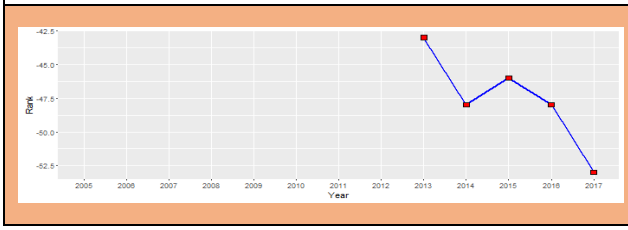
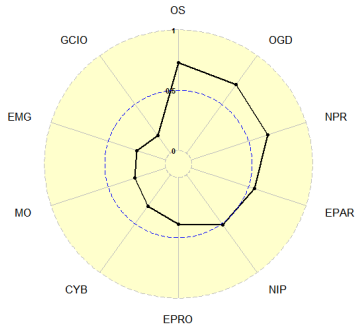
Argentina

1 General Information

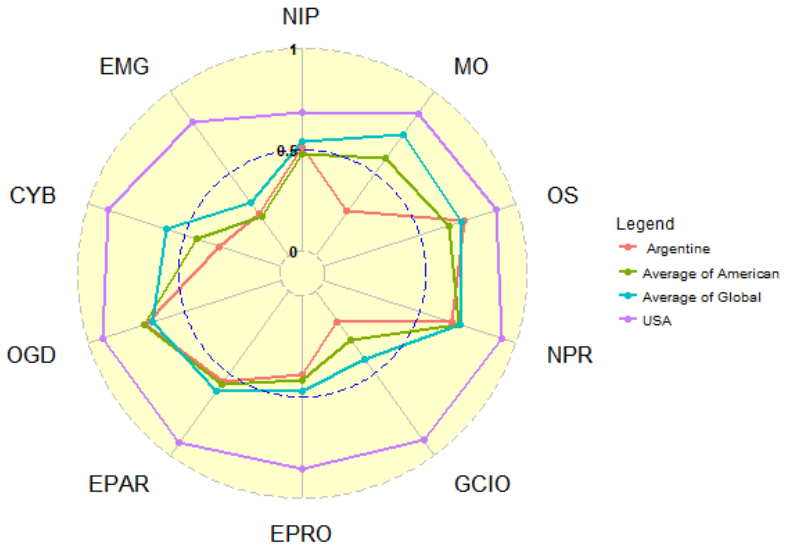
Area: 2,780,400 km^2
Population: 43,431,886
Government Type: Presidential Republic
GDP: $22,400
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

Countries in the Americas



Among American countries, Argentine is superior in the National Portal indicator. Its score is slightly lower than the US. However, other indicators are lower than the average of American countries. This may indicate that in National Portal, some developing countries are more advanced than developed countries. National Portal could be the indicator in which the performance of developing countries can exceed that of developed countries.

3 D-Government Development

The World Bank's Information Technology-based Public Sector Strengthening Program has been active since 2011 and will run through the end of 2017. This program is aimed at modernizing Argentina's procurement, taxation, and irrigation systems through the use of IT. Despite the lack of legal framework on open government initiatives, the Argentinian government has built an open government data portal. The portal contains datasets for demographic and economic statistics. The public can download the data in non-proprietary formats such as Excel, csv, and pdf files. The portal is provided by the city of Buenos Aires.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Argentina, 79.4% of the population uses the Internet in 2017, an increase over the previous year. The number of fixed-broadband subscriptions is 16.1 per 100 inhabitants, while the number of active mobile broadband subscriptions is 67.3 per 100 inhabitants.

4.2 Management Optimization [MO]

In 2005, the Argentinean government released a strategic plan that regulates the D-Government national plan. The regulation is granted on April 27, 2005 through Decree No.378 about D-Government national plan entitled "Plan Nacional de GobiernoElectrónico y Planes Sectoriales de GobiernoElectrónico". The decree has been designed to improve government services thus guaranteeing more efficiency and transparency. The decree requires government institutions in Argentina to put more attention on the following aspects:

- The use of Internet technology in the development of integrated system and the provision of information to the public
- The implementation of interoperability standards
- The creation of a national portal that contains all available information from different government agencies.
- The synergy among national public administration to improve government information system

The Ministry of Modernization was created in 2015, and in 2016 the State Modernization Plan was approved. This plan aims to promote the utilization of ICT in order to improve public administration services. The National Office of Information Technology (ONTI), a dependency of the Ministry of Modernization, is in charge of the policy-making and implementation of the process for the technological modernization of the State.

4.3 Online Service [OS]

The five most common online government services are e-procurement, e-tax, e-customs, one-stop service, and e-health system. Argentina has released two web-based e-procurement system which are connected each other, i.e., www.argentinacompra.gov.ar and comprar.gov.ar.

The website www.afip.gov.ar is developed as the embryo of e-tax and e-customs system in Argentina. Through that website, citizens have access to download tax-related forms and obtain specified tax information. There is a login access page on that website for the citizen by using specific identity.

The national portal www.argentina.gob.ar also serves as a one-stop service website, where citizens can obtain information about various procedures. An e-Health website has been established, www.cibersalud.gob.ar; it offers some information related to healthcare and a platform oriented to health professionals called salud.ar is mentioned, but was unavailable at the time of this survey.

4.4 National Portal [NPR]

Argentina's national portal (http://www.argentina.gob.ar) works as a one-stop service website and offers some e-Services to citizens, companies and foreigners. Aside from two undated PDF documents that provide information in English, the portal site is entirely in Spanish. It does offer a translation widget powered by Google which—while imperfect—makes it easier for non-speakers to navigate the site.

The well-organized portal serves as a platform to help citizens find their desired information through a search option. Moreover, it is simple in design and easy to use. The portal structure is clear, with the most common online services prominently featured.

The portal provides information related to the country and the government, as well as links to other government websites. Furthermore, it offers users the possibility to create an account for managing personal procedures. It is also possible to share information of the website directly on social networks. The portal is available only in Spanish. It is clearly indicated in the top of the portal that it is currently in development, and allows users to send feedback.

4.5 Government CIO [GCIO]

There are no specific laws or mandates for CIO positions. However, after referring to the tasks and duties of the *Oficina Nacional de Tecnologías de Información* (ONTI), it can be inferred that ONTI has many of the responsibilities of a government CIO.

All ministries are involved in D-Government projects according to Decree 378, which lays out the country's D-Government strategy. Therefore, it can be considered that all ministries have a CIO position even though the title is not precisely CIO (for instance, Head of IT Division; Head of D-Government Projects).

CIO training master degree programs are available in at least one institution.

4.6 D-Government Promotion [EPRO]

The National Office for Information Technologies (ONTI) is the decision-making body in this area, and functions under the recently created Ministry of Modernization. Specific projects include digital signature infrastructure, information security, and technological standards for public administration. The government has officially approved the State Modernization Plan to promote the adoption and utilization of ICT in government agencies at national and local level.

4.7 E-Participation [EPAR]

The national portal http://www.argentina.gov.ar/ of Argentina is a one-stop service site for citizens, and offers information on the structure of government, online services and links to other government bodies. It is also possible for citizens to send feedback to government agencies or contact officials directly. All legislation is available in one website. The head of state has an official website.

4.8 Open Government Data [OGD]

In December 2013, Argentinian senate has passed law on public access to funded research. It is the first step of Argentina to release freedom of information act which is still under discussion in parliament.

Regardless of the lack of legal framework on open government initiatives, the Argentinian government has established an open government data portal. The portal contains demographic and economic datasets. Public can download the data in non-proprietary format such as excel file, csv, and pdf.

4.9 Cyber Security [CYB]

Argentina penalizes cyber crimes, and has laws on information and personal data security. It has a law for digital signature, but not specifically for e-commerce or e-payment.

4.10 The use of Emerging ICT [EMG]

There is no evidence that the government has officially used Cloud Computing services, nor are there regulations on the use of the Internet of Things or Big Data.

5 Some Highlights

Bringing ICT into the classroom has become a key concern in educational policy in Argentina, leading the Ministry of Education to launch the National Campaign for Digital Literacy and various teaching and methodology proposals for teachers. Nevertheless, the ministry's policies leave essential variables uncertain, particularly as these relate to economically and culturally excluded sectors.

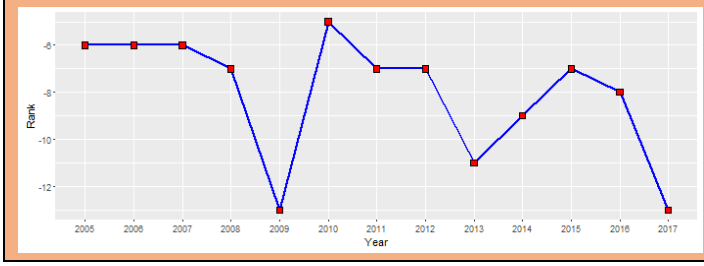
Although there is concern for the distribution of infrastructure in relation to the socioeconomic conditions of the sectors which benefit, this intention continues to show evidence of discrimination in favor of those closest to large urban centers. The same malaise afflicts the concern for teachers, as it does not address the issue in its full socioeconomic and organizational complexity, nor take into account work regimes and hours, or the general working conditions of education workers.

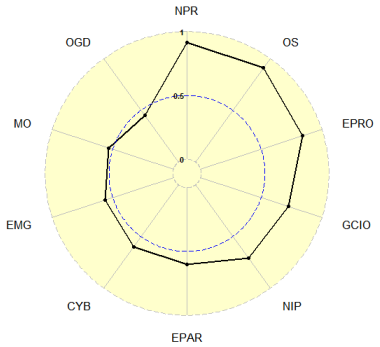
D-Government in Argentina started more than a decade ago, but it saw little development for many years. It is evident though from very recent initiatives that the government is putting much effort in the modernization of the state and the improvement of public services.

