the government CIO's office is responsible for coordinating digital projects across various agencies to ensure that all systems are integrated and can work together. This is a critical part of achieving the e-Government Master Plan and improving public services. The CIO also works closely with private companies and technology providers to foster innovation and develop new digital solutions.

Beyond managing projects, the government CIO is deeply involved in shaping digital policy. This includes ensuring that new regulations on data privacy, cybersecurity, and digital inclusion meet international standards. Through these efforts, the government CIO is instrumental in shaping Indonesia's digital future and leading its digital transformation.

4.6. E-Government Promotion [EPRO]

Indonesia continues to actively promote e-government by focusing on greater digital adoption and public engagement with online services. In 2025, the government prioritizes initiatives that raise awareness of e-government's benefits and encourage citizens to use digital platforms. This includes launching public awareness campaigns, digital literacy programs, and community outreach efforts to make sure the public understands and embraces these services.

A key part of Indonesia's promotional strategy is building public trust in digital services. The government is working to achieve this by emphasizing transparency and accountability. Initiatives like open data portals give citizens access to government information, which promotes greater transparency in public administration. By making this data available and encouraging public participation, Indonesia is making sure its digital services are used effectively to meet citizens' needs. To drive innovation and improve service delivery, Indonesia's promotion of e-government includes fostering collaborations with the private sector. The government supports partnerships with tech companies and startups to develop new digital solutions and enhance existing ones.

4.7. E-Participation [EPAR]

Indonesia has made significant strides in its digital government initiatives, but evidence suggests that the country faces a mix of progress and persistent challenges. While there's a strong government focus on digital transformation, the effectiveness of these programs, particularly for e-participation, is constrained by issues related to infrastructure, regulation, and digital literacy.

Indonesia's commitment to digital government is a stated national priority. The government has developed the Electronic-Based Government System (SPBE) to enhance administrative efficiency, transparency, and public service delivery. Studies show that these initiatives have successfully increased access to public information and facilitated greater interaction between the government and citizens. Despite progress, studies on the effectiveness of these efforts reveal mixed results. While e-government has improved efficiency in urban centers, its impact is limited in rural areas. Research shows that improvements in digital infrastructure have not been entirely successful in increasing public participation, often due to significant regional disparities. The effectiveness of e-government is highly dependent on the "readiness" of digital infrastructure and digital literacy, which are often lacking.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

In 2025, Indonesia's digital transformation places open government data at the heart of innovation and transparency. The Open Data Portal remains the flagship platform, giving citizens, researchers, and businesses access to a growing range of government datasets. By expanding this initiative, the government aims to empower evidence-based policymaking, stimulate innovation, and strengthen public trust through greater transparency.

This year, the portal continues to evolve with new and higher-quality datasets covering sectors such as healthcare, education, transportation, and the environment. These resources are increasingly being used by entrepreneurs to build applications, by researchers to generate insights, and by civil society groups to influence policy debates. The emphasis is on ensuring that the data is not only available but also practical and usable for diverse stakeholders.

At the same time, Indonesia is reinforcing data privacy and security frameworks to safeguard sensitive information. Compliance with national data protection laws and alignment with international standards ensures that openness does not compromise individual privacy. This balance of accessibility and protection underscores Indonesia's broader 2025 strategy—using data as a catalyst for digital innovation while maintaining public confidence in the integrity and safety of government information.

4.9. Cyber Security [CYB]

Indonesia's cybersecurity landscape is characterized by a high volume of cyberattacks and a determined national effort to strengthen its defenses. While threats, particularly from malware, are on the rise, the government and private sector are collaborating to build a more resilient digital environment. Indonesia faces a significant increase in cyberattacks, with the State Cyber and Cryptography Agency (BSSN) recording billions of incidents. Malware remains the most prevalent threat, highlighting the urgent need for robust protection. As the digital landscape becomes more complex, evolving technologies demand advanced security measures to safeguard sensitive data across various platforms. The country is addressing these challenges through new policies and strategic initiatives.

To combat these threats, Indonesia is actively developing its cybersecurity framework. The proposed Cyber Security and Resilience Bill is a key legislative effort aimed at enhancing governance and national cyber resilience. Despite these proactive steps, a critical talent shortage persists. To address this gap, Indonesia is exploring how emerging technologies, such as AI, can help mitigate risks and improve the country's overall cyber defense capabilities. The market for cybersecurity solutions is expected to grow as enterprises prioritize securing their data, driven by both the increase in attacks and the evolving regulatory environment.

4.10. The use of Emerging ICT [EMG]

Indonesia is heavily invested in infrastructure development, with active plans for 5G network deployment and the creation of a national data center. These efforts are crucial for supporting the country's rapidly expanding digital economy, which is projected to reach \$130 billion by 2025. This growth is fueled by key sectors like e-commerce and fintech, where emerging ICTs are essential for innovation.

The nation is also integrating Artificial Intelligence (AI) and data science into its digital transformation roadmap, particularly through its "Making Indonesia 4.0" initiative. These technologies are being leveraged to enhance innovation and boost overall economic growth. Furthermore, initiatives like the 100 Smart City Movement and smart village programs are utilizing ICT to improve public services and advance urban and rural development.

A core focus of Indonesia's ICT strategy is tackling the digital divide. The government is committed to improving digital inclusion and literacy, especially in rural and remote areas. By expanding internet access and launching digital literacy initiatives, Indonesia aims to ensure that the benefits of its digital transformation are accessible to all citizens, thereby building a more equitable and sustainable digital society.

India

1. General Information

Area: **3,287,263 km²**

Population: **1,463,865,525**

Government Type: Federal Parliamentary Republic

2025 Growth Rate: **6.2%**

GDP (IMF '25): **\$4.19 Tn**

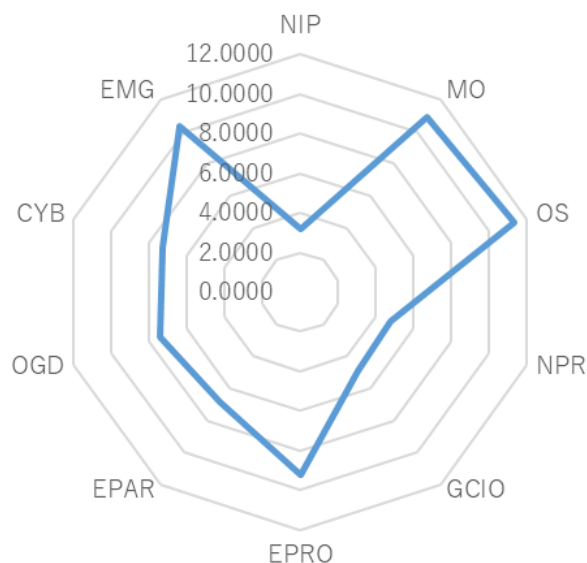
GDP Per Capita: **\$2,880**

Internet User: **55.9%**

Wired (Fixed Broadband User) per 100 people: **2.75**

Wireless Broadband User per 100 people: **60.2**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

By 2025, India celebrates a decade of progress under the Digital India program, marking a transformative shift toward accessible and inclusive governance. Platforms like DigiLocker and e-District now integrate nearly 2,000 e-government services, enabling

citizens across the country to access documents, pay fees, and complete applications seamlessly. This nationwide rollout has firmly established paperless and cashless governance as a norm, reducing bureaucratic barriers and ensuring services reach even remote communities.

A major highlight of 2025 is the growing role of artificial intelligence in public services. The Cancer AI & Technology Challenge (CATCH) Grant Program demonstrates how AI is being applied in healthcare to improve cancer screening, diagnostics, and treatment support. Beyond healthcare, AI is also shaping smart city infrastructure, supporting real-time traffic management, efficient energy use, and better delivery of public services, further advancing India's urban development goals.

At the same time, India's digital commerce ecosystem has expanded significantly through the Open Network for Digital Commerce (ONDC). By onboarding a wide range of sellers, from small retailers to large enterprises, ONDC has created a more inclusive and democratic digital marketplace, fostering competition and empowering micro, small, and medium enterprises. Together, these developments highlight India's emergence as a global leader in public digital infrastructure, driving economic growth, innovation, and social equity.

3.2. New Trends

India digitalization strategy is built with a focus on creating a connected, empowered, and inclusive digital society. At its core, the strategy emphasizes robust digital infrastructure, prioritizing the expansion of high-speed internet to rural and underserved regions. By strengthening telecommunications networks and ensuring wider connectivity, India aims to bridge the digital divide and enable universal access to online services.

The government is also deepening its push for citizen-centric services, making healthcare, education, welfare, and financial services more accessible through integrated platforms like DigiLocker and e-District. These services simplify access to critical documents and benefits, ensuring convenience and efficiency while reducing reliance on paper-based systems. At the same time, the strategy highlights the role of artificial intelligence, with

the IndiaAI Mission advancing the creation of national datasets, AI models, and compute infrastructure to fuel innovation and strengthen India's capacity in emerging technologies.

Finally, India's plan places strong emphasis on growing the digital economy. By fostering domestic electronics manufacturing, expanding e-commerce, and supporting digital startups, the strategy is designed to generate millions of new jobs while positioning India as a global leader in digital transformation. Together, these pillars reflect a vision of technology as both an enabler of inclusion and a driver of sustainable economic growth.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

India's network in 2025 is built on large-scale coverage and reliable continuity, even during peak demand. Programs like BharatNet and metro fiber backhaul ensure district-level portals remain responsive, while nationwide 4G and 5G networks support Aadhaar sign-ins, video KYC, and real-time registry checks on affordable smartphones. Major platforms such as GSTN, MCA21, Passport Seva, UMANG, Vahan/Sarathi, and ABDM exchanges operate on the MeghRaj/NIC Cloud, reinforced by content delivery networks and active-active regional setups for resilience.

AI-driven operations forecast traffic surges—such as tax filing deadlines or exam seasons—so capacity is scaled in advance, and failing connections are flagged before users notice delays. Edge computing at hospitals, toll plazas, passport centers, and courts reduces processing time for critical services in healthcare, mobility, and justice. For areas with weaker last-mile access, CSC centers, panchayat kiosks, and public Wi-Fi ensure inclusiveness, keeping digital-by-default services accessible to all citizens.

4.2. Management Optimization [MO]

India's management optimization is closely tied to the rapid expansion of its digital economy, which has become a central driver of growth and efficiency. With the digital economy already contributing over 11% of GDP and employing more than 14 million workers, the focus has shifted to optimizing productivity across sectors through AI, cloud

services, and digital platforms. The State of India's Digital Economy Report 2024 highlights that digitalization is growing nearly twice as fast as the overall economy, positioning it to surpass agriculture and manufacturing in its share of national income by 2029–30.

Looking forward, India's management optimization will increasingly rely on leveraging Global Capability Centers (GCCs), of which India hosts over half worldwide. These centers, alongside the expansion of AI adoption and cloud infrastructure, are enabling firms to refine processes, cut costs, and scale globally. By 2030, the digital economy is expected to contribute one-fifth of India's GDP, powered by continuous optimization of workflows, smarter integration of technology, and the creation of more inclusive employment opportunities, especially for women entering digitally enabled sectors.

4.3. Online Service [OS]

By 2025, India's online services have expanded dramatically, making governance more efficient, transparent, and citizen focused. The Direct Benefit Transfer (DBT) system, powered by Aadhaar authentication, has become the backbone of welfare delivery. By May 2025, over ₹44 lakh crore had been transferred directly to beneficiaries, eliminating leakages and ghost accounts. This initiative has also streamlined welfare distribution by cancelling nearly 5.87 crore ineligible ration cards and 4.23 crore duplicate LPG connections, ensuring subsidies and benefits reach only genuine recipients.

On the economic front, platforms like the Open Network for Digital Commerce (ONDC) and Government e-Marketplace (GeM) are reshaping India's digital commerce landscape. ONDC, launched in 2022, has grown to cover more than 616 cities by January 2025, with over 7.64 lakh sellers and service providers onboard opening digital opportunities for small businesses. GeM, launched in 2016, continues to break records, achieving a Gross Merchandise Value of ₹4.09 lakh crore in the first ten months of FY 2024–25 alone, a nearly 50% jump from the previous year. With more than 1.6 lakh government buyers and over 22.5 lakh registered sellers, GeM has become India's largest procurement platform.

4.4. National Portal [NPR]

India's National Portal of India (india.gov.in) continues to serve as the single-window gateway for all government information and services, anchoring the country's decade-long Digital India program. The portal provides citizens and businesses with easy access to policies, forms, and schemes, while integrating with specialized digital platforms that streamline governance and service delivery. Its role is not only informational but also transactional, connecting users to a growing ecosystem of e-governance tools.

At the same time, India is positioning its national portal framework as part of a knowledge-based economy strategy. Initiatives like the National Quantum Mission and advanced digital service integration highlight the government's vision to embed frontier technologies into public services. By 2025, the National Portal of India is more than a directory—it is a hub for innovation-driven governance, ensuring that citizens, businesses, and researchers can access information and services seamlessly while contributing to India's growing digital economy.

4.5. Government CIO [GCIO]

The Government Chief Information Officer (GCIO) function in India is best understood as a distributed system rather than a single office. While India does not have one overarching GCIO like some Western nations, the National e-Governance Division (NeGD) under the Ministry of Electronics and Information Technology (MeitY) plays a central coordinating role. It provides strategic guidance, technical expertise, and capacity-building to ensure the success of the Digital India program, which has now completed a decade of transformation.

The CIO responsibilities across ministries and departments revolve around strategic planning, inter-agency coordination, and technology management. This includes aligning IT strategies with national priorities, ensuring interoperability of digital projects across states and ministries, and managing core platforms such as DigiLocker, UMANG, and MeghRaj cloud services. These efforts collectively aim to provide citizens with seamless, single-window access to government services.

Another core aspect of India's GCIO function is capacity building, where significant resources are devoted to training government employees and enhancing digital literacy. By strengthening skills and embedding a culture of innovation in the public sector, India ensures its digital governance framework continues to evolve. Together, these functions make the GCIO role—though distributed—an essential driver of India's progress toward a more efficient, inclusive, and citizen-centric digital government.