Australia

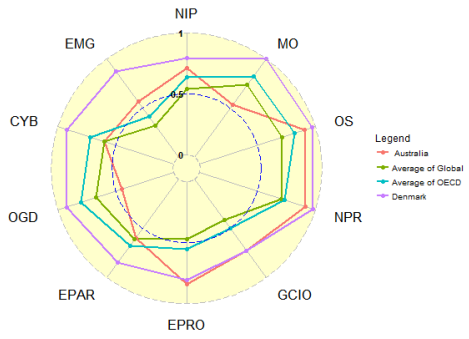
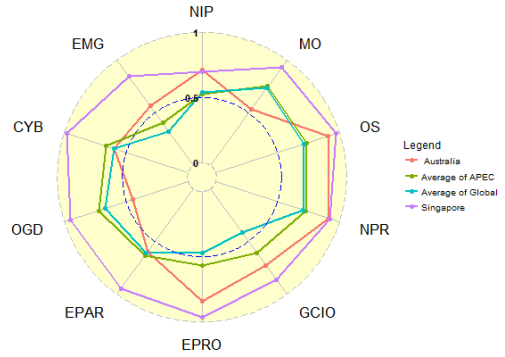
1 General Information

Area: 7,741,220 km^2
Population: 22,751,014
Government Type: federal parliamentary democracy
GDP: $ $65,400
Historical Ranking (2005 – 2017):





2 Positioning in a global organization

OECD Countries	APEC Economies
	

This year, Australia surpassed the world's and OECD's average score in most indicators, except cyber security and e-participation. The country even got a better ranking on management optimization when compared with the USA – which ranks the first position in D-Government ranking this year. A similar phenomenon was witnessed when comparing Australia with APEC economies.

3 D-Government Development

The National Digital Economy Strategy was published on 31 May 2011 and emphasized the mission to position Australia as a leading digital economy by 2020. Drawing upon this vision, a collection of policies, strategies and guidelines were published by Ministry of Finance and Deregulation and Australian Government Information Management Office (AGIMO), pursuing to make the Australian government more

effective, seeking to reduce costs, increase customer satisfaction and promote innovation. The Digital Continuity 2020 Policy began in late 2015 and seeks to build on these changes. The Digital Transformation Agency (DTA) was formed in 2016 and is responsible for continuing Australia's rapid digital development.

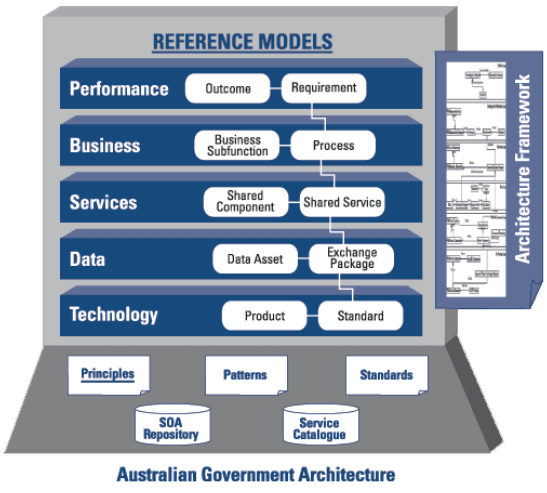
Australia's D-Government adoption efforts have been clarified under the 2012-2015 D-Government strategy. It shows that Australians continue to embrace the Internet as a way of interacting with government.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 85.9% Australia's population are Internet users in 2017, according to the Measuring the Information Society Report 2017 from International Telecommunication Union (ITU). Among them, wired broadband subscribers accounted for around 25.8% while more than 100% of total population have a wireless broadband connection.

4.2 Management Optimization [MO]



Australian Government Architecture

Australian government has issued several policies and strategies related to D-Government development at national scope, addressing various aspects of digital government such as digital economy (National Digital Economy Strategy), government online services (APS ICT Strategy 2012-2015), infrastructure (Australian Government Data Centre Strategy 2010-2025), and cloud computing (Australian Government Cloud Computing Policy). Australia Government also mandated the collaboration between government entities via the Public Governance, Performance and Accountability Act 2013 (PGPA Act). Under this act, a National Collaboration Framework was created in order to facilitate the collaboration among Commonwealth entities, state, territory and local jurisdictions. In addition, the Australian Government Information Interoperability Framework and the GovShare initiative were put in place to ensure the seamless collaboration and information sharing among government agencies.

4.3 Online Service [OS]

The score for Online Service comprises of five sub-dimensions: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In terms of complexity level, all Online Services in Australia have reached the transactional level in which users can conduct all of their businesses via electronic portal. For e-procurement, AusTender (www.tenders.gov.au) is a centralized gateway for publishing information on Australian Government business opportunities, annual procurement plans, and contracts awarded. With the replacement of

australia.gov.au accounts by MyGov[1], Australian Government aims to link all government services into a single place. By creating a MyGov account, citizens are featured from various utilities like MyGov Inbox, MyGov Profile and a growing range of services including Medicare, Australia Taxation Office, Personal Controlled eHealth Record, Child Support, and so on.

To measure the level of convenience, the third party application Google PageSpeed™ Insight[2] has showed that all services have a good access speed.

List of Online Services

Online Service	URL
e-Procurement	https://www.tenders.gov.au/
e-Tax	https://www.ato.gov.au/
e-Customs	http://www.border.gov.au/
e-Health	https://myhealthrecord.gov.au
One-Stop Service	https://my.gov.au

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. www.australia.gov.au is the national portal of Australia. It presents a wide range of information resources and online services from various government agencies which can be accessible from a single point.

In technical aspect, the result of Google PageSpeed™ Insight showed that the website operates well both from PC and from Mobile Device. The portal also connects to various Social Networks such as Facebook, Twitter, YouTube, and Flickr, plus there is a feature allowing users to receive update via mail notification. In terms of accessibility, Australia.gov.au is currently compliant to Level A of the Web content accessibility guidelines version 2.0 - external site (WCAG 2.0) standard.

4.5 Government CIO [GCIO]

After just 12 months being the leader of heading up IT governance and whole-of-government IT policy for Federal government, Australian government chief information officer Glenn Archer left his position at AGIMO. In this sense, the federal government will no longer have a chief information officer after deciding not to replace the position of former CIO Glenn Archer[3]. This restructure effort is supposed to reduce the "duplication and unclear objectives for whole-of-government policies".

Although the government CIO role is no longer exist at Federal government level, the presences of IT champions are still found at other departments and State level governments. For example, the City of Melbourne has appointed PwC partner Michelle Fitzgerald as Victoria's first ever chief digital officer.

The Corporations Act 2001 imposes a number of legal responsibilities upon company directors, secretaries and "officers" which is broadly defined to cover COOs, CTOs, CIOs and Information Systems Managers. These requirements suggest, as a director or officer, an obligation to uphold due care and diligence.

4.6 D-Government Promotion [EPRO]

The digital interactions between Australian government with various stakeholders such as citizens, businesses, employees and other governments has been increased through years. This is the result from the

[1]https://my.gov.au
[2]https://developers.google.com/speed/pagespeed/insights.
[3]http://www.itnews.com.au/news/australian-government-abandons-cio-role-384743

government's continuous efforts to develop and promote digital government. As stated in the Digital First, the Australian Government aims to digitalized end-to-end government transactions by 2017.

4.7 D-Government Participation [EPAR]

With well-established D-Government channels, the rate of interacting with government has been increased: two-thirds of Australian using D-Government services for their most recent contact (AGIMO, 2011). Australia national portal offers a good platform to encourage the citizens to take part in various activities and discussions with government. Consultation processes supported by a diversity of technologies allow people and communities to be actively involved in designing and developing policy and services.

4.8 Open Government Data [OGD]

After joining the Open Government Partnership on 2013, on 11th April 2016, the Australian Government held the co-creation workshop to develop its first National Action Plan (NAP) for Open Government. Stakeholders from civil society and Government were invited to consult and suggest on the draft of the plan. Around 210 actions were grouped into 18 proposals which were then prioritized by participants and turned into 14 commitment templates [4].

As of May 2016 the Australian Government's data site data.gov.au includes 8000 datasets from the Australian Government and state and territory governments. This initiative was created under Government's Declaration of Open Government and as a response to the Government 2.0 Taskforce Report.

4.9 Cyber Security [CYB]

Cyber security is one of Australia's national security priorities. A new long-awaited national cyber security policy was released in mid-2016, establishing five themes of action for Australian Government until 2020: A national cyber partnership; strong cyber defense; global responsibility and influence; growth and innovation; and a cyber smart nation.

Australian Government Cyber Security Architecture[5]

In terms of cyber security government entities, Australian Government aims to strengthen its leading role on cyber security policy by establishing a new position in the Cabinet: The Prime Minister's Special Adviser

[4]http://ogpau.govspace.gov.au/
[5]https://cybersecuritystrategy.dpmc.gov.au/assets/pdfs/dpmc-cyber-strategy.pdf

on Cyber Security. The national Computer Emergency Response Team (CERT) Australia works in collaborating with over 500 businesses and advises on cyber security threats to the owners and operators of Australia's critical infrastructure. The Australian Cyber Security Centre, established in 2014, gathers cyber security capabilities across the Australian Government to enable collaborating and sharing threat information.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The Government launched its Cloud Computing Policy in 2014, mandating Government agencies to adopt a "cloud first" approach whenever possible. By September 2014, a Request for Tender (RFT) to establish the Whole of Government Cloud Services Panel (including Software, Platform and Infrastructure as a Service, and Specialist Cloud Services) has been published on AusTender. The Digital Transformation Office has created cloud.gov.au as a new platform to facilitate digital services delivery. The first service was expected to be presented on the platform in February 2016.

Regarding Big Data, The Australian Public Service Big Data Strategy was developed by Ministry of Finance and endorsed by the Secretaries' ICT Governance Board to provide a whole-of-government (WofG) approach to big data. In parallel, The WofG Data Analytics Centre of Excellence (CoE) was established by the Australian Taxation Office as a place to build analytics capability across government [6].

5 Some Highlights

Australia has shown incredible progress over the past few years in developing its digital government efforts, and has quickly become one of the leading innovators in this area. The addition of the Digital Transformation Agency this past year was one major addition in the past year, and it appears to be primed to continue to compete with other top governments in the coming years. Australia is also a leader in e-Participation, and its mandatory voting policy provides an impetus for the government to ensure that it is simple and easy for each citizen to participate fully in the democratic process.

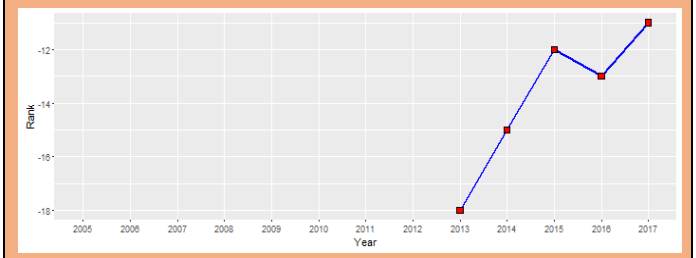
Data shows that there has been only limited progress in adopting cloud services by government agencies to date although there were cloud policy and guidance already in place[7]. Until 2014, cloud procurements in AusTender have only in total $4.7m since July 2010 (while the total expenditure of Australian Government on ICT is approximately $6bn annually)[8]. It is recommended that Australian Government should embrace the power of emerging technologies such as Cloud Computing, Big Data or Internet of Things into government's operation activities to get a higher position in the ranking.

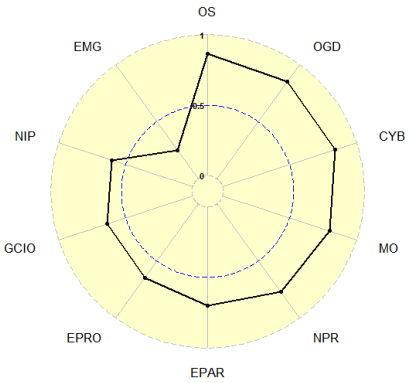
[6] http://www.finance.gov.au/archive/big-data/
[7] http://www.finance.gov.au/files/2012/09/a-guide-to-implementing-cloud-services.pdf
[8] http://www.finance.gov.au/sites/default/files/australian-government-cloud-computing-policy-3.pdf

Austria

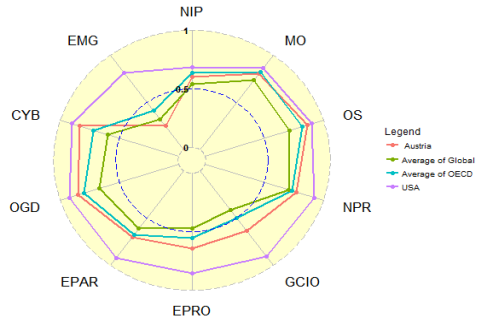
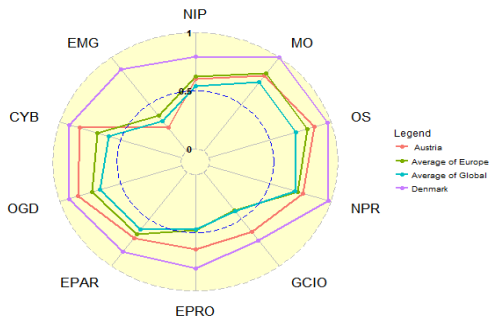
1 General Information

Area: 83,871 km^2
Population: 8,711,770
Government Type: Federal Parliamentary Republic
GDP: $47,900
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	European Countries
	

Among OECD Countries, all indicators except the Use of Emerging Technologies for Government (EMG) indicator are above or same with the average score of OECD members. Amongst European countries, Austria is placed below Denmark, the best country in the European region.

3 D-Government Development

The development and implementation of electronic public services is one of the priorities of the Austrian Federal Government. Austria has been at the forefront for many years in the D-Government arena. The diverse efforts and leading D-Government initiatives of the Austrian government have been recognized many times at the European level. The Platform Digital Austria, which was created in 2005, has become the center point for coordination and strategy of D-Government in Austria by the Federal Government. All D-

Government projects in Austria now run under the Platform Digital Austria designation. It coordinates all the agendas of the "Kooperation BLSG" (which stands for Cooperation of Federal Government, Provinces, Municipalities and Communities), previously known as the E-Cooperation Board, and the ICT Strategy Group, formerly known as the ICT Board. The advantages of having a single chairmanship in charge of projects are obvious. Projects are coordinated with one another so any projects which are too similar can be detected and duplication of effort can be avoided. The chairmanship of Platform Digital Austria is held by the Federal CIO.

virtualD-Government structure of Austria

The Austrian D-Government platform is chaired by the Federal Chancellor and involves several ministers, the representatives of the provinces, municipalities, cities and the business sector. The main intention of the D-Government platform is to consolidate and improve the present different D-Government solutions and to develop new activities common to all authorities. Communication between all members should be ensured by the Executive Secretary of the e-Cooperation Board (IKT-Board).

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 83.9% of people in Austria were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 28.6% have fixed-broadband subscriptions, and wired broadband subscription has reach 68.6%.

4.2 Management Optimization [MO]

The Federal D-Government Strategy provides an efficient implementation of electronic government services, based on the basic premise that all businesses and citizens must be able to perform all the procedures of public administration quickly and easily electronically without having special technical expertise. To achieve this goal, the Austrian D-Government strategies are based on the involvement and close cooperation between the federal state, cities and municipalities.

The Platform Digital Austria (PDÖ), developed an overall concept during a strategy session in 2015 for the coordination and strategy board of the federal government for D-Government in Austria. The platform members formulated the concept for successful cooperation and Visions 2020.

4.3 Online Service [OS]

The score for Online Service is based on five investigated online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services were investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service has the lowest score, compare to

other online services. The Electronic Health Record ELGA (e-Health) is an information system that facilitates access to health data. It is open to all people, which are supplied in the Austrian health care system as well as their doctors, hospitals, nursing homes and pharmacies available.

In addition, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services. And all of Online Service except the One Stop Service in Austria has reached a transactional in which user can start the transaction from applying to receiving the service through the portal in terms of complexity level.

To measure the level of convenience, the third party application result has showed that e-Procurement, e-Tax and e-Customs portals are above the average. The third party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	https://portal.bbg.gv.at/
e-Tax	https://finanzonline.bmf.gv.at/fon/
e-Customs	https://finanzonline.bmf.gv.at/fon/
e-Health	https://www.gesundheit.gv.at/
One-Stop Service	https://www.help.gv.at/Portal.Node/hlpd/public

4.4 National Portal [NPR]

The score for National Portal is based on three factors: Information (Content), Technical, and Functionality. National Portal of Austria "http://help.gv.at/", is an Internet platform linking to a large number of public authorities. It provides information on all interactions with Austrian authorities required in the most frequent life situations such as pregnancy, childbirth, marriage or housing, and permits the electronic processing of some of these procedures. The portal constitutes an interface between authorities and citizens, with special emphasis on transparency, user-friendliness and clarity of information. However, the portal does not provide the user with news and blogs. And, in technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is about average on both from PC and from Mobile Device.

4.5 Government CIO [GCIO]

The Federal CIO, appointed by the Federal Government in 2001, advises the Federal Government at strategic and technical levels, supports the formulation of its D-Government policies, chairs the Platform "Digital Austria" and promotes Austrian D-Government solutions in the European and international arena. The members of the ICT Board were comprised of the Chief Information Officers (CIOs) of the provinces, who were nominated by their respective ministers. The ICT Board was headed up by the Federal Chief Information Officer, who was nominated by the Federal Government. The Federal CIO coordinated the ICT ideas and strategies that came from the ICT Board with the provinces, municipalities and local communities. Currently, the chairmanship of Platform Digital Austria is held by the Federal CIO Prof. Dr. DI ReinhardPosch, who has been appointed directly by the Federal Government.

4.6 D-Government Promotion [EPRO]

The D-Government Act is the core of Austrian laws on D-Government. This law serves as the legal basis for D-Government services. It enables closer cooperation between all authorities that provide D-Government services and gives them the opportunity for networking together.

4.7 E-Participation [EPAR]

The technical basis for e-participation in Austria is well developed, yet accessibility of municipal web sites and the phrasing of information leaves space for improvement. E-participation in Austria is still in a nascent state and requires the convergence of technical, political, legal and socio-economic factors, which have not yet fully arrived at the municipal level.

4.8 Open Government Data [OGD]

Austria has recently launched the Open Data portal "http://data.gv.at/", and in the autumn of 2012 the competition "apps4austria" was launched to present prizes for the first time to web applications, mobile applications (apps), visualizations and concepts that develop open data records of public administration in a user-friendly manner.

4.9 Cyber Security [CYB]

The Austria Cyber Security Strategy (ACSS) is a comprehensive and proactive concept for protecting cyber space and the people in virtual space while guaranteeing human rights. Most importantly, however, it will build awareness and confidence in Austrian society. Austria's Cyber Space Security Strategy has been developed on the basis of the Security Strategy and is guided by the principles of the Austrian Programme for Critical Infrastructure Protection.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The Austrian Government considers and fosters Big Data as important lever to increase efficiency within public administration, to improve existing and create new services for citizens and entrepreneurs. The electronic census is another best practice of big data in Austria.

5 Some Highlights

Among ten indicators in the current ranking, the Open Government is the top indicator in Austria. Other hand, Management Optimization, Cyber Security, Online Service and National portal are the same high level among other indicators. This result shows that the Platform Digital Austria, which was created in 2005, has become the center point for coordination and strategy of D-Government in Austria by the Federal Government. All D-Government projects in Austria now run under the Platform Digital Austria designation.

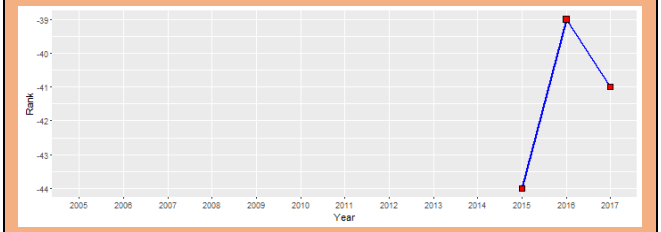
Moreover, in terms of D-Government platform, the Business Service Portal "http://USP.gv.at/", an initiative of the Federal Government, has been offering useful information on a wide range of topics that are of interest to businesses. The portal aims to serve as a single entry point for businesses to the administration. By offering information (administrative activities, starting a business, tax and legal requirements) and transaction services, it intends to help businesses to fulfill their information obligations and to reduce their administrative burden.