4.6. E-Government Promotion [EPRO]

In 2025, India's e-government promotion reflects a decade of progress under the Digital India initiative, marking its 10th anniversary on July 1. This milestone celebrated the transformation of government service delivery, with a strong focus on digital empowerment, citizen inclusion, and bridging the digital divide. Key platforms such as UMANG and GeM continue to scale rapidly, making services more accessible to both citizens and businesses, and positioning India as a global leader in public digital infrastructure.

The growth of the UMANG platform is a clear example of this progress. By June 2025, it recorded over 8.3 crore users and nearly 600 crore transactions, offering more than 2,300 services across 23 languages. Complementing this citizen-facing success, India is also investing heavily in building government capacity: by May 2025, more than 1 crore civil servants had been onboarded onto a digital training platform, with thousands of courses designed to strengthen digital literacy and implementation skills. Initiatives like API Setu further expand access, enabling citizens to obtain services such as income certificates and vehicle registrations through interoperable, API-driven systems.

India's promotional efforts also highlight a willingness to explore new frontiers of digital governance. The Promotion and Regulation of Online Gaming Act, 2025 formally recognized esports as a sport and created a framework for regulating and promoting the gaming industry, including the establishment of dedicated centers and academies. Meanwhile, the National Conference on e-Governance (NCeG) 2025 reinforced India's commitment to celebrating and scaling innovative projects.

4.7. E-Participation [EPAR]

India is strengthening e-participation by expanding digital platforms like MyGov.in, which enable citizens to contribute ideas, respond to surveys, and join contests related to policy and governance. This approach fosters transparency, accountability, and inclusiveness, ensuring that people are not only recipients of services but also active contributors to decision-making. By integrating civic feedback into policy development, the government is working to build a more citizen-centric model of governance.

A key milestone this year is the 28th National Conference on e-Governance (NCeG) on September 22, 2025, where the National Awards for e-Governance 2025 will recognize best practices in digital governance. Alongside this, the government continues to promote large-scale participation through initiatives hosted on MyGov and other portals, encouraging citizens across diverse backgrounds to engage with issues such as sustainability, smart cities, and public service innovation. Together, these efforts reflect India's vision of a digitally empowered democracy that thrives on collaboration between the state and its people.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

India's Open Government Data (OGD) initiative remains a cornerstone of its digital transformation strategy, managed by the National Informatics Centre (NIC) under the Ministry of Electronics and Information Technology (MeitY). The OGD Platform India (data.gov.in) acts as the central hub for public-sector data, with the mission of making information a public asset that drives transparency, accountability, and innovation. By offering open access to thousands of datasets, the government is strengthening democratic oversight while enabling researchers, developers, and entrepreneurs to build new solutions for pressing challenges.

The platform's design reflects both accessibility and adaptability. Citizens can browse and download datasets in multiple formats, while developers benefit from APIs that integrate real-time data into their applications. High-value datasets—spanning healthcare, agriculture, transportation, meteorology, and public expenditure—are prioritized to

maximize impact. In 2025, the emphasis has been on expanding state-level contributions and improving dataset quality, ensuring information is both comprehensive and actionable. With open data increasingly embedded in India's governance model, the OGD initiative continues to serve as a powerful tool for citizen empowerment, economic growth, and innovation-led governance.

4.9. Cyber Security [CYB]

India has emerged as a major cyber actor with extensive digital infrastructure, though challenges around cyberattacks, internet shutdowns, and surveillance continue to shape its landscape. While the Digital India initiative has boosted internet penetration to more than 918 million users, a sharp divide remains between urban and rural access. Social media dominance also raises risks of disinformation, while internet shutdowns—60 in 2024 alone—highlight restrictions on digital freedoms.

On the domestic front, India faces frequent cyberattacks, often linked to Chinese and Pakistani actors, with 83% of organizations reporting threats annually. Preparedness is still limited, with only 24% of firms rated cyber-ready. The government relies on key agencies such as CERT-In, the National Critical Information Infrastructure Protection Centre, and the National Cyber Coordination Centre to coordinate defenses. Reforms include the Digital Personal Data Protection Act 2023, which introduced stronger privacy safeguards, though enforcement challenges persist. Internationally, India acts as a “swing state” in global cyber governance, sometimes siding with internet sovereignty advocates like China and Russia, while also engaging in multi-stakeholder platforms such as the UN Internet Governance Forum. India has joined the UN's Open-Ended Working Group on Cybersecurity and supported the adoption of the UN Convention against Cybercrime (2024) but remains outside the Budapest Convention.

4.10. The use of Emerging ICT [EMG]

In 2025, India's adoption of emerging information and communication technologies (ICT) is central to its strategy for economic growth, public service modernization, and societal transformation. Guided by initiatives such as the National Telecom Policy 2025

and the National Program on AI, the country is harnessing artificial intelligence (AI), 5G, the Internet of Things (IoT), and blockchain to build a more connected and resilient digital economy. A thriving startup ecosystem and strong government push are ensuring these technologies move from pilots to large-scale deployment.

Artificial intelligence is at the forefront of India's digital push, with applications ranging from early disease detection in healthcare to precision farming in agriculture and predictive analytics in governance. The rollout of 5G networks—coupled with edge computing—is enabling smart city projects, real-time services, and advanced IoT applications that improve manufacturing efficiency and urban management. At the same time, blockchain and Web3 solutions are being explored for transparent land records, e-voting, and secure data transactions, while IoT devices are driving new efficiencies in industries and public services alike.

The market outlook is strong, with IT spending projected to rise sharply in 2025 and digital platforms becoming major engines of job creation. However, the rapid pace of adoption brings challenges. India faces a shortage of skilled professionals in specialized ICT fields, making upskilling and workforce development a policy priority. The growing sophistication of cyber threats also underscores the need for stronger investment in cybersecurity. Even so, India is not just adopting but also developing its own ICT solutions, positioning itself as both a user and innovator in the global digital economy.

Spain

1. General Information

Area: **505,990 km²**

Population: **49,315,949**

Government Type: Parliamentary Constitutional Monarchy

2025 Growth Rate: **2.5%**

GDP (IMF '25): **\$1.8 Tn**

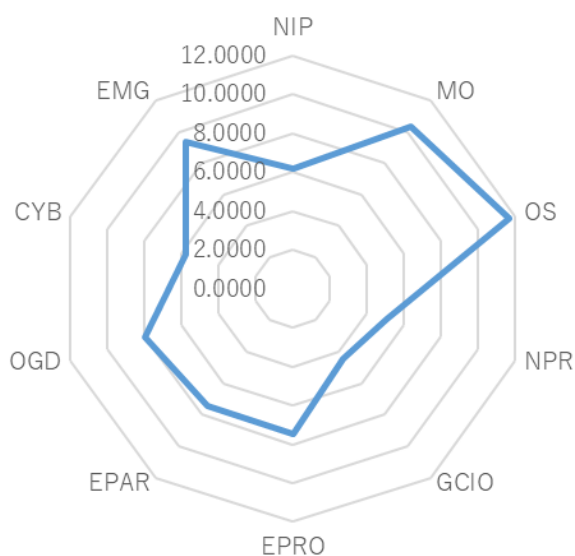
GDP Per Capita: **\$36,190**

Internet User: **95.4%**

Wired (Fixed Broadband User) per 100 people: **37.2**

Wireless Broadband User per 100 people: **113**

2. Digital Government Overview in Country



3. Digital Government Development and new trends

3.1. The development

In 2025, Spain's government digitalization reflects two decades of steady progress under frameworks like Plan Info XXI, Programa España.es, Plan Avanza, and the Digital Agenda for Spain. These strategies, aligned with European digital agendas, have enabled

sustained investment in infrastructure, connectivity, and public services, giving Spain one of the world's strongest digital networks and modern cities that are quick to adopt innovation. Building on this foundation, Spain is increasingly embedding artificial intelligence (AI) into governance and public administration, applying it to areas such as healthcare diagnostics, traffic optimization, agricultural monitoring, and public policy modeling. AI is also being used to streamline e-government portals, improving service efficiency and enabling predictive decision-making in sectors like welfare and taxation.

Government digitalization efforts have focused on expanding connectivity, modernizing the economy, strengthening e-government, and enhancing digital skills. While significant progress has been made, challenges persist in SME digitalization, R&D+i capacity, and population-wide digital literacy. Addressing these gaps is essential to unlock AI's full potential for economic growth, better working conditions, and inclusion across regions. Looking forward, Spain is prioritizing universal access to reliable connectivity, expanding AI adoption in public services, and fostering innovation ecosystems that integrate SMEs, research institutions, and citizens. By doing so, Spain aims to turn its strong digital foundations into an AI-enabled, citizen-centric digital state that boosts productivity and strengthens social cohesion.

3.2.New Trends

Spain's digitalization agenda is defined by Digital Spain 2025 (España Digital 2025), the flagship program launched in 2020 that sets 48 measures across ten strategic pillars to accelerate the country's digital transformation. Closely aligned with EU digital policy and the Recovery, Transformation and Resilience Plan, the strategy aims to create a more connected, competitive, and inclusive economy by tackling structural gaps in connectivity, skills, and business digitalization. A central milestone is the target of 100 Mbps broadband coverage for the entire population by 2025, with special attention to underserved rural areas to bridge the digital divide.

The program prioritizes 5G deployment, AI integration, and SME digitalization to enhance competitiveness in both the public and private sectors. Measures include more efficient spectrum management for 5G, the National Artificial Intelligence Strategy

(ENIA) to drive AI adoption in health, mobility, and industry, and targeted funding to help SMEs adopt digital tools and enter new markets. Equally important is building digital skills—ranging from basic digital literacy to advanced competencies in cybersecurity and emerging technologies—with specific initiatives to support female entrepreneurship in the digital economy.

Spain's strategy also places strong emphasis on cybersecurity and strategic technologies to safeguard digital infrastructure and strengthen national resilience. Investments in quantum technologies and the semiconductor value chain aim to position Spain as a European leader in critical technologies. Meanwhile, the digitalization of public administration focuses on more transparent, automated, and citizen-centric services, particularly in procurement, licensing, and civic engagement. Together, these measures are shaping a secure, AI-enabled, and inclusive digital state, capable of boosting productivity and ensuring that no community is left behind in Spain's digital transformation.

4. Digital Government by Indicators

4.1. Network Infrastructure Preparedness [NIP]

Spain enters 2025 with one of the strongest connectivity frameworks in Europe, combining high-capacity networks, strong resilience, and rapid scalability. Its telecommunications infrastructure has broad reach across the country and robust security features, making it agile in responding to expansion needs. Internationally, Spain has positioned itself as a strategic landing hub for undersea cables, directly linking the country with four continents and serving as an alternative to traditional North Atlantic and Mediterranean routes. This advantage is reinforced by a fast-growing data storage and processing industry, which is strengthening Spain's role in Europe's digital economy.

A major pillar of Spain's preparedness is its role in the European supercomputing ecosystem. The Barcelona Supercomputing Center (BSC) hosts MareNostrum V, a pre-exascale supercomputer under the EuroHPC Joint Undertaking, which supports advanced research in artificial intelligence, new medications, and climate change modeling. By

anchoring this critical European infrastructure, Spain demonstrates its capability to lead in high-performance computing and applied research.

Spain's network resilience is further bolstered by its renewable energy leadership, which supports the digital ecosystem with cleaner, more cost-efficient power. The steady increase in emission-free electricity generation ensures that future data demands—from AI workloads to supercomputing tasks—can be met sustainably. Together, these assets make Spain not only a highly connected nation but also a secure and forward-looking hub for Europe's digital and green transition.

4.2.Management Optimization [MO]

Spain's approach to management optimization in 2025 is defined with the central target of ensuring that half of all public services are available via mobile applications, creating easier, faster, and more intuitive interactions between citizens and public administrations. This focus on accessibility reflects the country's broader strategy to simplify bureaucratic processes and build trust in digital governance.

A major priority is the automation of administrative procedures through artificial intelligence and advanced data analytics. By streamlining tasks such as permit applications, resource allocation, and case management, Spain is reducing processing times and boosting transparency. These efforts are reinforced by a shift toward data-driven governance, where open and well-managed datasets inform policymaking, support innovation, and enable the creation of new digital services for citizens and businesses.

The digitalization plan is built on key pillars. The Digital Transformation of the General State Administration includes developing an "App Factory" for mobile services, enhancing digital identity systems, and redesigning the user experience. High-impact projects in healthcare, justice, employment, and social security are accelerating automation where it matters most. At the same time, the government is investing in the modernization of regional and local administrations, ensuring consistency and inclusivity across the country. Together, these measures position Spain to deliver a more efficient, transparent, and citizen-focused public sector.

4.3.Online Service [OS]

Spain's online services in 2025 seek to transform how citizens and businesses interact with the state. Centralized portals and virtual offices, such as those of the Tax Agency and the Ministry of Inclusion, Social Security, and Migration, now enable users to file taxes, manage social security benefits, and complete immigration paperwork fully online. These platforms streamline administrative processes and reduce the need for in-person visits.

A major development is the enhancement of digital identity tools. The launch of the miDNI mobile app in 2025 allows citizens to carry a virtual version of their National Identity Document, ensuring secure and legally valid online transactions. Alongside digital certificates from the FNMT, these tools make it possible to sign documents, access healthcare records, and carry out other official processes entirely online.

The government is also advancing data-driven services through platforms like datos.gob.es, which provides open access to a wide range of datasets, from economic indicators to environmental statistics. This not only improves transparency but also enables developers, researchers, and businesses to create innovative applications that benefit society. At the same time, Spain continues to address challenges of access and inclusivity by supporting the digitalization of regional and local administrations, reducing the digital divide, and designing more user-friendly, mobile-accessible services so that all citizens can take part in the digital transformation.