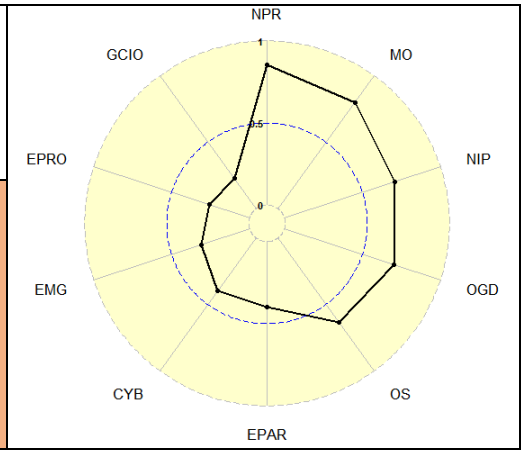
The weak point in Austria is about the use of emerging ICT. As for the emerging technology, it is the new indicator for this year survey. Austria is commencing the use of Big Data as important lever to increase efficiency within public administration.

Bahrain

1 General Information

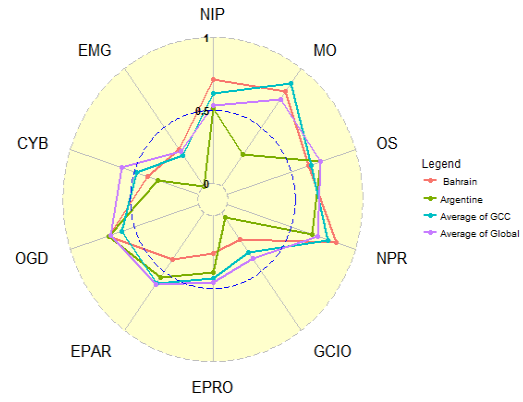
Area: 760 km^2
Population: 1,378,904
Government Type: Constitutional Monarchy
GDP: $ 50,300
Historical Ranking (2005 – 2017):



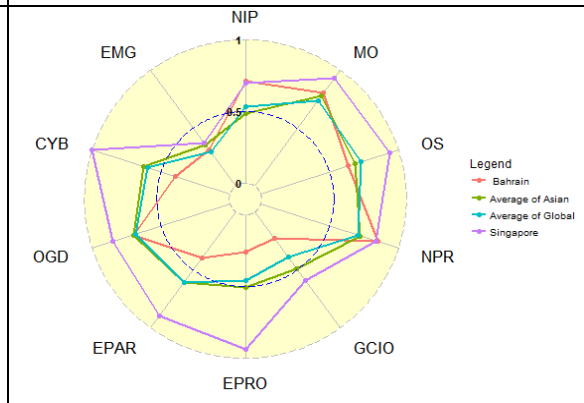


2 Positioning in a global organization and a region

GCC Organization



Asian Countries

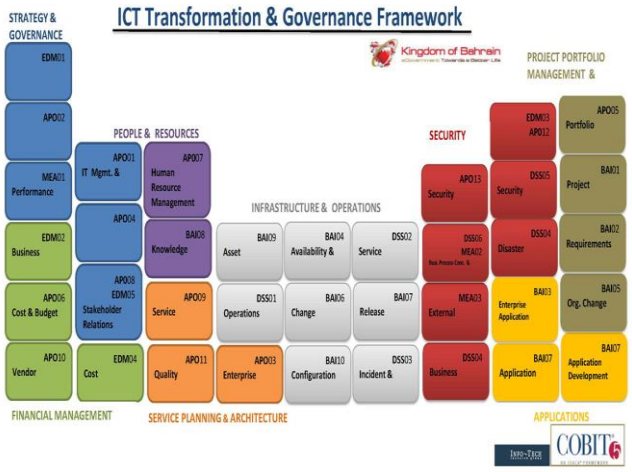


Among GCC Countries, Bahrain has a better score than the average score of GCC Countries in basic infrastructure, National Portal, Open Government Data, and Cyber Security. As shown on the above picture, Bahrain is very low on the D-Government Promotion indicator. Furthermore, the lack of D-Government Promotion in Bahrain can be considered as one of the reason for the similar situation on Online Service or even on Management Optimization which is below the average of GCC Countries.

Achievement in some indicators also reflect the position in Asian region in which Bahrain is considerably approaching Singapore, the best in the Asian region, at the basic infrastructure and National Portal.

3 D-Government Development

D-Government development in Bahrain was started in 2009 when the Bahrain delegation attended the first GCC D-Government Conference in Oman. In 2011, Kingdom of Bahrain launched the new D-Government Strategy 2012-2017. Kingdom of Bahrain develops D-Government using CObIT as the reference for ICT Governance. The policy contains seven elements that represent the objective of the strategy. Picture 1 illustrates the ICT Transformatino and Governance Framework of Kingdom of Bahrain.



Cobit-based ICT Governance Framework
Source: D-Government Authority of Bahrain

As part of the strategy, 32 government agencies actively participated in an e-Readiness study for the development of D-Government Bahrain. Moreover, D-Government Authority has identified thirteen initiatives with high priority. These initiatives are the flagship that will enable further development.

These 13 agency programs are Case Management System, Customs and Ports, Education, e-Health, e-Office, e-Procurement, G2B Portal, G2E Portal, National Employee Programme, National Data Set, Real Estate Services, Social Information System, and Tourism Services.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 93% of people in Bahrain were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 18.4% have fixed-broadband subscriptions, and wired broadband subscription has reached 141%.

4.2 Management Optimization [MO]

As an effort to bring the government to the next level, Kingdom of Bahrain has launched the New D-Government Strategy 2017. The strategy is equipped with several initiative strategies and measurable Key Performance Indicators (KPI). Furthermore, Action Plans and Agency Involvement are stated clearly in the New D-Government Strategy 2017.

In developing the D-Government, Bahrain adopted the enterprise architecture practices. Kingdom of Bahrain has developed its own EA named "National Enterprise Architecture Framework" (NEAF). To streamline the data exchange among government agencies, Kingdom of Bahrain has established National Data Center Consolidation (NDCC). Contribution from operationalization of both NEAF and NDCC is very significant in this area. Despite a positive nuance in this indicator, there is a lack of integrated financial information system in Bahrain.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service and e-Health have the lowest score, compare to other three online services.

In term of complexity level, except the e-Tax, all of Online Service in Bahrain have reached a transactional in which user can start the transaction from applying to receiving the service through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and

Password Protection for obtaining the services. Since the e-Tax system cannot be accessed during this study, it is considered that e-Tax is still immature in the Kingdom of Bahrain, hence, such security measures are not found in it.

For measuring the level of convenience, the third party application result has shown that three portals are above the average considerably in term of speed. Except e-Procurement, all online service in Bahrain got scored below average, thus, significantly slow to access. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://etendering.tenderboard.gov.bh/
e-Tax	N/A
e-Customs	http://www.bahraincustoms.gov.bh/
e-Health	http://www.moh.gov.bh/EN/E-Services/E-Services.aspx
One-Stop Service	https://www.bahrain.bh

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Bahrain (http://www.bahrain.bh) contains proper information for local citizens and foreigners. Information about Bahrain is available on the portal. The user can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average both from PC and from Mobile Device.

4.5 Government CIO [GCIO]

Kingdom of Bahrain has established D-Government Authority as a GCIO Office. Head of this authority takes the responsibility similar to the GCIO. GCIO is important to deliver an active sponsorship through strong leadership. In contrary to the presence of GCIO at a national level, the presence of any formal document that clearly stated the mandate, the responsibility, and the position of GCIO in local government is hardly found.

4.6 D-Government Promotion [EPRO]

There is no significant evidence to indicate that Bahrain government conduct any initiatives to promote the use of D-Government Service. This situation is similar to the one in any developed countries where the IT Culture has been embraced in the society. However, Bahrain is not considered as a developed country. Without any efforts to increase the citizen awareness on D-Government, the massive investment in developing D-Government in Bahrain could become meaningless where residents do not use the e-Services only because they do not know how to use it, and they do not know that the e-service does exist.

4.7 E-Participation [EPAR]

A low score in this indicator is a kind of stereotype in a monarchy system. In Bahrain, it is rather difficult to find government officer's websites. Parliament member does not have an official website to gather opinions from citizens. Bahrain only uses two methods for gaining citizen's expressions; Pooling through https://www.bahrain.bh and Tawasul Program through http://services.bahrain.bh. The presence of these two programs helps Bahrain to get the score for this indicator.

4.8 Open Government Data [OGD]

Despite the absence of Freedom of Information Act, Kingdom of Bahrain considers that public has right to obtain information from the government side. As part of D-Government Strategy under National Data Set Program, Kingdom of Bahrain has appointed Central Informatics Office (CIO) to establish and manage Bahrain Open Data Portal at https://www.data.gov.bh. Considering the risk of irrelevant and not-up-to-date, CIO included a regular submission of information for the Open Data Portal as a KPI in each government agency.

4.9 Cyber Security [CYB]

Bahrain has ratified several laws related to cybersecurity. Some of them are as follow:

- Cyber Crime Law No. 60/2014
- Data Protection Act 1998
- Law No. 16 of 2014 concerning Protection of State Information and Documents
- Regulation 9 of 2009 concerning Lawful Access
- Cyber Crime Law No. 60/2014
- Law NO. 28/2002 about Electronic Transaction

In addition to these laws, Bahrain has established The General Directorate of Information Security, Central Informatics Organization. It is the agency whose responsibility is to implement a national cybersecurity strategy, policy, and roadmap. In addition to that, Bahrain has created Bahrain CERT for monitoring and solving Internet Security problems.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Bahrain has attempted to implement Cloud Computing for Public Sector. Some provisional programs have been launched such as National Gateway Interface, National Authentication Framework, Project Management Toolkit for governmental entities, and National Payment Aggregator. Other emerging technologies for government agencies are still nullity in Bahrain.

5 Some Highlights

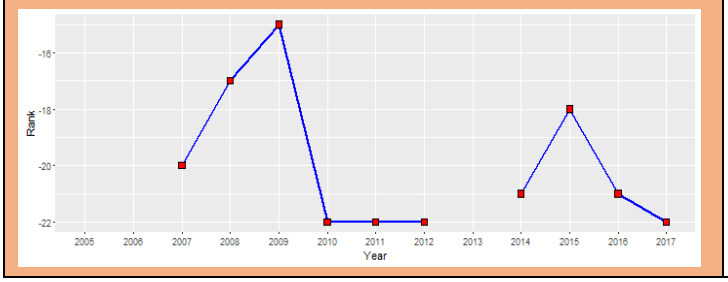
Among ten indicators in the current ranking, the National Portal and the Management Optimization are the best among other indicators in D-Government Bahrain. This achievement signifies the importance of the New D-Government Strategy 2017 for improving the quality of government business process. Bahrain implements several best practices for developing D-Government system. Enterprise Architecture is adopted to develop Bahrain National Enterprise Architecture Framework. COBIT 5 is applied for designing IT Governance Framework.

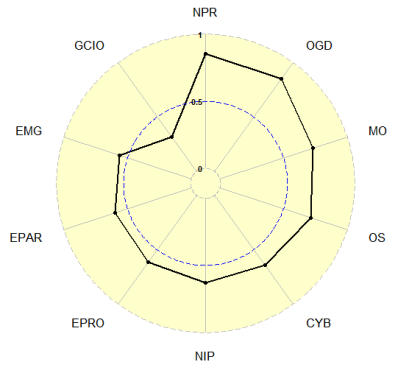
The weak point in Bahrain is about D-Government Promotion and the use of emerging ICT. For developing countries, D-Government Promotion is crucial to make sure that what was built will deliver benefit to the citizen. On the other way, D-Government Promotion is important to encourage citizen for using the D-Government service. In the end, through D-Government Promotion, there is a balance between what is offered by government and what is needed by citizens.

Belgium

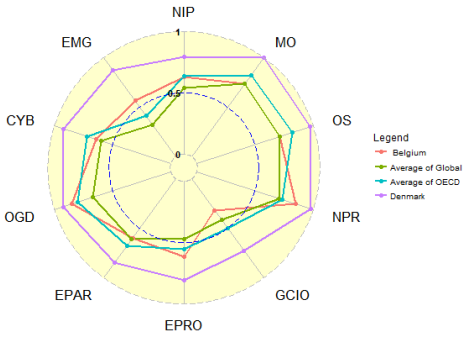
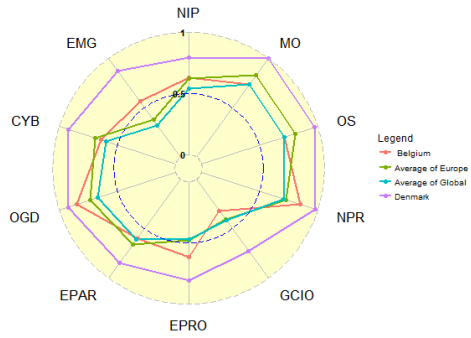
1 General Information

Area: 30,528 km²
Population: 11,323,973
Government Type: Federal constitutional monarchy
GDP: $44,100 (2015)
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

OECD Countries	Europe Countries
	

3 D-Government Development

D-Government in Belgium developed early. The first parliamentary review of D-Government in Belgium, 'D-Government at the Federal, provincial, and local levels' was published in January 2001. The main objectives of Belgian D-Government in this period was to improve the delivery of public services for citizens and businesses by rendering it faster, more convenient, less constraining and more open.

During many years of development there have been various D-Government strategies for central and local government. Today, Belgium D-Government focuses on the following key areas: (i) user centricity, (ii) transparent government, (iii) cross border mobility, and (iv) key enablers.

The newest action plan Digital Belgium was introduced by Deputy Prime Minister and Minister of Digital Agenda and Telecom in April 2015. The key objective is to achieve growth and create jobs through digital

innovation in the coming years. The action focuses on five priorities, (i) digital economy, (ii) digital infrastructure, (iii) digital skills and jobs, (iv) digital trust and security, and (v) digital government.

In center government, Belgium government has Open data strategy toward 2020. The objective is to strengthen the digital ecosystem and the evolution towards leaner, more efficient and modern administration. The most important part of the plan is to create the default for all government data, except for information with privacy or security implications.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Belgium has well-developed ICT infrastructure, for the Internet connection its ranking among the top countries in the world in terms of total number of Internet users, fixed broadband users, mobile broadband users, and Internet hosts. The Belgian ICT market is mature and sophisticated, yet open, innovative and highly competitive. According to the ITU, the Internet Usage Statistics in Belgium as of December 2016 is about 90% penetration. The number of broadband connection in household is about 90% while the number connection in enterprises is 97%.

4.2 Management Optimization [MO]

Belgium has divided by Federal Government and three regions. Therefore, they have center government and local government with many dependent strategies. In 2015 the head of D-Government issued a new action program for Belgium, called Digital Belgium. This program focuses on three ambitions toward 2020. Belgium aims to reaffirm its place on the digital map as based upon following five priorities: (i) Digital Economy; (ii) Digital infrastructure; (iii) Digital skills and jobs; (iv) Digital trust and digital security; and (v) Digital government.

Federal introduced the Federal D-Government strategy for social sector, this strategy aims to a single virtual Public Administration. The main objective is to improve the delivery of public services for citizens and businesses by rendering it faster, more convenient, less constraining and more open. This strategy is following some axes such as the optimal service delivery to citizens, the explicit choice of a collaboration among all stakeholders, the use of a common vision for the use of information, information security and protection, the maximum use of common elements for networks, eID, and the establishment of a strong partnership.

To create the D-Government strategy, the Belgian D-Government is based on 4 main strategic streams (1) Re-engineering and integrating service delivery, (2) Cooperation among all levels of Government so as to provide integrated services, (3) Simplification of administrative procedures, and (4) Back office integration.

4.3 Online Service [OS]

Like other developed countries in Europe, D-Government services in Belgium are divided in to D-Government for citizens and D-Government for businesses. The e-Services for citizens are focused on health care, social security service and education. E-Services in Belgium are provided through one-stop services (portal). Belgium has more developed systems considering that they now have 20 basic public services, but in this ranking Waseda focuses on 5 groups of services, which are e-tax, e-customs, e-health, e-procurement, and one-top services.

E-procurement (https://enot.publicprocurement.be) was introduced in 2008, the Belgian public procurement portal provides links to portals and platforms which currently cover three of the main aspects of the procurement process, namely, e-Notification, e-Tendering, e-Awarding and e-Catalogue. It is available in English, French, Dutch and German.

4.4 National Portal [NPR]

The federal portal (www.belgium.be) was introduced in 2002. A new version of the portal was released in 2008. This portal is one-stop services for all citizens and businesses. The information in federal portal is introduced by Dutch, English, French and German. The design of portal is user-friendly and easy to use. A major section of the new portal links to all the available public services online. Users looking for a specific service can refine their search by theme, target group and/or level of Government involved. Several of these e-Services are secured and require authentication.

The portal shows up a lot of information on Justice, healthcare, mobility, environment, economy, tax, education, and social services. From this portal, guests can know overview Belgium information. It is available in four languages and it has a link to typical social media such as Facebook, and Twister, through this portal, we can access to all government agencies, ministries, and others Belgian departments.

4.5 Government CIO [GCIO]

There is no change in this indicator compares the ranking last year. There is no specific law or mandate in Belgium creating the CIO position in the government. In Belgium, the Waseda ranking found the CIONET. It is a network of CIOs CTOs and IT managers with offices in many European countries.

The CIO Forum is a part of a passionate community but it only related to Belgian business not government section. The CIO forum is created to organize networking events and provide an interactive social platform to bring IT professionals together in an open and trustworthy community in Belgium.

4.6 D-Government Promotion [EPRO]

During one year of evaluation, there is not much information relates to D-Government activities even Belgium is divided into Federal government and three regions. In Flanders region, they created Flanders Information Agency in 2015. It promotes the use the use of open data standards by public administrations in the Flemish region by aligning the existing and future business processes involving open data with European linked open data standards, and with advances foreseen in the use of these standards.

4.7 E-Participation [EPAR]

The Federal Government of ICT set a strong focus and an increased efforts on e-participation and e-Inclusion plans. Recently, the utilization of Social Networking Services (SNS) promoted the participation of citizens in providing feedback to the government and reception of government information easily though the Social Media such as Facebook and Twitter. ICT policy and e-Inclusion policy in Belgium is to a large extent demand- and sector-driven. This is partially explained by the institutional arrangements that govern the country. In social affairs, many institutional channels exist through which social organizations and pressure groups can express their concerns.

4.8 Open Government Data [OGD]

The federal government departments and institutions made open data available on “Data.gov.be”, in October in 2008. This portal enables all government bodies to make available their data to citizens and businesses by using the information provided. For the first time, Data.gov.be went from only 60 datasets to more than 4900 datasets. The datasets cover many fields, including Agriculture and Fisheries, Culture and Sports, Economy and Finance, Education, Energy, Environment, Health, International, Justice, Population, Public sector, Regional, Science and Technology, and Transport.

Most of datasets is free, each federal department or federal government institution itself determines the terms and conditions governing access to and use of the data. The datasets are also divided to three languages, English, Dutch, and French.

In 2015, the Deputy Prime Minister and Minister of the Digital Agenda and Telecoms announced a new open government data strategy, the aims of this strategy is to strengthen the digital ecosystem and the evolution more efficient and modern administration. This strategy makes a plan to create government data for center and local government.

4.9 Cyber Security [CYB]

In Belgium, the Cyber Security receives the highest consideration. The Federal government has issued a series law related to freedom of information legislation, data production/privacy legislation, eSignatures legislation, e-commerce legislation, e-communications legislation, e-Procurement legislation, Re-use of Public Sector Information.

In 2012, the Prime Minister presented a national cyber-strategy. The strategy identifies 3 strategic objectives which are to be realized through different initiatives in eight identified action domains. These 3 strategic objectives are 1) a safe and reliable cyberspace, 2) an optimal security and protection for critical infrastructures and governmental information systems, and 3) the development of national cyber security capabilities.

The Belgian Cyber Security Guide was presented in the International Cyber Security Strategy Congress September 2013 following 10 principles: looked beyond the technology, do not consider compliance as sufficient, translate your vision and approach in a security policy framework, ensure executive sponsorship, define a dedicated security role in your company and embed personal responsibility, remain secure even when you outsource, ensure security is an enabler for new technologies and innovation, keep challenging yourself, maintain focus, be prepared to handle incidents.