4.4.National Portal [NPR]

Spain's national portal is designed to function as a comprehensive gateway to government information and services. It consolidates horizontal resources from ministries and public bodies, giving citizens direct access to details on public employment, government grants, aid programs, and regulations. The portal also provides links to ministerial electronic offices and centralized services, streamlining administrative interactions that previously required navigating multiple platforms.

A standout feature of the portal is “My Citizen Folder” (Mi Carpeta Ciudadana), a personalized space where individuals can securely access personal data, manage administrative files, and receive official notifications across different government administrations. From reviewing criminal records and tax obligations to checking social security contributions, this tool consolidates information in one place, making it easier for citizens to stay informed and up to date.

Beyond service delivery, the portal reinforces Spain’s commitment to transparency and open data. Through its integration with datos.gob.es, the country’s open government data hub, citizens, researchers, and developers gain access to a wide range of datasets. This not only enhances accountability but also supports innovation by encouraging the creation of data-driven applications and solutions. Together, these features demonstrate Spain’s drive to modernize public administration, foster trust, and deliver a more efficient, citizen-centric digital government.

4.5. Government CIO [GCIO]

Spain employs a distributed GCIO model, where functional roles are delegated across directorates such as the General Secretariat for Digital Administration, which manages the digitalization of public services. This structure allows specialized expertise in each department while maintaining alignment under a unified national strategy. By embedding digital leadership at the highest levels of government, Spain ensures that digitalization is treated as a strategic priority for efficiency, transparency, and citizen-centric service delivery, rather than merely an IT function.

4.6. E-Government Promotion [EPRO]

In September 2025, Spain strengthened its role as a global advocate for digital rights by proposing a strategic alliance with Latin America. Speaking at the Andicom Technology and Business Congress in Cartagena de Indias, Colombia, Minister for Digital Transformation and Public Function Óscar López underscored the need for Europe and Latin America to “raise their own voices” in shaping a human-centered digital revolution.

He emphasized that digital transformation must go beyond technology to safeguard privacy, promote digital skills, and ensure access to reliable information.

The Digital Rights Programme, which funds the observatory with a budget of €10.83 million (80% contributed by Red.es through NextGenerationEU funds), involves over 150 collaborating entities and 360 experts from the technological, academic, and social spheres. Its aim is to adapt fundamental rights to the digital environment—ensuring privacy, equality, and non-discrimination in the online world—while promoting responsible innovation. Through these initiatives, Spain is not only advancing its national agenda but also fostering international cooperation for a fair, inclusive, and sustainable digital transformation.

4.7. E-Government Participation [EPAR]

In 2025, Spain’s e-participation efforts stand as a central pillar of its broader digital governance reforms under the Digital Spain 2025 agenda and the Plan for the Digitalization of Spain’s Public Administration. The government’s approach prioritizes transparency, accountability, and citizen empowerment by embedding digital tools into policymaking and ensuring that public feedback directly informs decision-making processes.

A major driver of this agenda is the 5th Open Government Plan (2024–2028), which expands online consultations, participatory voting, and other tools aimed at increasing democratic engagement, particularly among young people. These initiatives complement Spain’s strong tradition of local and regional e-participation, with platforms like Decide Madrid and Decidim Barcelona leading the way. Built on open-source CONSUL software, these platforms allow citizens to propose policies, participate in budgeting, and vote on initiatives—an approach now replicated by over 100 governments worldwide.

Spain’s regulatory framework provides further support. Laws such as Law 39/2015 mandate digital participation in administrative procedures, while government portals enable “prior public consultations” on draft laws and regulations. Together, these measures foster a participatory democracy that leverages technology to build trust,

encourage civic involvement, and ensure that citizens are not only informed but actively engaged in shaping policy.

4.8. Digital Transformation [DX] and Open Government Data [OGD]

Spain has consolidated its position as a leader in open government data (OGD), embedding transparency and accountability as key pillars of its broader digital transformation strategy. The cornerstone of this effort is datos.gob.es, the central platform created under the Aporta Initiative, which serves as a single gateway for datasets from national, regional, and local administrations. The platform has steadily expanded in both scope and quality, providing datasets in high-value categories such as geospatial, environmental, and statistical data that drive innovation, evidence-based policymaking, and economic growth.

On the global stage, Spain has become a prominent advocate for open government principles. As an active member of the Open Government Partnership (OGP) since 2011, Spain took on the role of co-chair from October 2024 to September 2025, using this platform to advance transparency and citizen participation worldwide. Its leadership is further underscored by hosting the OGP Global Summit in Vitoria-Gasteiz in October 2025, a landmark event uniting governments and civil society to shape the next phase of open governance. These efforts reaffirm Spain's dual commitment: advancing open data at home while also championing it internationally.

4.9. Cyber Security [CYB]

In Spain, the government has committed €1.1 billion in dedicated funding to strengthen critical infrastructure, enhance resilience, and expand defense capabilities in both physical and digital domains. Alongside this investment, Spain is advancing its national strategy for cyber resilience, placing special emphasis on energy, finance, healthcare, and transport systems, where vulnerabilities could have widespread societal impact. These efforts are reinforced by the fast-track processing of a new draft bill for a Law on Security Coordination and Governance, designed to create a robust legal and regulatory framework to respond to the rising frequency and sophistication of cyber incidents.

Beyond government leadership, Spain's cybersecurity ecosystem is buoyed by an active startup community, academic research centers, and international collaborations that have positioned the country among the top global players in cybersecurity readiness. Yet, challenges remain—particularly the need to address the underrepresentation of women in STEM and cybersecurity careers, which is seen as vital to fostering diversity and innovation in the field. Overall, Spain's cybersecurity agenda combines strategic vision, significant public investment, and ecosystem growth, aiming to build a safer digital environment for its citizens and a resilient infrastructure for its economy.

4.10. The use of Emerging ICT [EMG]

In 2025, Spain is making emerging ICT a central pillar of its Digital Spain 2025 agenda, using technologies like AI, 5G, and IoT to strengthen its economy, modernize public services, and enhance global competitiveness. In connectivity, Spain is at the forefront of 5G deployment, aiming for full spectrum readiness by the end of 2025, with special focus on rural access and advanced 5G Standalone networks. Meanwhile, IoT adoption is accelerating across industries such as smart cities, agriculture, and manufacturing, reinforced by events like the IoT Solutions World Congress in Barcelona.

To ensure inclusivity, Spain is prioritizing digital skills development, with programs targeting 80% of citizens to achieve basic digital literacy and expanding the pool of ICT specialists through training and partnerships. Together, these efforts underline Spain's ambition to lead in innovation, inclusion, and sustainable digital growth.

Research Topics 1 Silver Industries (Ageing market) in Japan, China, Korea, Indonesia, Singapore, Germany, Italy, France, UK, USA, and Scandinavian countries in 2025

Introduction

The world is undergoing a profound demographic shift. As of 2025, a large and fast-growing share of the global population is aged 60 and over, giving rise to the “silver industry”. This market spans both consumer and public-sector demand for a wide range of age-aligned products and services. These include healthcare and long-term care; assistive devices and robotics; telehealth, remote monitoring, and smart-home/IoT; age-tech platforms for social connection and independent living; as well as mobility, accessible housing, and elder-focused fintech and insurance. The aging market refers to the broader ecosystem of buyers and payers—from older consumers and their families to governments, insurers, and care providers—whose decisions shape how these solutions are financed, delivered, and scaled (World Economic Forum, 2025).

Discussion and Findings:

Current situation of Silver Industries:

As of 2025, populations are aging at an unprecedented speed, with adults aged 60+ now representing over a quarter of the world’s people. This demographic shift is straining pension systems, healthcare capacity, and caregiver labor markets while simultaneously catalyzing a fast-growing “silver economy” (World Economic Forum, 2025). This global trend involves a dual-strategy approach that combines advanced technological solutions with social and workforce reforms to create a sustainable and inclusive “silver economy”.

Governments are implementing social and employment policies to address demographic challenges. A key component of this is "age-free" employment, which includes raising retirement ages, providing subsidies for hiring older workers, and offering reskilling programs to help seniors remain active in the economy (International Monetary Fund,

2025). Additionally, governments and civil society organizations are supporting community initiatives and senior clubs to combat social isolation.

At the same time, countries are increasingly utilizing AI and digitalization to enhance the independence and well-being of their aging citizens. AI-powered solutions are used for predictive care, where algorithms analyze health data to anticipate and prevent hospital admissions (World Health Organization, 2025). This comprehensive, two-pronged approach recognizes that technology alone is not a complete solution, and by combining digitalization with structural reforms, countries are building a more resilient and inclusive framework for their aging populations. This paper analyzes how leading countries are navigating population aging by leveraging digitalization and technology within these “silver industries”.

Country Analysis:

2.1 East Asia Countries

2.1.1 Japan

Japan faces profound challenges from its "super-aged" society, where over 30% of the population is 65 or older as of 2025. This demographic shift has created a severe labor shortage in the caregiving sector, with industries like healthcare, construction, and manufacturing struggling to find workers (Nippon Tradings International, 2025). The aging population also puts immense strain on the public welfare system, as a smaller working population must support the rising costs of pensions and healthcare.

To mitigate these pressures, the government has advanced the Society 5.0 initiative, which emphasizes the integration of robotics and artificial intelligence into healthcare and daily living. Japan is a global leader in the development and deployment of care robots. Robots like Panasonic's Resyone, a care bed that transforms into a wheelchair, directly reduces the physical burden on caregivers (Panasonic Corporation, 2025). Companion robots such as PARO, designed as a baby seal, provide emotional support and companionship in nursing facilities, which helps reduce loneliness and can even lessen the need for sedative medications. Beyond physical assistance, more advanced humanoid robots like AIREC are being developed with government funding to assist with complex tasks such as lifting

patients, changing diapers, and performing other physically demanding caregiving duties (Prateek Vishwakarma, 2025).

Japan is using big data and machine learning to transform healthcare from a reactive to a proactive model. Platforms such as the Sompo Real Data Platform (RDP) collect and analyze data from daily routines and medical histories to develop personalized care plans. This data-driven approach allows for the early detection of health issues, helping to prevent hospitalizations and reduce overall healthcare costs (Sompo Holdings, 2025). Wearable devices and telemedicine are also a part of this strategy, enabling remote monitoring of vital signs and allowing seniors to consult with doctors without leaving their homes.

Beyond direct healthcare, Japan is using technology to help seniors maintain their independence and stay connected to society. Smart home technology, equipped with sensors and voice-activated systems, is being implemented to allow older adults to live independently while ensuring their safety. These systems can alert caregivers or family members in case of an emergency like a fall. To address the challenge of limited mobility, especially in rural areas, Japan is piloting autonomous vehicles and shuttles in cities like Fukuoka, helping seniors access essential services and stay active in their communities (IT Business today, 2025).

2.1.2. China

China, with more than 300 million citizens aged 60 and above, is witnessing one of the fastest-growing silver economies in the world (Ministry of Civil Affairs & China National Committee on Ageing, 2024). A defining feature of this shift is the rise of the “new elderly”—a cohort that is wealthier, more urbanized, and increasingly connected to digital technologies. Yet, the magnitude of the demographic challenge exerts heavy pressure on healthcare and social welfare systems, while a deep digital divide remains, particularly in rural regions, where access to technology and digital literacy lag behind.

In response, the government has advanced the development of smart communities and digital healthcare services. A core component of this approach involves adapting mainstream digital platforms to meet the needs of older users. E-commerce and ride-

hailing companies, for instance, are rolling out elder-friendly interfaces with larger fonts, simplified layouts, and voice-command functions to lower barriers to entry. These initiatives are designed not only to bridge the generational digital gap but also to actively integrate seniors into the digital economy (Li, Y., Wang, Y., Zhang, T., et al., 2025).

China's strategy further extends to the healthcare domain, where wearable technologies and AI-driven telemedicine services are being deployed to improve elder care. These tools play a critical role in monitoring chronic illnesses and supporting remote consultations, thus enhancing both accessibility and quality of medical services. Together, these measures reflect a concerted national effort to transform the challenges of population aging into opportunities for innovation, while simultaneously addressing systemic gaps in healthcare and digital inclusion.

To address the economic and social burdens of a rapidly aging population, China is also reforming its pension and retirement systems. The government has begun a gradual and progressive increase in the statutory retirement age, a key move to bolster the workforce and ensure the long-term sustainability of its social security funds. To support this, policies are being implemented to provide older workers with reskilling and vocational training opportunities, enabling them to remain competitive in a modern labor market (The State Council of the People's Republic of China, 2025). Additionally, China is promoting a more robust "silver economy" by providing tax incentives and financial support for companies that cater to the needs of the elderly, from specialized financial products to wellness and leisure services, recognizing that seniors are a powerful and growing consumer base.

2.1.3. South Korea

South Korea is facing a demographic transition that's happening faster than anywhere else. By late 2024, the country officially entered the category of a "super-aged" society, reaching this milestone in just seven years (BNA, 2024). This accelerated aging, combined with the world's lowest fertility rate, poses profound risks to economic stability and puts intense strain on healthcare and pension systems. A key challenge lies in ensuring older adults, who often have limited digital literacy, can access and benefit from new digital health services.

To confront these challenges, the government is leveraging its unique strength: high technological penetration. South Korea is a leader in developing AI-powered care robots to address severe labor shortages in the eldercare sector. For example, robots like Hyodol are being distributed to seniors living alone. These AI dolls act as companions, providing conversation and emotional support. They also have practical functions, such as reminding users to take medication and alerting caregivers in an emergency with built-in sensors. Major tech companies are also entering the market, with products designed to be central AI hubs in the home, managing smart devices and offering home care services. Furthermore, companies like RoboCare have developed humanoid robots that provide cognitive training and emotional support for individuals with dementia, helping to improve memory and concentration (RoboCare, 2025).

South Korea is actively leveraging digitalization as a means of building an efficient and accessible silver economy. A flagship program is the AI-IoT-based healthcare project for senior citizens, a nationwide initiative that uses AI-enabled speakers and smartphone applications to deliver personalized health advice, monitor vital signs, and issue medication reminders. This system, which gained traction during the pandemic, has since been institutionalized as a long-term model for providing “contactless healthcare” to seniors with limited mobility or those living alone (Kwon, S., Kim, Y., & Lee, S., 2024).

The government’s strategy is reinforced by the country’s high smartphone adoption rate, which exceeds 80 percent among people in their 60s. This creates fertile ground for wearable technologies that integrate seamlessly with healthcare services. Such devices track key health indicators and transmit data to medical providers, enabling proactive interventions and reducing the need for in-person visits (Qualtechs, 2025). Beyond easing the burden on traditional healthcare institutions, this approach empowers older adults to manage their health more independently. Supported by South Korea’s advanced MedTech sector, which is designing elder-friendly devices tailored to these needs, the country illustrates how digital transformation can be mobilized to mitigate the risks of demographic decline and reshape the future of elder care.

2.2. Southeast Asia Countries

2.2.1. *Indonesia*

Indonesia, though still characterized by a relatively young population, is beginning to anticipate the demographic transitions that will shape its future. At present, the notion of a “silver economy” remains nascent, and in many contexts the term continues to be associated more with precious metal markets than with aging-related services. However, policymakers recognize that as the population gradually matures, the absence of adequate economic and social infrastructure could create significant strain on the healthcare system and social protection mechanisms in the decades to come (Asian Development Bank, 2025).

Indonesia is also implementing comprehensive reforms to strengthen its social security and economic policies. The government is progressively providing initiatives to promote the employability of older citizens through skill development programs and support for entrepreneurship. Furthermore, to provide essential social services, Indonesia is developing community-based healthcare and care infrastructure that align with the cultural norm of family-centric care, aiming to provide a safety net for its future elderly population while avoiding the high costs of institutionalized care (International Labour Organization, n.d.).

The government’s response has been notably forward-looking, aiming to build resilience before the pressures of demographic aging fully emerge. Central to this strategy is the use of digitalization as a preparatory tool. A particularly promising area lies in telehealth and digital health services, where Indonesia’s large and digitally adept younger population plays a pivotal role (Transform Health Coalition, 2024). This demographic segment not only demonstrates strong adoption of digital technologies but also drives innovation in health-related platforms, laying the groundwork for systems that can later serve older adults on a scale.

Although Indonesia has not yet entered the advanced stages of population aging seen in East Asian or European states, its emphasis on digital readiness signals a proactive approach. By fostering early investment in telemedicine, digital platforms, and health-

related infrastructure, the country positions itself to mitigate future demographic challenges while simultaneously creating opportunities for sustainable growth in health technology (T.G., T., & N.M., W., 2024). This dual focus—on preparing for aging and leveraging youthful digital capacity—illustrates Indonesia’s long-term vision in shaping an inclusive and adaptive silver economy.

2.2.2. Singapore

Singapore is among the fastest-aging nations in the world, and its response to this demographic shift has been highly proactive and government-driven. Central to its approach is the Smart Nation initiative, a comprehensive framework that leverages digital technologies to enhance social inclusion, healthcare access, and long-term sustainability. Within this framework, specialized programs such as Age Well SG focus on harnessing innovation to improve the quality of life for seniors, emphasizing both community participation and technology-enabled care (Ministry of Health, 2024).

A core element of this strategy is the integration of robotics and digital platforms into eldercare services. Robotics are increasingly deployed in care facilities to reduce the burden on staff and to provide consistent support for daily activities, while mobile applications connect seniors directly with caregivers and community services, fostering both independence and social engagement.

Through these initiatives, Singapore demonstrates how an aging society can turn potential vulnerabilities into opportunities for innovation, positioning itself as a leader in the development of a digitally empowered silver economy (ForwardSG, 2025). Singapore is leveraging AI and data analytics in highly specific ways. The government-led Smart Health platform integrates AI to analyze health trends, predict disease outbreaks, and identify at-risk populations, enabling proactive public health interventions. A national platform called e-care@home uses sensors and machine learning to monitor the daily activities of seniors living alone, alerting caregivers to unusual patterns that might indicate a fall or health issue. Furthermore, AI is being used in clinical settings to assist with medical image analysis and drug discovery, a concerted effort to accelerate the development of age-related treatments and create a resilient healthcare sector for the future.

2.3. European Countries

2.3.1. *Germany*

Germany, home to one of Europe's oldest populations, is at the forefront of digital health innovation as it seeks to confront structural challenges in its healthcare system. The country faces a dual burden: a persistent shortage of qualified caregivers and a historically fragmented model of care delivery that complicates coordination across providers. These pressures have spurred the government to adopt a comprehensive digitalization strategy, anchored in the landmark Digital Health Care Act (DVG) (Bundesgesundheitsministerium, 2025).

The DVG establishes a pioneering framework that enables physicians to prescribe certified digital health applications, known as DiGAs, which are fully reimbursed by public health insurance. This mechanism has created a “fast track” for digital tools to reach patients, accelerating innovation while ensuring equitable access. Many of these applications target chronic conditions such as hypertension and diabetes, integrating self-management into routine care and reducing the burden on traditional services.

Complementing this development is the nationwide rollout of electronic patient records, a reform designed to overcome systemic fragmentation. By ensuring that patient data flows seamlessly between doctors, hospitals, and pharmacies, the records strengthen continuity of care and improve health outcomes, particularly for older adults with complex medical needs. Together, these initiatives illustrate how Germany is leveraging digital health to transform both access and coordination, positioning itself as a leader in building a sustainable healthcare model for an aging society (IBM iX, 2025).

In addition to legislative and infrastructure reforms, Germany is turning to AI and robotics to tackle labor shortages in caregiving while also strengthening intergenerational connections. Government-backed projects, often in collaboration with research institutions, are introducing humanoid robots like Garmi into nursing homes, where they support with routine tasks, companionship, and fall detection (AARP International, n.d.). By taking over these functions, the robots allow human caregivers to concentrate on complex care and emotional well-being. At the same time, digital literacy programs are being promoted

for older adults, equipping them to use apps and smart devices for daily management, family communication, and online social participation. This combined emphasis on technology as both a workforce enhancer and a means of social inclusion highlights Germany's distinctive approach to building a dignified and connected future for its elderly population.

2.3.2. United Kingdom

The United Kingdom is grappling with the growing pressures of an aging population, which places increasing strain on the National Health Service (NHS). To address these challenges, the government has adopted a technology-driven strategy designed to “digitize, connect, and transform” the health and social care system. This approach reflects both the need to improve efficiency and the ambition to create a more responsive model of care for older adults (Department of Health and Social Care, 2025).

A central component of this strategy is the expansion of the NHS App, which serves as a digital gateway for citizens to access key services. Through the app, individuals can book medical appointments, order repeat prescriptions, and view their health records directly from their smartphones. By simplifying access and enhancing convenience, the government aims to empower patients while reducing administrative burdens on healthcare providers.

In parallel, the government is working toward the widespread adoption of electronic records across the majority of health and social care services. The goal is to enable secure information sharing among doctors, hospitals, and care providers, thereby improving coordination and continuity of care for older adults with complex needs. Together, these initiatives illustrate the UK's broader vision of using digital transformation to strengthen the resilience of its healthcare system and better manage the demographic realities of an aging society (UK Parliament, 2025).

Alongside advances in digital technology, the United Kingdom is reshaping key social and economic systems to better support an aging population. A central measure is the gradual increase of the state pension age, designed to maintain the financial viability of the pension

scheme. Housing policy has been adjusted to strengthen independence in later years, with funding for home adaptations and the expansion of specialized living arrangements such as sheltered and extra-care housing. These reforms highlight a broad-based strategy that addresses financial security, workforce participation, and suitable living environments to foster both stability and independence for older citizens in the UK (Health and Safety Executive, n.d.).

2.3.3. France

France is confronting the dual challenge of an aging population and a pension system under growing financial strain. While pension reform continues to dominate public debate, policymakers are also advancing a parallel agenda centered on digital health as a means of addressing demographic pressures. A core priority has been the expansion of telemedicine, which enables the delivery of remote healthcare services and widens access for older adults, particularly those living in rural or underserved regions where traditional healthcare provision is limited (Rihan, C., 2025).

To reinforce this shift, France has introduced a new national strategy for data and artificial intelligence in healthcare for the 2025–2028 period. The plan is designed to strengthen digital infrastructure, promote innovation, and ensure secure data use across the health ecosystem. By integrating AI into healthcare delivery and management, the government seeks not only to improve efficiency and quality of care but also to establish safeguards for privacy and trust in digital systems (International Bar Association, 2025).

These measures signal France’s determination to balance immediate pension reform with long-term investment in digital healthcare transformation. By leveraging telemedicine and AI-driven strategies, the country is positioning itself to better meet the needs of its aging society while sustaining the resilience of its broader social systems (French Expert in Ireland, 2025).

France is leveraging specific AI and robotics projects to drive tangible change. For instance, in clinical settings, AI algorithms are being piloted as a “second reader” in radiology to assist with the early detection of diseases like breast cancer and to accelerate

the analysis of pathology slides. This not only improves diagnostic accuracy but also frees up clinicians' time. In long-term care, the government has supported trials of socially assistive robots, such as those in the SPRING project at a Paris hospital (The National Robotarium, 2024). These robots are equipped with advanced AI to engage in simple conversations, provide directions, and perform routine tasks, allowing human caregivers to focus on more complex, emotional care and reduce their workload.

2.3.4. Italy

Italy is experiencing one of the fastest demographic shifts in Europe, with its population both aging rapidly and projected to decline in the coming years. This trend poses significant risks to long-term economic growth while placing mounting pressure on pension and social security systems. The challenge is not only demographic but also structural, as the country must adapt its healthcare and welfare models to meet the needs of a growing elderly population without overwhelming public resources (International Monetary Fund, 2025).

Italy has adopted a multipronged strategy that emphasizes digitalization as a key enabler of sustainability. Substantial investments are being directed toward strengthening community-based digital care systems and expanding the use of home telemetry platforms. These technologies allow seniors to remain independent for longer, while also enabling real-time monitoring of health conditions outside hospital settings. By shifting care from centralized institutions to local and digital frameworks, Italy aims to reduce the strain on traditional hospital infrastructure and improve efficiency in service delivery.

This approach reflects a broader effort to reconfigure Italy's healthcare model for an aging society. By combining demographic foresight with technological innovation, the country is laying the groundwork for a more resilient system that supports both independent living and coordinated care, while mitigating the economic risks of population decline (Genovesi, G., Trovato, G., & D'Amico, M., 2024).

Italy is actively leveraging specific AI and robotics projects to address challenges in care. For instance, the EU-funded SI4CARE project brought telemedicine to rural areas of

Calabria, using wearable sensors to monitor vital signs and mobility, thus providing consistent care to communities with a shortage of doctors. In long-term care facilities, startups are developing AI-powered digital monitoring systems like Ancelia, which use computer vision to anticipate and prevent injuries, thereby making environments safer for residents and more efficient for nursing staff (Interreg EU, 2025). Furthermore, Italy has supported research into companion robots, such as those in the EU-funded MARIO project, designed to build resilience and reduce loneliness in older people with dementia.

2.4. USA

The United States presents a distinct model in addressing the challenges of an aging population, one largely shaped by consumer demand and private-sector innovation rather than centralized government planning. The rapid expansion of telehealth during the pandemic marked a turning point, making virtual consultations and remote monitoring far more accessible to older adults. These services have since become embedded in the healthcare landscape, offering greater convenience and reducing barriers to care for seniors (World Economic Forum, 2025). The U.S. government is increasingly using AI and digitalization to address the challenges of an aging population, a strategy that complements private-sector innovation. This approach is not about top-down planning but rather about leveraging technology to improve services and catalyze innovation. The government is focusing on targeted funding and collaborative initiatives, enhancing government services with digital tools, and investing in foundational AI and digital infrastructure.

The government is stimulating innovation through specific, large-scale projects and funding. For instance, the National Institute on Aging (NIA) has established the Artificial Intelligence and Technology Collaborators (AITC) program, a multi-million-dollar initiative that funds pilot projects focused on improving care and health outcomes for older Americans, including those with Alzheimer's disease. These projects explore technologies like ambient AI sensors, wearables, and telemedicine (National Institute on Aging, 2025). Similarly, the Centers for Medicare & Medicaid Services (CMS) launched the AI Health Outcomes Challenge to incentivize innovators to use AI in predicting patient health outcomes for Medicare beneficiaries, with the goal of preventing unplanned hospital

admissions (Centers for Medicare & Medicaid Services, 2025). This challenge encourages the development of AI models that can analyze large datasets to identify high-risk patients and recommend proactive interventions. The NIA also offers Small Business Awards that support the development of innovative AI-powered products for senior care, such as digital pet avatars to assist with self-care and machine learning-based platforms for online therapy.

Federal agencies are also modernizing their own services through digitalization to better serve an aging demographic. They are exploring the use of AI-driven virtual assistants on websites and mobile apps to streamline interactions with older adults. These assistants could handle routine inquiries about benefits, send reminders about important deadlines, and provide personalized guidance on services like transportation or tax exemptions. This reduces the burden on staff and makes government services more accessible. Additionally, federal and state governments are working to streamline access to healthcare by promoting online appointment registration and medical record access. They are creating digital systems that connect online and in-person resources, allowing seniors to use various credentials for seamless registration and report retrieval, which simplifies a complex process.

To ensure the long-term viability of these efforts, the government is investing in the underlying AI and digital infrastructure. The White House's AI Action Plan, while not exclusively focused on aging, lays the groundwork by promoting the development of a robust AI ecosystem. Key pillars of this plan include accelerating innovation by establishing regulatory "sandboxes" for testing new AI tools, building the necessary data centers and energy grids to support AI's computational demands, and investing in a skilled AI workforce (The White House, 2025). Furthermore, the General Services Administration's (GSA) AI Center of Excellence supports and coordinates the use of AI across all federal agencies (General Services Administration, 2025). This initiative helps agencies share best practices and deploy scalable solutions, ensuring that the government can effectively and responsibly adopt new technologies to improve services for all citizens, including the elderly, and prepare for the broader demographic shift.