4.10 The use of Emerging ICT [EMG]

This indicator is the newest indicator in Waseda D-Government ranking. This indicator refers to the usage of cloud computing technology in sharing data among government agencies, departments as well as between center government and local government. The use of emerging ICT is also the application of IoT, and Big data in the activities from government.

In the evaluation, we found that there is regulation on the use of Cloud Computing, IoT, and Big data for government agencies but there is no evidence that government agency has used Big Data.

5 Some Highlights

In order to improve public services delivery for citizens and businesses, the Belgian government has adopted four main strategic streams for its D-Government program, as follows: 1) Re-engineering and integration of service delivery around user's needs and life events. 2) Cooperation among all levels of government so as to provide integrated services across organizational boundaries and administrative layers. 3) Simplification of administrative procedures for citizens and businesses. This requires an increased exchange and sharing of data and information between government departments and agencies. 4) Back-office integration and protection of personal data.

Brazil

1 General Information

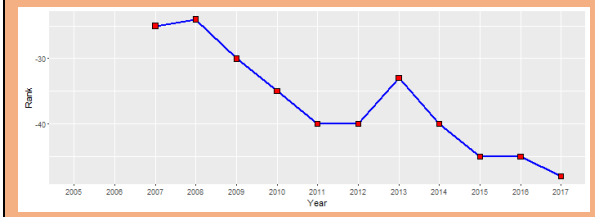
Area: 8,515,770 km^2

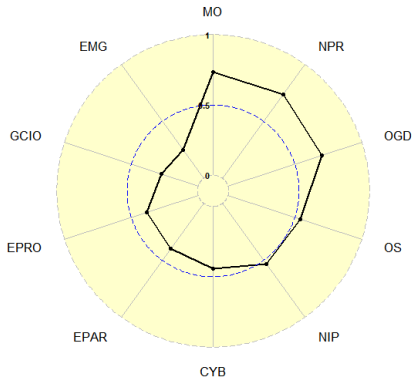
Population: 204,259,812

Government Type: Federal presidential republic

GDP: $15,800

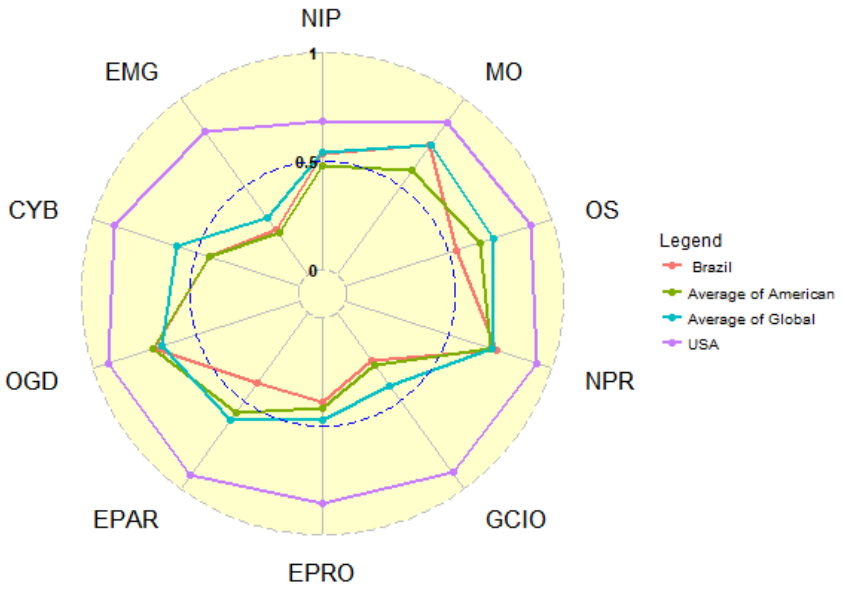
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

America Countries



3 D-Government Development

D-Government in Brazil was developed rapidly in the 1990s at three levels, federal, state and municipal government. The first D-Government project in Brazil was e-Brazil Project, it launched at the 33rd National Seminar on Public Informatics. It seeks to promote what we call e-development, a broader vision than D-Government, including the private sector, NGOs, and academia as well as governments.

Brazil is now still struggling to improve the efficiency of the public policy and service for societies via D-Government, and tries to improve efficiency and transparency of the management process through giving opportunity for its citizens to access government information and to participate in some political administrative decisions.

The Open Government Partnership (OGP) – of which Brazil is co-leader – is recognized as an effort of several partner countries to make governments more transparent, effective and reliable through the establishment of Open Government goals included in the agendas of each country. The Government Open Data aims at publishing government data in reusable formats and increasing transparency and greater political participation of citizens, as well as generating several applications collaboratively.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The growth of ICT in Brazil has been impressive, with the ICT sector being one of the most affected by the economic opening up process observed during the 1990s. In Brazil, 67.5% of the population uses the Internet, an increase over the previous year. The number of fixed-broadband subscriptions is 12.2 per 100 inhabitants, while the number of active mobile broadband subscriptions is 88.6 per 100 inhabitants.

4.2 Management Optimization [MO]

The history of Brazil's D-Government development officially started in 2000, thus Brazil is relatively in the early stage in applying knowledge management technique in its D-Government. Brazil is now struggling to improve the efficiency of the public policy and service for societies via D-Government, and tries to improve efficiency and transparency of the management process through giving opportunity for its citizens to access government information and to participate in some political administrative decisions.

The government has defined its D-Government strategy for the period 2016-2019, in which it identifies the challenges and opportunities of promoting the utilization of ICT in public administration. This document defines ten strategic objectives in three areas: access to information, services, and social participation. For each objective, different indexes, responsible agencies, and goals are clearly defined, as well as initiatives to achieve them.

4.3 Online Service [OS]

In this ranking, Waseda considers 5 services for each country: e-procurement, e-tax, e-customs, one-stop service, and e-health. Brazil has a dedicated website for information and services related to D-Government and open data (http://www.governoeletronico.gov.br), which provides links to other services' sites, as well as useful links to other governmental sites. It has to be noted that this web page has kept its structure for the past four years. It might be desirable to change its appearance and interface. The E-procurement site got a high score in the evaluation. The one-stop service site is also the national portal. But, there is not much information on e-health. As for e-health service, Brazil has static website only. No interaction or transaction sites are integrated.

4.4 National Portal [NPR]

The national portal (http://www.brasil.gov.br) was launched in 2013 as an effort to provide citizens access to public information, services, and increased participation. It shows news on the government activities, economic, legislation, to D-Government services for all citizens and businesses. However, it does not include basic information on the country or its demography. The national portal is available also in English. It also is a one-stop service website, but some e-Services such as passport and visa, e-tax have information only, not including transactional or interactive features. The portal integrates SNS services, offering a smoother communication between citizens and the government.

4.5 Government CIO [GCIO]

The Government Chief Information Officer (GCIO) position is not included in the official structure of the country. However, as a similar position with CIO, Ministry of Planning, Budget and Management perform the tasks of CIO in Brazil. The Ministry of Planning, Budget and Management mainly perform the following tasks; assistant of national strategic planning and management, evaluating federal government policies, elaborating government's new economic plan, etc. The research activity of Ministry of Planning, Budget and Management is mainly practiced through Brazilian Institute of Geography and Statistics and Institute of Applied Economic Research.

4.6 D-Government Promotion [EPRO]

The government promotes the utilization of ICT in public administration as shown by the legislation that approved the National D-Government Strategy for the period 2016-2019.

For this survey, legal aspect, enabling aspects, supporting aspects, and assessment aspects are used to evaluate the promotion of D-Government, however, little information was found to evaluate these aspects. In Brazil, there are not private entities involved at national level and local government. No information found on PPP or international and domestic collaboration involved. Some evidence of events related to the promotion of D-Government was found.

4.7 E-Participation [EPAR]

The Brazilian government has tried to improve the provision of information through SNS, and improving online services. Citizens have access to information regarding government structure, budget, legislation, and officials. It is also possible for citizens to send messages to the government and the president, who has an official website. In order to maintain citizens informed, the government posts news and content via Twitter.

4.8 Open Government Data [OGD]

The Brazilian government has an open data site (http://dados.gov.br/). It was introduced in 2012 to provide citizens access to data from public agencies. The Brazilian Portal Open Data is the tool provided by the government so that everyone can find and use the data and public information. The site is simple and organized so that it is possible to easily find the information needed. The portal also aims to promote dialogue between actors of the society and the government to think the best use of data for the sake of a better society.

4.9 Cyber Security [CYB]

Brazil is confronted with a wide variety of so-called cyber threats, including online scams, cybercrime, and digital surveillance. The cyber threats are growing across Brazil and fast evolving cyber-security apparatus. Brazil penalizes cybercrime, and has a law on e-Commerce; however, there is no specific law on data security or information protection. The cyber security response center is the CERT.br.

4.10 The use of Emerging ICT [EMG]

Despite the rise in Internet usage, as for IoT, the concept is quite new and awareness still low. During this survey, not much information on IoT and Big data could be found in the government activities. There is evidence that the government has used Cloud Computing Services from a private provider.

5 Some Highlights

One single page groups the electronic services provided by the Brazilian government and functions as the portal for D-Government initiatives in the country (http://www.governoeletronico.gov.br/). This site also provides useful links to other governmental sites. It has to be noted that this web page has kept its structure for the past several years. It might be desirable to change its appearance and interface. The national portal also offers news and information on procedures, working as a one-stop service website.

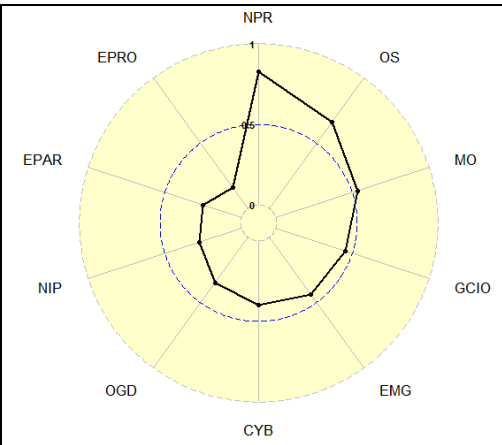
Brazil's Open Data portal is an integral part of the Open Data National Infrastructure aiming to provide one stop government data provider, to improve transparency, and to contribute towards a better policy-making. Brazil still lacks formal legislation addressing data protection.