2.5. Scandinavian Countries

2.5.1. Denmark

Denmark has emerged as a frontrunner in the application of welfare technology, embedding digital solutions at the municipal level to enhance efficiency and address labor shortages in eldercare. The country's strategy is firmly rooted in its welfare model, where municipalities play a central role in service delivery. In July 2025, a new eldercare reform came into effect, strengthening this approach by encouraging closer collaboration among municipalities, families, and private businesses to ensure sustainable and innovative care provision (Gorrissen Federspiel, 2024).

Denmark's success is built on a strong foundation of digital infrastructure and a long-standing national strategy for digitization. Since the 1960s, Denmark has used a unique Civil Registration Number for all its citizens, which makes data linkable across various public services, including healthcare. This allows for a comprehensive overview of a citizen's health data and facilitates the development of data-driven AI solutions. The national eHealth platform, Sundhed.dk, gives citizens direct access to their own health records, prescription medications, and communication with different parts of the healthcare system, promoting a data-driven, patient-centered approach to care. This digital infrastructure enables seamless communication and data-sharing between hospitals, GPs, and municipal care services, reducing administrative burdens and enhancing overall efficiency (Healthcaredenmark.dk, 2024).

Denmark's approach goes beyond general policy to include highly specific, practical applications of technology. A prime example is the widespread use of GPS-enabled safety alarms for individuals with dementia. These devices allow older adults to maintain their independence and mobility outside their homes while providing their families and caregivers with real-time safety monitoring (University of Southern Denmark, 2025). This technology offers a crucial balance between autonomy and security.

In hospitals, service robots are a common sight. For example, robots like Buddy automate the transportation of medical equipment and supplies, reducing the physical strain and freeing up time for nurses and other staff. The ROBERT robot assists with rehabilitation

exercises for bedridden patients, and ARTHUR, a CE-marked ultrasound robot, automates hand scans to speed up rheumatology diagnostics, allowing clinicians to focus on more complex, patient-centric tasks (Invest in Denmark, 2024). These robots aren't just about automation; they're designed to improve the work environment for human caregivers.

Another significant initiative is the DigiRehab platform. This AI-driven tool creates personalized exercise programs for seniors receiving home care. The platform uses data analytics and a digital screening tool to assess an individual's physical abilities and then generates a tailored exercise routine. This empowers older adults to maintain physical function and self-reliance without a specialized therapist needing to be present, which is crucial for a strained healthcare system. Over 30% of Danish municipalities now use this solution, which has been shown to reduce the need for homecare by an average of 45 minutes per week per person, according to the developers (DigiRehab A/S, 2025).

2.5.2. Finland

Finland is addressing the challenges of an aging society through a holistic strategy that combines economic reform with digital transformation. Recognizing the fiscal pressures of demographic change, the government's Medium-Term Plan for 2025–2028 places a strong emphasis on reinforcing public finances to ensure long-term sustainability. This approach reflects Finland's broader vision of balancing structural labor market reforms with innovations in service delivery to maintain both economic resilience and social protection (Terveyden ja hyvinvoinnin laitos (THL), 2025).

A central pillar of this strategy is the advancement of digital health and social services. Finland has established itself as a leader in remote care solutions, capitalizing on its robust digital infrastructure to integrate social services, primary care, and specialist care into coordinated systems. These distance-spanning tools are particularly vital in a country characterized by a dispersed population and vast geographic areas, where traditional models of service provision would otherwise be costly and inefficient (European Commission, 2025).

2.5.3. Norway

Norway, like many developed nations, is facing the dual challenges of an aging population: a growing number of older adults needing care and a shrinking working-age population to provide it. The government's strategy, “More Years – More Opportunities,” addresses these issues by promoting independence and leveraging technology to create a more sustainable care system. This approach is not only about managing demographic change but also about improving the quality of life for its senior citizens. The primary challenges stemming from this demographic shift include an increased demand for long-term care, which puts immense pressure on a public welfare system already struggling with labor shortages in the healthcare sector (Regjeringen.no, 2024). Additionally, a smaller working population supporting a larger retired population leads to a higher dependency ratio, straining public finances as a smaller tax base must fund increasing costs for pensions and healthcare. The country also grapples with a digital divide, as a significant portion of its older population lacks the literacy or access to fully benefit from new eHealth services (JMIR Aging, 2025), and the social and geographic dispersal of its population makes it difficult and costly to provide in-person care to all who need it.

Norway is actively using AI and digitalization to address these challenges, with a focus on supporting aging-in-place initiatives. The government, through the Norwegian Directorate of Health, is a key driver behind the adoption of welfare technologies in municipalities. This includes the deployment of AI-powered IoT sensors, such as non-intrusive systems like RoomMate, which monitor a person's behavior and detect falls, alerting caregivers only when necessary. This “silent supervision” allows older adults to maintain their privacy and independence while ensuring their safety (Atea, 2025).

Norway's government has invested heavily in creating a cohesive digital infrastructure for healthcare, which empowers citizens to take a more active role in their health management. At the heart of this is Helsenorge.no, the national public health portal that provides a single, unified entry point for all citizens to manage their healthcare. Through this portal, seniors can access their personal health records, view lab results, and book appointments, simplifying what would otherwise be a complex process (Helsenorge, 2024). Additionally,

the government supports the use of remote monitoring platforms like Dignio, which allow patients to measure vital signs from home. This data is automatically sent to healthcare professionals, reducing the need for in-person appointments.

Norway's success is built on a strong foundation of public sector support and strategic planning. The government's national eHealth strategy ensures that new digital solutions are interoperable, allowing for seamless data sharing between hospitals, general practitioners, and municipal services (OECD, 2023). This unified framework is crucial for a cost-effective and sustainable care system, helping to strengthen the core of Norway's welfare state and prepare it for future demographic shifts.

2.5.4. Sweden

Being an aging economy, Sweden is facing the challenges of increasing the demand for care professionals faster than the supply, leading to significant labor shortages in the eldercare sector (Swedish Association of Local Authorities and Regions, 2025). This makes it difficult to maintain high-quality care using traditional methods. Concurrently, a smaller working population must support a larger retired population, increase the dependency ratio and place a fiscal burden on the public sector. Beyond financial and workforce issues, the country must also ensure that its older population can maintain their personal freedom and live independently for as long as possible, which requires solutions that are both effective and respectful of individual autonomy.

Sweden is addressing these issues by embedding AI and digitalization into its public welfare system, with a clear focus on aging-in-place and data-driven care. The country's approach is defined by a commitment to the dignity and autonomy of older adults, with the government and municipalities actively implementing welfare technologies that support daily life. Concrete examples include automated medication dispensers and digital door locks, which allow older adults to remain in their homes longer by ensuring security and adherence to medical routines without constant in-person checks. In long-term care facilities, research is being conducted on the use of companion robots, such as robotic cats, to provide companionship and reduce the need for sedative medication among residents with dementia (Symbiocare, 2025).

Beyond individual tools, Sweden is using large-scale data and AI to transform healthcare from a reactive to a proactive model. The government's National Dementia Strategy for 2025–2028 uses digital registries like the Swedish Dementia Registry (SveDem) to collect data on care nationwide. This data is then analyzed using AI to identify best practices and make evidence-based improvements in care quality (Swedish Government, 2025). Furthermore, government-backed projects are using AI algorithms to analyze data from these registries to predict the healthcare needs of older adults, allowing for early interventions that prevent costly emergency care. The AI Sweden Data Factory plays a key role here by providing a secure platform for healthcare professionals to share and analyze patient data, which is crucial for developing and scaling these AI-driven solutions across the public and private sectors (AI Sweden, 2025).

At the same time, the country fosters a collaborative environment to drive innovation. Public-private partnerships and government funding initiatives are common, with research at institutions and companies focusing on developing user-friendly assistive technologies and home monitoring solutions. The government's backing of initiatives like the AI Sweden Data Factory demonstrates a commitment to building the foundational infrastructure required to develop and implement AI on a national scale, ensuring that future technological advancements can be seamlessly integrated into the public welfare system.

2.5.5. Iceland

Although still home to one of the youngest populations in Europe, Iceland is beginning to experience the pressures of rapid demographic aging. A central challenge lies in the fragmentation of its long-term care system, where responsibilities are divided between the health and social care sectors (Nordic Statistics, 2025). This structural divide complicates coordination and risks undermining the efficiency and consistency of eldercare services as the aging trend accelerates.

In response, the government provides financial support for a wide range of assistive devices, from mobility aids to specialized car equipment, to help people with disabilities and chronic illnesses maintain their independence (Nordic cooperation, n.d.). The

government is also working to implement electronic medical records to improve data flow between healthcare providers, a crucial step toward more coordinated care.

III. Conclusion:

The global "silver industries" in 2025 are defined by a rapid, technology-driven response to aging populations. This demographic shift has created a powerful economic force, with countries across the globe strategically using digitalization to address both social and economic challenges (McKinsey & Company, 2025). In East Asia, nations are pioneering advanced agtech solutions, integrating robotics and AI into caregiving to combat labor shortages and enhance quality of life. Simultaneously, Europe is focusing on systematic reform of its public health systems by implementing digital health legislation that allows for the widespread adoption of eHealth records and reimbursable digital apps. In the USA, the "longevity economy" is a market-driven phenomenon, with private companies leading the charge in telehealth and predictive analytics to empower older adults. The Nordic countries serve as a model for "welfare technology," using GPS-enabled safety alarms and integrated digital platforms to promote independence and sustainability (Sverdrup, S., Kjaersgaard, M. R., & Nielsen, A. P., 2025). This global approach is shifting the paradigm of care from centralized institutions to a proactive, technology-enabled model of home- and community-based wellness, transforming a demographic challenge into a significant opportunity for innovation and dignified aging.

Research Topics 2:

1. AI activities 2025 in the top 25 countries

Introduction

Artificial Intelligence (AI) is rapidly transforming public governance, with many governments adopting AI to enhance service delivery, streamline operations, and support data-driven policymaking. In 2025, the role of AI in digital government has become increasingly central, especially among countries ranked highly in the Waseda University D-Government Rankings (AI Index Steering Committee, 2025).

This paper explores AI-related activities across 25 top-ranked nations, including United Kingdom, Denmark, Singapore, Estonia, South Korea, Netherlands, United States, Saudi Arabia, Japan, Finland, Canada, Germany, Ireland, New Zealand, Switzerland, Sweden, Thailand, Norway, Iceland, United Arab Emirates, Taiwan, Australia, Indonesia, India, and Spain. These countries represent a mix of advanced and emerging economies, but all are committed to integrating AI into their public sectors.

AI applications in these nations range from automated citizen services and predictive analytics to AI-driven urban planning and healthcare. Countries like Singapore, Estonia, and the UAE are pushing national AI strategies, while Nordic nations emphasize transparency and digital ethics. Meanwhile, countries like India and Indonesia are investing in scalable AI to address local governance challenges. Using the Waseda framework, this paper provides a comparative look at how these governments are using AI in 2025, identifying trends, strategies, and innovations shaping the future of digital governance.

Discussion and Findings:

Artificial Intelligence Implementations in Government Operations

Among the top 25 countries(economies) ranked by the Waseda University D-Government index, the adoption of AI in government operations shows a clear pattern: while all these nations are actively using AI to improve public administration, each follows its own unique pathway shaped by national priorities, institutional structures, and technological capacities.

Some governments prioritize AI for optimizing internal operations and service automation, while others focus more heavily on predictive analytics, infrastructure management, or smart city development. In certain countries, AI is tightly integrated into long-term national digital strategies, with strong political backing and centralized leadership. In others, implementation is more decentralized, relying on regional innovation or collaboration with private sector partners.

Furthermore, the scope and speed of AI deployment vary significantly. Advanced economies with strong digital infrastructure tend to adopt complex, data-driven AI systems across multiple government sectors. Meanwhile, countries with emerging digital ecosystems often begin with targeted use cases—such as traffic control, identity verification, or chatbot-based services—before scaling up.

Despite these differences, a converging trend is evident: all 25 countries (economy) are moving toward smarter, more responsive, and citizen-centric governance through AI. While the tools and trajectories differ, they collectively reflect a global momentum toward leveraging AI not just for efficiency, but for building more transparent, inclusive, and resilient public sectors.

2. Countries analysis

2.1. The United Kingdom (UK)

The United Kingdom has placed artificial intelligence at the center of its national digitalization strategy, viewing it not only as a technological tool but also as a driver of long-term economic growth. The government's AI Opportunities Action Plan projects that AI could contribute as much as £47 billion annually to the economy, a target underpinned by deliberate state-led interventions. Among the most significant of these is the establishment of AI Growth Zones in areas such as Culham, designed to fast-track the development of AI infrastructure. These zones provide preferential access to power and streamlined planning approvals, directly addressing two of the most common bottlenecks to large-scale AI deployment (UK Government, 2024).

At the same time, the UK has positioned itself as a global authority in AI safety and governance, exemplified by its hosting of the world's first AI Safety Summit. This move signals a dual commitment: promoting innovation while safeguarding against systemic risks. Importantly, the government's approach relies on a public-private partnership model that blends regulatory support with market incentives. The results are already tangible, with more than £25 billion in private investment directed into new data centers since July, strengthening the backbone of AI operations. Together, these initiatives

underscore the UK's ambition to combine economic competitiveness with global leadership in responsible AI deployment.

2.2. Denmark

Denmark has placed artificial intelligence at the core of its 2024–2027 national digitalization strategy, allocating 800 million DKK to accelerate the integration of AI and automation across government and business services. This significant investment builds on Denmark's already high level of adoption, where nearly 28% of businesses are using AI—almost double the EU average. Such conditions make Denmark an effective testbed for pilot projects, enabling small-scale experiments to be rapidly scaled into operational services (Government of Denmark, 2024).

Concrete implementations demonstrate the strategy's effectiveness. The Børge AI writing assistant is supporting government employees with drafting and documentation, while an AI-driven pilot in financial administration has reduced invoice processing times from five days to as little as one or two. These initiatives not only improve efficiency but also highlight how AI can directly enhance service delivery and cost savings in the public sector. On the regulatory side, Denmark remains firmly aligned with the EU AI Act, with plans to designate national competent authorities by August 2025 (Nucamp, 2023). This alignment ensures that innovation is balanced with safety and compliance, positioning Denmark as both a practical innovator and a responsible regulator within Europe's AI ecosystem.

2.3. Singapore

Singapore's approach to digital government is distinctive for its long-term, multi-generational planning. The nation's journey began in 1981 with the establishment of the National Computer Board, marking an early recognition of technology's role in governance. Today, this vision has evolved into the National AI Strategy 2.0 (NAIS 2.0), which positions artificial intelligence not as a supplementary tool but as an “indispensable necessity” for national prosperity. This framing underscores the centrality of AI to Singapore's competitiveness, economic resilience, and governance model.

At the operational level, the Government Technology Agency (GovTech) plays a pivotal role in embedding AI into public services. One example is the One Service Chatbot, which manages around 30,000 citizen cases each month, saving an estimated 2,000 man-hours. Such solutions exemplify Singapore's philosophy of building internal digital capabilities that are practical, scalable, and directly tied to improving public service delivery. By emphasizing efficiency gains and tangible outcomes, GovTech demonstrates how AI can simultaneously reduce administrative burdens and enhance citizen satisfaction (GovTech Singapore, 2024).

Beyond service delivery, Singapore also invests in governance and accountability frameworks to foster safe and trusted AI adoption. The Infocomm Media Development Authority (IMDA) has developed AI Verify, a governance testing framework and software toolkit designed to help organizations demonstrate compliance with ethical standards and regulatory expectations. Coupled with the nation's mature digital infrastructure and consistently high public trust in e-solutions, this regulatory foresight provides a stable foundation for layering advanced AI systems across government and society. In doing so, Singapore positions itself not only as a leader in AI applications but also as a model of responsible digital governance.

2.4. Estonia

Estonia's Kratt Strategy builds directly on the foundations of the globally recognized e-Estonia initiative, where secure digital infrastructure and universal online public services provide a mature environment for AI integration. The strategy sets an ambitious target of 130 AI solutions deployed across public institutions and includes the creation of Bürokratt, a national virtual AI assistant to streamline citizen–government interaction (Ministry of Economic Affairs and Communications of Estonia, 2024). Beyond this, AI is already being applied in critical sectors, including healthcare for patient data management and transportation for traffic optimization, demonstrating a focus on solutions that deliver tangible improvements in efficiency and service delivery.

The overarching vision is the evolution toward a proactive, data-driven government capable of offering personalized services. This trajectory is a natural extension of

Estonia’s long-standing digital maturity and high levels of public trust in e-solutions. By combining technical readiness with citizen confidence, Estonia is positioning itself not just as an adopter of AI, but as a pioneer in embedding artificial intelligence at the heart of governance.

2.5. South Korea

In South Korea, the government has committed approximately C\$97 billion to artificial intelligence, including plans to establish a national AI computing center by 2027. This scale of investment signals more than technological ambition—it reflects a deliberate national strategy to secure economic resilience and competitiveness in the global AI race.

A defining aspect of South Korea’s approach is its linkage of AI policy to demographic and economic realities. With an aging population and slowing workforce growth, the Bank of Korea has framed AI-driven productivity as a critical mechanism for sustaining long-term economic vitality (Citigroup, 2025). By embedding AI into national planning, the government is not only seeking to advance innovation but also to address structural economic challenges, demonstrating a unique alignment between technology policy and social imperatives.

On the regulatory front, South Korea is implementing the AI Framework Act, which seeks to balance innovation with safeguards for safety and accountability. At the same time, the government is driving 30 flagship AI transformation projects across key industries such as manufacturing and public services. This dual-track approach—rapid deployment coupled with evolving regulation—positions South Korea as a leading example of how aggressive investment, sectoral transformation, and adaptive governance can converge to redefine a nation’s digital and economic trajectory.

2.6. Netherlands

The Netherlands has taken a values-first approach to artificial intelligence, as reflected in its government-wide vision on generative AI published on January 17, 2024. At the core of this strategy is the Values-Driven Digitalization Work Agenda, which underscores that AI development must be human-centered and anchored in safeguarding public values

such as privacy, fairness, and non-discrimination. This agenda goes beyond principles by encouraging the government itself to act as a testbed for value-driven AI applications that can help tackle real societal challenges (NL Digital Government, 2024).

Concrete initiatives highlight this philosophy in action. AI is being deployed in the public sector to enhance logistics planning, improve the upkeep of public spaces, and optimize traffic management. A notable case is the Rijkswaterstaat (RWS) project for 2024–2025, which applies AI to analyze road user behavior and integrates the findings into navigation tools such as Google Maps and Waze. The goal is to provide proactive traffic updates that prevent congestion and chaos, thereby improving safety and efficiency on Dutch roads. These projects demonstrate how the Netherlands is combining ethical governance with practical applications, positioning itself as a leader in embedding responsible AI into daily governance.

2.7. The United States (USA)

The United States has articulated a comprehensive vision for AI in governance through the Department of State’s Enterprise Artificial Intelligence Strategy FY 2024–2025, which seeks to “responsibly and securely harness the full capabilities of trustworthy artificial intelligence to advance United States diplomacy.” This marks a recognition that AI is not merely a technical instrument but also a strategic tool for reinforcing U.S. global influence and ensuring secure, values-based digital operations. The approach underscores both opportunity and caution, balancing innovation with the need for safeguards in sensitive areas of foreign affairs and national security.

Several flagship projects highlight the application of this strategy. The State Department’s NorthStar tool employs AI to search for and translate global media content, automatically generate concise summaries, and assess the Department’s social media footprint. Complementing this, the Global Engagement Center’s Technology Engagement Team has launched initiatives that use AI to counter disinformation and foreign propaganda campaigns, reinforcing the role of AI in defending democratic information ecosystems (U.S. Department of State, 2023). These efforts reveal how AI can serve as both an operational accelerator and a protective mechanism in digital diplomacy.

AI adoption also extends to fiscal governance. The U.S. Treasury Department has deployed AI tools to detect anomalies and identify fraud in government payments. In 2024, these systems prevented or recovered approximately \$4 billion in improper payments, a fivefold increase over the previous year. Such outcomes illustrate how AI can directly contribute to public sector efficiency, safeguarding taxpayer resources while building confidence in government institutions. Together, these cases demonstrate that the United States is leveraging AI not only for diplomatic and security objectives but also for tangible improvements in financial accountability and operational resilience (Deloitte, 2025).

2.8. Saudi Arabia

Saudi Arabia's artificial intelligence agenda, driven by the Saudi Data & AI Authority (SDAIA) under Vision 2030, emphasizes sovereign capability and sectoral transformation. During the 2025 Hajj season, AI-enabled cameras, drones, and crowd modeling supported the safe movement of millions of pilgrims, showcasing AI's role in addressing large-scale logistical challenges. In May 2025, the Kingdom also launched HUMAIN, a sovereign AI infrastructure initiative that invests across the full value chain to strengthen national resilience and global competitiveness.

AI adoption is expanding across key services. The Seha Virtual Hospital uses AI for diagnostics and remote patient monitoring, improving healthcare delivery, while major banks such as Al Rajhi Bank apply AI to fraud detection and credit risk models (Saudi Data & AI Authority, 2025). Together, these efforts illustrate Saudi Arabia's strategy of embedding AI into critical domains—religious services, healthcare, and finance—while building sovereign infrastructure to ensure long-term independence and leadership in the global AI landscape.

2.9. Japan

Japan is advancing a structured approach to artificial intelligence, combining regulatory foresight with targeted investment. On May 28, 2025, parliament approved the AI Promotion Act, designed to stimulate innovation while ensuring risks are managed. In parallel, the government has tasked a private consulting firm to apply AI in reviewing

over 5,000 public projects and initiatives, analyzing goals, outcomes, and performance indicators. This initiative aims to optimize budget allocation and inform more effective policymaking, reflecting Japan's effort to embed AI into the machinery of governance itself.

Investment in infrastructure underpins this policy framework (International Trade Administration, 2024). In May 2024, the government pledged JPY 42.1 billion in state aid to strengthen domestic supercomputing capacity for AI developers. By supporting high-performance computing alongside the deployment of AI in public administration, Japan seeks to balance competitiveness, efficiency, and accountability. Together, these measures illustrate Japan's dual-track strategy: leveraging AI for smarter governance while creating the technical capacity necessary for long-term leadership in the global AI economy.

2.10. Finland

Finland's approach to government digitalization emphasizes low-risk, high-impact AI applications that strengthen efficiency while maintaining public trust. The Ministry of Finance has issued guidelines encouraging the use of AI for augmenting routine administrative tasks, such as repetitive text work, lengthy document searches, and first-pass drafting. This guidance sets a clear framework for safe adoption while enabling agencies to experiment with practical applications. For instance, the Finnish Immigration Service (Migri) is piloting an AI system that can automatically approve student residence permits when all statutory requirements are met, reducing processing times and improving responsiveness for applicants.

Other agencies are also embedding AI into their operations. The Finnish Tax Administration (Vero) uses anomaly detection and network analysis tools to flag suspicious refund claims and prioritize audits, enhancing fraud prevention and resource allocation (AI Finland & Business Finland, 2025). Meanwhile, Sitra, Finland's innovation fund, has sponsored projects that apply Finnish-language AI models to support parliamentary work, including legislative review and summarizing extensive statement materials. These cases illustrate Finland's strategy of embedding AI where it delivers

measurable improvements in accuracy and efficiency, reinforcing the country's reputation for pragmatic, citizen-focused digital governance.

2.11. Canada

Canada is advancing its public sector digitalization agenda through the AI Strategy for the Federal Public Service 2025–2027, launched in March 2025. The strategy builds on existing deployments such as Immigration, Refugees and Citizenship Canada's AI-powered case triaging system and Transport Canada's PACT program, which applies AI to enhance the security of air shipments. Reflecting the political importance of this agenda, a newly appointed Minister of AI and Digital Innovation was announced in May 2025 to guide policy direction and coordinate implementation across government (Data for Policy, 2025).

The strategy is reinforced by concrete service-level innovations. Public Services and Procurement Canada have introduced a Human Capital Management AI Virtual Assistant to automate routine pay-related tasks for federal employees, reducing administrative burdens and improving efficiency. Similarly, Shared Services Canada has launched CANChat, a secure in-house chatbot designed to improve productivity while ensuring that sensitive data remains protected within government systems. Together, these initiatives show how Canada is embedding AI in both operational and strategic functions, positioning the public service as a testbed for responsible AI adoption while enhancing trust, efficiency, and service quality.

2.12. Germany

Germany, one of Europe's early adopters of artificial intelligence, continues to balance its strong research base with the challenge of achieving broad commercial deployment. While the country has excelled in AI-related academic output and remains attractive to AI-skilled labor, it has been slower to embed these capabilities into private sector practices compared to global peers. A notable government-led initiative is the Health Data Lab at the Federal Institute for Drugs and Medical Devices, which leverages pseudonymized patient data to develop machine learning methods for healthcare research.

This project reflects Germany's strength in data-driven public sector innovation, with a focus on safeguarding privacy while advancing medical knowledge (American German Institute, 2025).

Recognizing the risk of lagging in AI commercialization, the German government under Chancellor Friedrich Merz has signaled a more flexible regulatory posture. Merz has announced intentions to limit unnecessary regulation and adopt a more lenient interpretation of the EU AI Act, in order to accelerate AI development and deployment. This approach suggests a policy shift designed to reduce barriers for businesses and stimulate investment, while still maintaining alignment with European regulatory frameworks. Together, Germany's mix of research-driven applications and evolving regulatory strategy highlights both its potential as an AI leader and the structural hurdles it continues to face in translating research into economic impact.

2.13. Ireland

Ireland's National AI Strategy Refresh 2024, published in late 2024, advances the country's commitment to building trustworthy, person-centered AI while strengthening its role as a competitive digital hub. The country's momentum has been recognized internationally; for example, a November 2024 Stanford University report ranked Ireland ahead of the UK and Sweden in "AI vibrancy per capita." This recognition reflects both the scale of AI adoption in Ireland relative to its population and the government's ongoing support for innovation ecosystems. Pilot projects illustrate how the strategy is being operationalized, including a Microsoft Copilot trial in the Department of Housing to streamline administrative work and an initiative to auto-transcribe the Census, demonstrating AI's utility in both contemporary service delivery and heritage preservation.

Infrastructure development is also at the core of Ireland's AI ambitions. The government has committed to creating a comprehensive plan for energy generation and data center capacity, recognizing that sustainable digital infrastructure is essential to support large-scale AI growth. By linking trustworthy AI governance with practical deployments and

investment in infrastructure, Ireland is positioning itself as both an ethical and competitive leader in the European AI landscape (IDA Ireland, 2024).

2.14. New Zealand

New Zealand's commitment to responsible innovation in government services is reflected in the launch of the Public Service AI Framework in July 2025 (New Zealand Government, 2025). The framework serves as a non-binding guide to support lawful and ethical AI use across agencies, with a strong emphasis on aligning innovation with public service values and human-centered design. Its release coincides with rapid growth in AI adoption: a 2025 cross-agency survey recorded 272 AI use cases across 70 agencies, more than double the 108 use cases reported in 2024. This surge underscores how the framework is shaping a culture of experimentation and adoption across the public sector.

The reported benefits from these projects are substantial, ranging from improved operational efficiency and better employee experience to enhanced service quality for citizens. By providing structured but flexible guidance, the framework helps agencies integrate AI responsibly while maintaining public trust. This balance between growth and governance positions New Zealand as a pragmatic leader in scaling AI within the public sector, ensuring that adoption not only drives efficiency but also reflects the country's values-driven approach to digital government.