Brazil is one of the biggest countries in terms of population and area, therefore a robust infrastructure is necessary to provide good quality e-Services to its citizens. The National D-Government Strategy for the period 2016-2019 aims to increase and improve the current utilization of ICT in public administration by defining clear objectives and initiatives to achieve them.

Brunei Darussalam

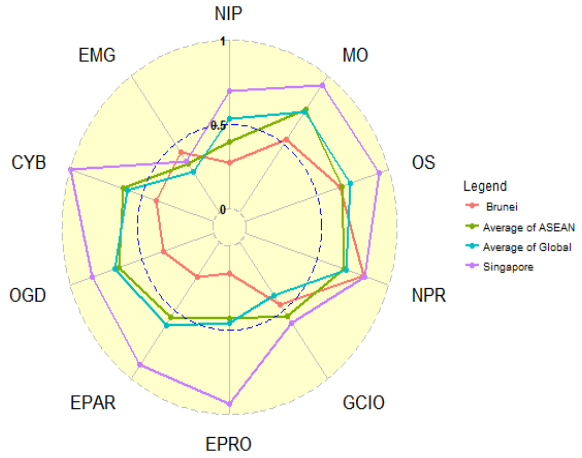
1 General Information

Area: 5,765 km^2
Population: 436,620
Government Type: Absolute Monarchy (Sultanate)
GDP: $79,700
Historical Ranking (2005 – 2017):

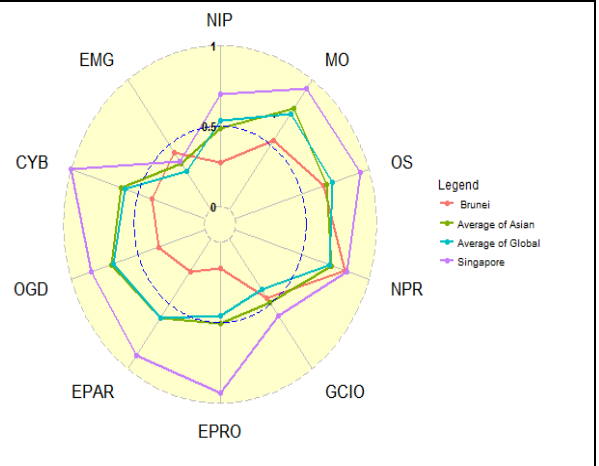


2 Positioning in a global organization and a region

ASEAN Countries



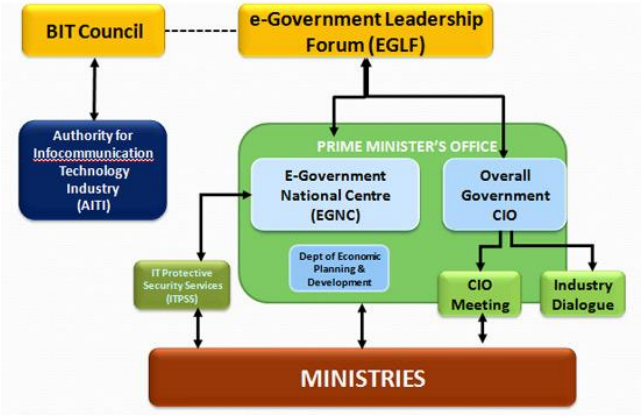
Asian Countries



Among ASEAN Countries, Brunei has a better score than the average score of APEC in National Portal and the use of the Emerging ICT. As shown on the above picture, Brunei is very low on the e-Participation, D-Government Promotion, and Network Infrastructure. Considering that Brunei is a rich small country similar to Singapore, its lack of basic infrastructure is questioning. The government type of Brunei, which is absolute monarchy, may contribute to the low score on e-Participation and D-Government Promotion. The positioning of Brunei in ASEAN countries is similar to its position in Asian countries.

3 D-Government Development

D-Government in Brunei is formally led by D-Government National Center (EGNC). EGNC provide both government institutions and government officers with various services. EGNC offers One Government Network and One Government Cloud to government institutions for reduce their capital expenditure on ICT infrastructure. For government officers, EGNC provide ONEPASS, a secure Digital Identity, for gaining the benefit of online collaboration among government officers.



Source: Brunei D-Government Center https://www.brunei.gov.bn/en/Pages/unused/About-D-Government.aspx

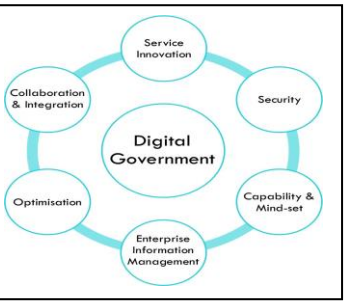
Government CIO is distinguished as the key factor of leadership in D-Government development. Brunei government established the D-Government Leadership Forum (EGLF) to strengthen the leadership in the area of D-Government development. Deputy Minister at the Prime Minister's Office chaired the forum to expose the strong commitment to D-Government development. This is the highest body for approving and monitoring the progress of D-Government development. All CIO in government institutions are involved in the forum. The Co-Deputy Chairman from the Prime Minister's Office appointed as the Overall D-Government Chief Information Officer (Government CIO).

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 71% of people in Brunei were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 4.5% have fixed-broadband subscriptions, but only 8% of the population has a wireless broadband connection.

4.2 Management Optimization [MO]



In 2014, Brunei has launched the Digital Government Strategy 2015-2020. The ultimate goal of this strategy is the Digital Government. There are six pillars that embody the Digital Government. These are Service Innovation, Security, Capability & Mindset, Enterprise Information Management, Optimization, and Collaboration & Integration.

To support these pillars, Brunei has developed One Government Network (OGN). The OGN is targeted to provide government agencies and other parties to establish inter-connectivity with other government agencies.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of

Security, and Level of Convenience. Among these five Online Service, e-Tax and e-Health are the best Online Service during the period of survey.

In term of complexity level, most of investigating Online Service in Brunei has reach a transactional in which user can start the transaction from applying to receiving the service through the portal. In contrast, e-Procurement in Brunei is still very simple and less complex than other online service. Except the e-Procurement, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

To measure the level of convenience, the third party application result has showed that all portal is above the average in term of speed. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	http://www.mof.gov.bn/index.php/general-information-state-tender-board
e-Tax	https://www.stars.gov.bn
e-Customs	http://www.bdnsw.gov.bn/Pages/Home.aspx
e-Health	http://www.moh.gov.bn/SitePages/Bru-HIMS.aspx
One-Stop Service	https://brunei.gov.bn/en/SitePages/Home-Citizens.aspx

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Brunei (https://brunei.gov.bn) contains proper information for local citizens and foreigners. Information about Brunei is available on the portal. User can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and from Mobile Device. The portal also provides the user with some functionalities such as searching, site map, and Social Network integration.

4.5 Government CIO [GCIO]

Brunei government established the D-Government Leadership Forum (EGLF) to empower the leadership in the area of D-Government development. The forum is chaired by the Deputy Minister at the Prime Minister's Office. All CIO in government institutions are involved in the forum. The Co-Deputy Chairman from the Prime Minister's Office appointed as the Overall D-Government Chief Information Officer (Government CIO).

There is a quarterly dialog meeting among GCIOs to share the members' experience during the D-Government Program/Projects. The output of the meeting will be discussed in the EGLF. The Permanent Secretary usually chaired the CIO Dialog Meeting.

4.6 D-Government Promotion [EPRO]

There is small trace in Brunei that indicates any initiatives related to promote D-Government for citizens. Although the Digital Government Strategy includes initiatives to increase the awareness of citizens on D-Government, the program and/or the activities to support the promotion strategy are hardly to find. In

addition to that, there is no information whether Brunei regularly evaluated their D-Government development or not.

4.7 E-Participation [EPAR]

E-Participation in Brunei is relatively low, compared to other indicators. It is susceptible to the absolute power of Sultanate. Most of government portal use twitter and Facebook as the only channel for citizens to give some idea or comment. There is no evidence about how the government proceed the citizens' comment.

4.8 Open Government Data [OGD]

During the research period, Open Data in Brunei is still at initial stage. Most of Data are about education and religion-related. Despite the limitation of variety of dataset, Brunei has appointed EGNC as the responsible institution for Open Data website.

4.9 Cyber Security [CYB]

Brunei has ratified several laws related to cybersecurity. Some of them are as follow:

- Chapter 197 Anti-Terrorism (Financial and Other Measures) Act
- Chapter 194 Computer Misuse Act
- Chapter 153 Official Secrets Act
- Chapter 108 Evidence Act

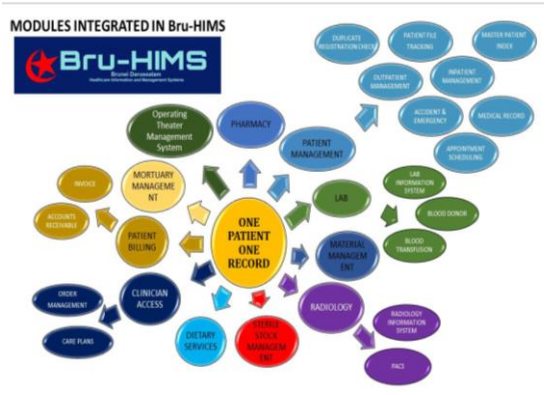
In addition to these laws, Brunei has strengthened organization capacity for cybercrime countermeasure by setting up National ICT Security Policy Authority and Bru-CERT.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Brunei has started to implemented Cloud Computing for running One Government Private Cloud (OGPC). OGPC offers Infrastructure-as-a-Service (Iaas) for government agencies. D-Government National Center maintains this Cloud Computing Services. Other emerging technologies are still immature and no evidence to prove that Brunei implemented Big Data and IoT.

5 Some Highlights

Among ten indicators in the current ranking, the National Portal and Online Service are the top two indicators in Brunei. National Portal Brunei contains useful information for local and also foreigners such as country information, tourism, and link to available e-services. Online service on Healthcare is one of vocal point in Brunei in year 2016 with its slogan "One Patient One Record". Using ID-Card, citizen can enjoy the Bru-HIMS using PC or using mobile device.