2.15. Switzerland

Switzerland is deepening its commitment to responsible digital transformation through the Digital Switzerland 2025 strategy, adopted by the Federal Council in December 2024. The federal administration is moving beyond high-level policy to embed AI in day-to-day governance, with practical applications such as semantic search across laws, automatic summarization of regulatory guidance, and intelligent routing of citizen queries to the correct office. In January 2024, the government also issued a fact sheet on generative AI, encouraging civil servants to experiment responsibly with emerging tools, reflecting a culture of cautious but proactive adoption.

Concrete sectoral initiatives further demonstrate Switzerland's ambitions. As of March 1, 2025, autonomous vehicles received authorization for operation on certain public roads, marking a milestone in the integration of AI into mobility policy (Swissinfo, 2025). Simultaneously, the government is supporting the development of specialized Swiss language models for strategic sectors such as medicine and meteorology. These initiatives aim to reduce dependence on proprietary systems while strengthening national sovereignty over critical AI capabilities. Together, they show how Switzerland is pairing practical deployment with long-term investment in sovereign infrastructure, reinforcing both innovation and digital independence.

2.16. Sweden

Sweden is embedding artificial intelligence at the center of its public sector modernization agenda, as reflected in the 2026 national budget, which allocates significant resources to accelerate innovation. A cornerstone of this plan is the AI-Verkstad initiative, designed to help government agencies develop, test, and share AI solutions. The initiative functions as a collaborative hub where agencies can reduce duplication, pool expertise, and scale successful pilots across the wider public service. This reflects Sweden's emphasis on efficiency and cross-agency learning, ensuring that AI applications generate value beyond isolated use cases.

One of the most ambitious projects under this framework is the development of Language Models for the Swedish Government. This initiative aims to create a specialized digital comprehension tool capable of automatically sorting and categorizing emails, reports, and documents, routing them to the appropriate departments (AI Sweden, 2024). In addition, the model will enable citizens to pose questions on government websites and receive accurate, direct answers, regardless of phrasing. Such applications demonstrate Sweden's vision of AI as a tool for more accessible, citizen-centered governance, while also addressing administrative bottlenecks. Together, these investments underscore Sweden's strategy of combining technical innovation with practical service delivery improvements to reinforce trust and efficiency in digital government.

2.17. Thailand

Thailand is advancing its digital transformation with the establishment of a National AI Committee on August 21, 2025, tasked with driving the country's AI action plan. A central focus of this strategy is the expansion of smart cities with 16 projects already certified and the Phuket Tinicon Valley Project awarded the new "Smart Area" certificate in August 2025. These initiatives highlight the government's ambition to integrate AI into urban development to improve daily life. Smart city programs are leveraging AI in key areas such as traffic management, public safety, and energy optimization, creating more efficient and sustainable urban environments.

Concrete applications illustrate how this vision is materializing. In Thailand's major tourist hubs, AI-powered surveillance systems have been deployed with capabilities such as facial recognition and crowd density monitoring. These tools are designed to enhance security, particularly in high-traffic areas, by enabling authorities to respond more effectively to potential risks (Amity Solutions, 2025). By combining national-level coordination through the AI Committee with localized, technology-driven projects, Thailand is positioning AI as both an enabler of safer, smarter cities and a driver of long-term digital competitiveness.

2.18. Norway

Norway is positioning itself as a Nordic leader in responsible AI deployment, particularly in the public sector. The government's Joint AI Plan for Health and Care Services 2024–2025 sets a clear path for integrating AI into healthcare, with goals such as enabling personalized medicine and supporting new working methods for health professionals. Practical examples include pilot projects where AI assists in diagnostic imaging and helps optimize treatment pathways for patients with chronic conditions, reducing pressure on the healthcare system. By targeting high-impact areas like health and care, Norway demonstrates how AI can directly address societal needs while enhancing service quality.

At the national level, the launch of KI-Norge (AI Norway) in 2025 underscores a broader push to embed AI across the economy. A central feature is the AI Sandbox, which

provides startups and SMEs with a controlled environment to experiment with generative AI while ensuring compliance and safety. These initiatives are part of Norway's stated goal that 80% of the public sector will adopt AI by 2025, signaling a rapid scaling of applications across government. Together, these developments highlight Norway's dual focus on practical service delivery and innovation ecosystems, ensuring that AI adoption is both socially beneficial and economically competitive (Nemko, 2025).

2.19. Iceland

Iceland is scaling its digital transformation through the Digital Iceland program and the Ísland.is platform, which serves as the central hub for government digital services. A key component is the integration of AI into the Ísland.is Service System, where AI tools are already used to answer common citizen questions, triage and prioritize incoming cases, and draft suggested responses for staff. These applications have delivered measurable efficiency gains: for example, the digitalization of routine services such as issuing criminal record certificates has saved the equivalent of 2,250 staff hours while eliminating roughly 189,000 kilometers of citizen travel, reducing both administrative load and environmental impact.

The government is now expanding these efforts by piloting AI chatbot solutions across more than 52 agencies that are migrating to the Ísland.is platform. This initiative is designed to ensure a consistent, user-friendly experience across the public sector, with chatbots handling routine inquiries so that staff can focus on more complex cases (Nucamp, 2025). These examples highlight Iceland's pragmatic approach—using AI not for experimentation alone, but to achieve direct service improvements, cost savings, and citizen convenience. By combining strong digital infrastructure with concrete AI deployments, Iceland is establishing itself as a model of efficient, citizen-centered digital governance.

2.20. The United Arab Emirates (UAE)

The United Arab Emirates has placed artificial intelligence at the heart of its governance agenda, embedding it within the Cabinet's three-year planning cycle (2024–2026) that

requires AI integration across all federal entities. This reflects the UAE's long-standing ambition to align its government modernization efforts with its broader economic diversification goals under Vision 2031. By mandating AI adoption as part of routine planning, the federal government signals that AI is no longer a pilot technology but a core component of public administration and service delivery.

Dubai has become a flagship hub for AI experimentation through the Dubai Centre for Artificial Intelligence's Future of AI in Government Services Accelerator. First launched in 2024 and entering its second cycle in late 2025, the program connects more than 20 government entities with global innovators. Its projects include AI-enabled public health monitoring, advanced traffic flow optimization, and customer service automation, demonstrating Dubai's strategy of using collaborative accelerators to generate practical solutions that can later be scaled across the federation. This model not only accelerates innovation but also helps the UAE position itself as a global testbed for cutting-edge AI applications.

Abu Dhabi complements this experimental approach with a more systemic vision. Its Digital Strategy 2025–2027 aspires to create the world's first fully AI-native government by 2027, with plans to implement more than 200 AI solutions across the public sector. These range from predictive infrastructure maintenance and intelligent energy systems to AI-driven diagnostics in healthcare and citizen engagement platforms. By combining Dubai's open innovation ecosystem with Abu Dhabi's large-scale deployment strategy, the UAE demonstrates a dual-track model that blends agility with structural transformation, positioning itself as a global leader in AI-enabled governance (Dubai Government Excellence, 2024).

2.21. Taiwan

Taiwan is integrating artificial intelligence into governance with a strong emphasis on both security and capacity building. The Ministry of Digital Affairs (MODA) has developed an Online Fraud Reporting and Lookup platform that employs AI for automated inspections of suspected fraudulent activities. As of February 2025, the system was capable of handling 40,000 cases per day, drastically reducing reliance on manual

inspection and strengthening public trust in digital services. This initiative highlights Taiwan's practical use of AI to tackle pressing challenges such as online scams, which directly affect citizen safety and digital confidence.

In parallel, Taiwan is investing in human capital to ensure sustainable AI adoption in government. The inauguration of the Taiwan Artificial Intelligence Government Talent Office in July 2025 reflects a commitment to cultivating AI skills among public servants and helping agencies introduce AI applications responsibly. This institutional framework emphasizes not only deployment but also the development of long-term competencies, positioning Taiwan's public sector workforce to effectively manage emerging technologies (Ministry of Digital Affairs, n.d.).

To support this ecosystem, Taiwan is also strengthening its digital infrastructure. In January 2025, the government announced the construction of a National AI computing system with a target speed of 480 petaflops, providing the computational backbone required for large-scale AI deployment. Premier Cho has pledged NT\$100 billion in funding for related AI projects, underlining the country's ambition to be a regional leader in trustworthy and advanced AI. By combining strong anti-fraud measures, workforce training, and world-class infrastructure, Taiwan demonstrates a comprehensive strategy for embedding AI into governance.

2.22. Australia

Australia is moving toward a more regulated yet innovation-friendly approach to artificial intelligence in governance. A Senate committee on AI, formed in March 2024, published its final report in November 2024 recommending new legislation to regulate high-risk AI uses, such as biometric surveillance and predictive policing. This marks an important step in shaping a governance framework that balances innovation with accountability and public trust. The recommendations reflect Australia's effort to align with global norms on responsible AI while tailoring regulation to its domestic context.

At the same time, the government is encouraging adoption in the private sector. On May 28, 2024, the successful recipients of the \$17 million AI Adopt Program were announced.

The program funds AI adoption centers that support small and medium-sized enterprises (SMEs) in responsibly integrating AI into their operations (Department of Veterans' Affairs, n.d.). This dual approach—regulating risks while incentivizing adoption—illustrates Australia's attempt to foster both safety and competitiveness in its AI landscape.

Concrete examples in public services show how AI is being tested at scale. The Department of Veterans' Affairs (DVA) has launched a trial of an AI-enabled search function on its website, using a large language model to generate summarized answers to natural language questions from veterans. In addition, the DVA is testing MyClaims, a proof-of-concept tool that extracts medical details from veterans' claims documents to streamline processing. These cases highlight Australia's pragmatic approach to AI: combining regulation, targeted investment, and experimentation to improve efficiency while ensuring oversight.

2.23. Indonesia

Indonesia is accelerating its digital transformation through the launch of GovTech AI, established under Presidential Regulation No. 83 of 2025. The program is designed to modernize the bureaucracy and improve service delivery by consolidating and integrating services from 15 government agencies into a unified digital ecosystem. By streamlining administrative processes and digitizing key services, the government estimates that GovTech AI could generate savings of up to \$25.8 billion, making it one of the country's most ambitious efficiency-driven reforms (OpenGov Asia, 2025).

The rollout strategy emphasizes piloting before nationwide expansion. In September 2025, Banyuwangi will serve as the first testing ground for the GovTech AI system. The pilot will allow the government to refine service integration models and assess scalability, with the expectation that successful outcomes will pave the way for a national rollout. This approach reflects Indonesia's recognition of the need for incremental but large-scale reforms in a country with diverse administrative and geographic challenges.

Beyond bureaucratic modernization, Indonesia is also applying AI in targeted sectoral initiatives. A notable example is the Red and White Village Cooperatives program,

launched in July 2025, which leverages digital tools and AI to improve transparency and efficiency in the agricultural sector. By helping cooperatives manage resources and transactions more effectively, this program illustrates how AI can extend beyond urban governance to strengthen rural economies and community livelihoods. Together, these efforts demonstrate Indonesia's ambition to embed AI as both a driver of state modernization and a catalyst for inclusive economic growth.

2.24. India

India has positioned artificial intelligence as a central pillar of its digital future through the launch of the India AI Mission in March 2024, aimed at creating a robust, inclusive, and scalable AI ecosystem. A flagship initiative under this mission is BharatGen, a government-funded multimodal large language model (LLM) designed to strengthen public service delivery and citizen engagement. By focusing on open and localized AI infrastructure, India is seeking to democratize access to cutting-edge technologies while reducing reliance on foreign systems.

AI is also being applied in large-scale national events. During Mahakumbh 2025, one of the world's largest religious gatherings, AI-powered tools were deployed to monitor real-time railway passenger movement and optimize crowd dispersal. These systems enhanced public safety by ensuring more efficient transportation flow and minimizing congestion, underscoring the role of AI in managing high-density, complex environments (Press Information Bureau, 2024).

In the transport sector, Indian Railways is scaling AI adoption to improve safety and efficiency. Plans are underway to install AI-powered CCTV cameras across all locomotives and major yards to enhance surveillance and risk detection. Additionally, the procurement of a Machine Vision Based Inspection System (MVIS) will automate safety checks by analyzing high-resolution images of moving trains to detect loose or missing components. Together, these initiatives illustrate India's dual strategy of nationwide digital infrastructure development through BharatGen and sectoral applications that deliver immediate safety and efficiency gains.

2.25. Spain

Spain has strengthened its National Artificial Intelligence Strategy (ENIA) with a €1.5 billion budget for 2024–2025, signaling a renewed focus on embedding AI into both public administration and broader economic activity. The strategy emphasizes not only innovation but also sovereignty, aiming to ensure that Spain develops its own AI capabilities while aligning with European standards on ethics and trustworthiness. This investment reflects the country’s recognition that AI is a driver of competitiveness and a critical element in modernizing state functions.

Concrete use cases already demonstrate how AI is transforming citizen services. The ISSA social security virtual assistant managed to solve more than 2 million queries in its first month, substantially reducing call center backlogs and improving response times for citizens. Similarly, the Ministry of Justice is applying AI to streamline the management of criminal records and to anonymize legal documents, increasing both efficiency and privacy protection (Nucamp, 2024). These applications highlight how Spain is using AI not just for experimentation but to deliver measurable improvements in everyday government operations.

Looking ahead, Spain is also investing in linguistic and cultural sovereignty. The ALIA language model plan aims to ensure that at least 20% of AI model training is conducted in Spanish and co-official languages, reducing dependence on international models while fostering inclusivity. By combining financial investment, service-level deployment, and the development of localized AI infrastructure, Spain positions itself as a European leader in building a responsible and culturally anchored AI ecosystem.

Conclusion:

The worldwide adoption of AI in public administration represents a transformative shift in governance, reshaping how states deliver services, allocate resources, and design policies. While countries follow different paths—ranging from innovation-driven strategies in places like South Korea and the USA, to human-centered frameworks in Denmark and Finland, to pragmatic pilots in Iceland and Switzerland, and leapfrogging approaches in

India and Indonesia—common themes emerge. Nations continue to grapple with scaling pilots into nationwide systems, cultivating AI expertise, and securing digital sovereignty through domestic infrastructure and culturally relevant models. The evidence suggests that long-term success will depend on governments striking a careful balance between innovation and regulation, ensuring that investments in technology and talent are matched by commitments to transparency, accountability, and citizen well-being.

5. Recommendations

1. Administrative and financial reform

The origins of e-government date back to the Clinton-Gore administration in the United States. It was created as part of administrative and fiscal reform and a function aimed at realizing a paperless society. Vivek Kundra, who was appointed the first CIO of the Obama administration, was the number two man at the White House Office of Management and Budget (OMB). When I met him, he said, "The ultimate vision of e-government would be to consolidate federal government agencies into just two: the Department of the Interior and the Department of National Security." In other words, I vividly remember his message that he was committed to administrative and fiscal reform, with the goal of "streamlining the administration" and "creating a smaller government." Currently, an increasing number of governments around the world are implementing proactive fiscal policies.

2. 3 types of Digital government

Structural weaknesses include the vertical division of government agencies, the separation of digital government (central) and e-local government (local), and the financial and digital divides among municipalities. In a society with a declining birthrate, an aging population, and a shrinking population, integrating the public and private sectors through the use of digital technology will not only reduce the costs and efficiency of administrative and financial reforms, but will also contribute to economic revitalization and improve the convenience of people's lives, making these the top priorities of a digital government.

There are three types of digital governments around the world. The first is the Ministry of Finance-controlled type that prioritizes administration and finances - Denmark, Finland, France, etc.; the second is the digital government agency-led type that prioritizes technology promotion - South Korea, Taiwan, Singapore, etc.; and the third is the centralized cabinet or prime minister's office-controlled type - the United States, Japan, Thailand, etc.

3. Disaster Prevention Agency

Natural disasters and its double disasters at the sometimes have occurred often everywhere in the world. On this regard, Japan is known as one of the world's most disaster-prone country. We hope to be the world's best in disaster prevention as well. The Great East Japan

Earthquake struck on March 11, 2011, and the country was hit by a triple disaster: earthquake, tsunami, and nuclear accident. The Japanese economy was hit hard by power shortages and other impacts, and recovery and reconstruction efforts are still consuming significant financial and time resources. While signs of improvement are beginning to appear with the recovery of supply chains and other areas, many challenges remain, such as the widespread adoption of disaster prevention BCPs. From the perspective of digital government, systems that should function effectively during disasters and emergencies were destroyed by the disaster, making it difficult for affected residents to confirm their survival or even receive public services. This should serve as a lesson for the future, and new policies, such as the widespread adoption of disaster-resistant cloud computing, must be promoted. Furthermore, our institute has advocated for the need for a powerful "Disaster Prevention Agency—a Japanese version of FEMA" in Japan, a country that suffers major damage every year. We hope that this will be implemented under the Takaichi Cabinet.

4. Comprehensive problem solving

Combined with the arrival of an aging society with a declining birthrate, a dramatic transformation of the economy and society in an era of population decline is fast approaching. In this regard, it is necessary to combine bold administrative and financial reforms to prevent financial collapse and measures to address the maturing population, which is seeing a rapid increase in the elderly population, and to draw up a new grand design/roadmap for comprehensive digital administration from the perspective of the people and users through cooperation between the central and local governments.

5. External Post-event Evaluation

After the Cabinet decision on the "Declaration to Become the World's Most Advanced IT Nation" in 2013, Japan formulated the "Declaration to Become the World's Most Advanced Digital Nation and Basic Plan for Promoting the Utilization of Public and Private Data" in 2018. The target year for the results of the strategy was 2020. From the perspective of the national utilization of digital administration, it cannot be said that sufficient results have been achieved. Now that the Digital Agency is in its fifth year, it is necessary to establish a highly independent external organization rather than an internal one to conduct a comprehensive analysis and conduct a post-evaluation including the PDCA cycle to learn lessons for the future.

6. CIO system

When analyzing the contribution (correlation) of the appointment of a CIO and CIO assistant to ICT adoption, results vary depending on position, authority, and whether the position is full-time or concurrent. Around 2003, when the national CIO assistant system was established, the position's primary mission was to formulate optimization plans, particularly cost reduction and optimization. Therefore, at the time, the role of the CIO was primarily that of a cost cutter. However, in recent years, with the advancement of cutting-edge technologies such as cloud computing, AI, and robotics, the CIO's original duties and competencies have undergone significant change, including the pursuit of overall optimization across government ministries and agencies. If a single CIO can manage multiple municipalities, the promotion of 5G and local 5G could be promoted on a broader scale through public-private partnerships. Furthermore, the implementation of regional collaboration networks, ICT human resource development, regional medical collaboration, and inter-municipal supply chains would also be more effective. We must recognize the changes in CIO core competencies (qualifications). Roles and activities must be restructured to reflect digital transformation. Multi-layered collaboration among leaders in this field, including CIOs, CDOs, CAIOs, and CTOs, is also necessary.

7. Digital Divide

Support for the use of AI and robotics in government services is an urgent need. According to the Ministry of Internal Affairs and Communications' "Survey on the Status of AI and RPA Demonstration Experiments and Implementation in Local Governments," which targeted all prefectures and municipalities, there are many municipalities that are not even considering introducing AI. AI has been introduced mainly in designated cities and core cities, with smaller municipalities not making sufficient progress, which is causing disparities between municipalities. The biggest factors are a lack of understanding among government employees about the benefits and methods of using AI, as well as a shortage of digital talent and budgets in government offices. ICT education for government employees on AI and other technologies is also necessary.

8. AI government

With the spread of mobile broadband and the creation of an environment that can make the most of 5G, the establishment of a "mobile government," which our institute has been advocating for the past five years, has begun to attract attention as a new global trend.

Furthermore, the promotion of D-government around the world has begun to steer toward the creation of "AI governments," with countries such as the United Arab Emirates and Estonia aiming to be pioneers in this field.

6. Methodology

For evaluating digital government development, this ranking survey is based on a group of indicators to evaluate the overall digital government development in a country, ranging from policy development and e-Services implementation to management optimization and digital government promotion. To improve the evaluation of digital government development in a country, from 2010, the ranking added an e-participation indicator. In 2014, both Open Government Data and Cybersecurity were also added to the ranking. In the 2017 Ranking, the research team added "the usage of emerging ICT technologies". It makes the total ten main indicators for evaluation. And in 2022, in the section of Open Government/Data, Digital Transformation (DX) is added.

Increasing the quality, the assessment used a questionnaire as a tool to obtain some information from respondents who reside in the countries. The respondents are government officers who work for a ministry that concerns digital government and, to some extent, respondents from academia who are knowledgeable in digital government. The score will use the feedback as additional information to mitigate the sample risk, thus, reducing bias during scoring. The following diagram shows the due process of creating the ranking.

Formulation The Raw score is normalized to the 0-100 scale score using the following formula.

$$NormScore = \frac{RawScore}{MaxScore} \times 100$$

Raw score is the Score generated by averaging the Score 0,1,2,3,4,5,6 and Score 7 in **8 levels**; Max Score is the maximum score of the sub-indicators.

This will generate the Normalized Score which ranges from 0 – 100. Furthermore, the Normalized Score is recalculated by weighted rate. The result is the released score that will be used as the source for arranging the rank.

List of Main Indicators and Scoring points

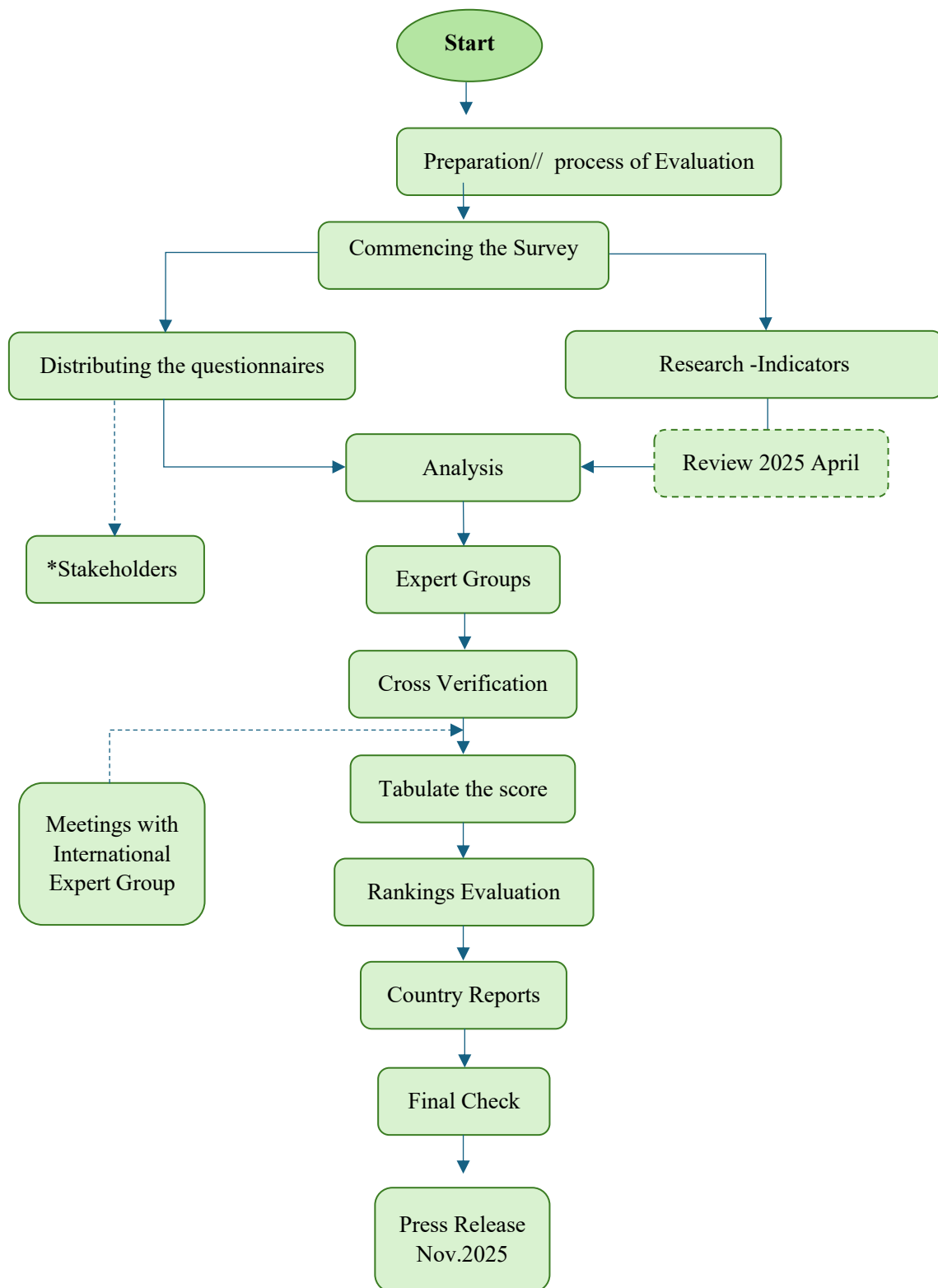
No	Indicators	2025
1	Network Infrastructure Preparedness (NIP)	Norm Score x 8%
2	Management Optimization (MO)	Norm Score x 12%

3	Online Services (OS)	Norm Score x 14%
4	National Portal (NPR)	Norm Score x 6%
5	Government Chief Information Officer (GCIO)	Norm Score x 10%
6	Digital government Promotion (EPRO)	Norm Score x 10%
7	E-Participation (EPAR)	Norm Score x 8%
8	Open Government Data (OGD) & DX	Norm Score x 10%
9	Cybersecurity (CYB)	Norm Score x 10%
10	The ICT/emerging technologies (EMG)	Norm Score x 12%

Main 10 Indicators and 37 Sub-indicators List

10 Major Survey Items	37 Survey Sub-Items
Network infrastructure enhancement - NIP (Building and maintenance of public network)	1-1 Internet subscribers 1-2 Broadband users 1-3 Digital mobile phone subscribers
Contribution to administrative and financial reforms, optimization of administrative management – MO (effects of EA, etc.)	2-1 Optimization progress 2-2 Integrated EA model 2-3 Administrative budget system
Progress of various online applications and services – OS (Types and progress of online service activities)	3-1 Electronic bidding system 3-2 Electronic tax payment 3-3 Electronic payment / customs clearance system 3-4 eHealth system 3-5 One-stop service 3-6 e-Disaster, e-Mobility and Smart city 3.7 Usages of AI and Web3
Convenience of homepage and portal site – NPR (Status of National Portal)	4-1 Information 4-2 Technical 4-3 Functionality

Government CIO (Chief Information Officer) Activity - GCIO	5-1 Introduction of CIO 5-2 CIO Authority 5-3 CIO Organization 5-4 CIO Human Resources Development Plan
Digital Government Promotion -EPRO	6-1 Legal response 6-2 Effective promotion business 6-3 Support mechanism 6-4 Evaluation mechanism
Enrichment of citizens' administrative participation by ICT - EPAR (E- participation of citizens)	7-1 Information sharing mechanism 7-2 Exchange / Discussion 7-3 Participation in decision making
Open Government and DX - OGD	8-1 Legal response 8-2 Society 8-3 Organization
Cyber security - CYB	9-1 Legal response 9-2 Cybercrime measures 9-3 Internet Security Organization
Utilization of advanced ICT/Emerging technologies - EMG	10-1 Cloud utilization 10-2 IoT utilization 10-3 Big data utilization 10-4 The Application of AI



- Stakeholders include United Nations, APEC, World Bank, OECD, major governments, Thinktank, Universities and Civil society

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