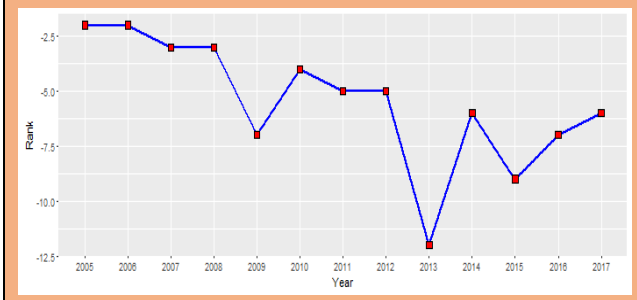
Bru-HIMS at http://www.moh.gov.bn

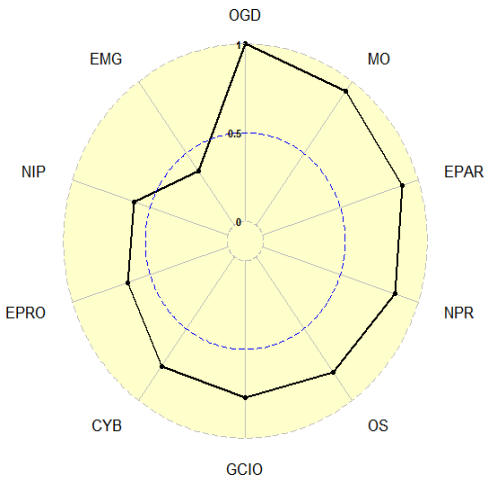
In this release, Brunei has the low score on D-Government Promotion and e-Participation. It is hardly to find any evidences or traces about campaign or other initiatives for promoting D-Government Services. E-Participation is considered very low in Brunei. The government system of Brunei may contribute to the implementation of e-Participation.

Canada

1 General Information

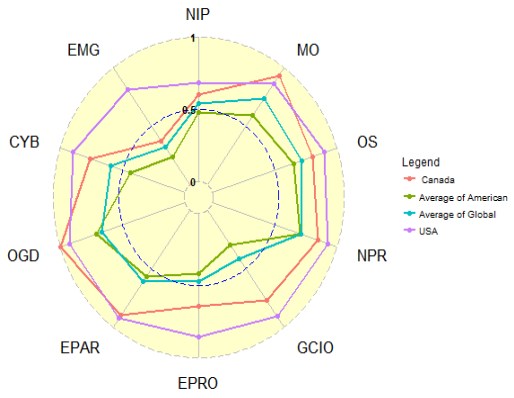
Area: 9,984,670 km^2
Population: 35,099,836
Government Type: A parliamentary democracy, a federation, and a constitutional monarchy
GDP: $45,900
Historical Ranking (2005 – 2017):



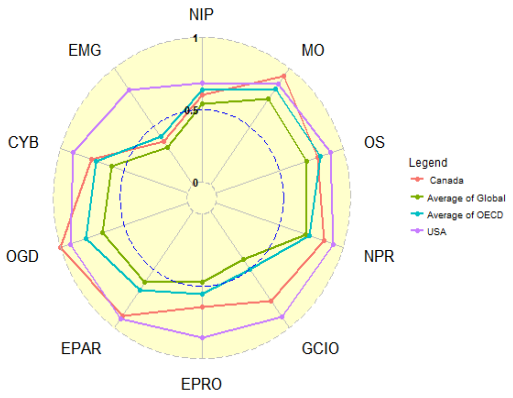


2 Positioning in a global organization and region

America Countries



OECD Countries



Canada has achieved great performance on all the indicators exceeding the average level of both America economies and OECD countries. The highest scores of the ten indicators are the Open Government Data , Management Optimization and e-Participation, especially full score on the OGD.

3 D-Government Development

Digital Canada 150 is the overall ICT strategy for nation which was launched in 2014. The Digital Canada 150 is aimed to take the full benefit of digital opportunity for Canadian. It is expected that in 2017, in a 150th anniversary of Canada, Canada will thrive the digital Canada which accentuates five pillars; connecting Canadians, protecting Canadians, economic opportunities, digital government, and Canadian content. By releasing the Digital Canada 150, Canadian government endeavors a new challenge for connecting the Canadian, that is shifting D-Government to digital government where the government service is digital by default.

To lead and take control of information management, Canada has set up The Chief Information Officer Branch (CIOB) in the secretariat organization. According to the official explanation, "The Chief Information Officer Branch (CIOB) provides strategic direction and leadership in the pursuit of excellence in information management, information technology, security, privacy and access to information across the Government of Canada. To facilitate this work, CIOB also provides support and guidance on capacity building and project management and oversight."

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 88.5% of people in Canada are internet users according to the report released by ITU. 36.4% are fixed-broadband users and the wireless-broadband users are 56.3%.

4.2 Management Optimization [MO]

In 2014, Canadian government has launched Digital Canada 150. The Digital Canada 150 is aimed to take the full benefit of digital opportunity for Canadian. It is expected that in 2017, in a 150th anniversary of Canada, Canada will thrive the digital Canada which accentuates five pillars; connecting Canadians, protecting Canadians, economic opportunities, digital government, and Canadian content. Canada has created Shared Service Canada for consolidating government back office system to save money, streamline process, and deliver better services. The initiatives are still continuing to support and stimulate the app economy by creating an open data ecosystem in Canada. By releasing the Digital Canada 150, Canadian government endeavors a new challenge for connecting the Canadian. The country will provide the Canadian with the digitally government services. In other words, the Canadian government will shift from D-Government to digital government where the government service is digital by default.

4.3 Online Service [OS]

Among five investigated online services, e-procurement, e-tax, one-stop-service are the better than the rest online service. These four online services provided the citizen the two way interaction with government, including e-payment, security, and automation. E-Health and E-Customs do not provide two-way interaction so far. E-procurement portal of Canada is managed by Public Works and Government Services Canada. E-tax system offers various services related to taxation for the citizens including business enterprises. It is managed by Canada Revenue Agency. The system is supported by NETFILE as an electronic tax-filing system. E-Customs Canada offers the facilities to monitor the process of trading from checking the document to releasing the goods. It is equipped with Customs Automated Data Exchange (CADEX).

4.4 National Portal [NPR]

The national portal of Canada (www.Canada.gc.ca) is integrated with the one-stop service, a gateway to improve the communication experience between the government and the public. The national portal of Canada has the basic interface for stakeholders to contact government electronically.

Moreover, it provides information that helps the public to better understand government structure. The well-organized portal serves as a platform that assists the public to find desired information. To improve users' browsing experience, the portal also allows users to create government accounts that allow each individual user to customize the portal as they desire. The website contains accessibility features statement and allows configuration of the visual presentation by using a client-side Cascading Style Sheet (CSS) file. The portal is available in official languages---English and French. National Portal of Canada have been using Web 2.0 technology and combining SNS features as well as being user-friendly and the portal have easy-to-use electronic services and services for finding information. Portal can also access via mobile phone also.

4.5 Government CIO [GCIO]

The CIO of the government of Canada is responsible for establishing strategies, directions and policy for the Government in the areas of Information Technology, Information Management, Security, Privacy and Access to Information. This role involves working collaboratively and often-in partnership with all Federal Government Departments & Agencies, industry, other Canadian jurisdictions as well as on the international. There has the Chief Information Officer Branch (CIOB) which provides strategic direction and leadership in the pursuit of excellence in information management, information technology, security, privacy and access to information across the Government of Canada. The office also provides support and guidance on capacity building and project management and oversight.

4.6 D-Government Promotion [EPRO]

Canada has been a pioneer in providing access to electronic information, political agendas and cultural/linguistic sensitivities have greatly hindered the implementation of bias-free policies for the dissemination of information and promotion of D-Government, so the implementation of D-Government in Canada is an effort of both public and private entities. For example, the Digital Economy in Canada consists of members from the government and private companies. The main driver of the D-Government promotion is the Government Online (GOL) entity, which is also the supervisor of the IM/IT plans. The responsibility for coordinating the implementation of GOL lies on the Information Technology Services Branch at Public Works and Government Services Canada (PWGSC). The Government of Canada tried to promote Legal Mechanism Enabling Mechanism Support Mechanism, Assessment Mechanism through providing up to date Government announcements, news, contact, services, and daily life information.

4.7 E-Participation [EPAR]

In Canada, e-services online services, online information and online citizen engagement are organized by category and not on a department-by department basis, which makes it user-friendly and responsive to citizen demands. In order to gauge the efficacy of their services, the government uses a unique Canadian outcomes analysis approach called 'Citizens First' in the case of individuals and families, and 'Taking Care of Business' in the case of companies, So it enable everyone to use electronic form of services very easily. The Government of Canada offers a variety of applications, accounts, tools and services to allow citizens to complete tasks online.

4.8 Open Government Data [OGD]

Canada's commitment to open government is part of the federal government's efforts to foster greater openness and accountability, to provide Canadians with more opportunities to learn about and participate in government, to drive innovation and economic opportunities for all Canadians and, at the same time, create a more cost effective, efficient and responsive government. The Government of Canada first launched its Open Government strategy in March 2011, and then further enhanced its commitment by announcing its intention to join the Open Government Partnership in September 2011.Canada has consulted Canadians on both the development of a Digital Economy Strategy and on Open Government. Canada`s Action Plan on Open Government sets out Canada commitments to Canadians and for the Open Government Partnership,

which Canada will achieve over a three-year period through the effective and prudent use of resources. It is structured along the three streams of our Open Government Strategy: Open Information, Open Data, and Open Dialogue. The portal site http://open.canada.ca/ is one of the best practices among the countries.

4.9 Cyber Security [CYB]

Canada has made several regulations and Acts related to Cyber Security, such as the Personal Information Protection and Electronic Documents Act (PIPEDA). The national Cyber Security Strategy by the Ministry of Public Safety. Canadian researchers have been at the forefront of making cyberspace a reality. This same ingenuity must continue to be applied to predicting, detecting and defeating the cyber threats of tomorrow, and exploiting cyberspace to further Canada's national interests. The cyber security strategy will be implemented by the departments and agencies most directly responsible for securing the Government's cyber systems. Canada will work with our provincial and territorial partners, as they are jointly responsible for protecting much of the critical infrastructure in Canada.

4.10 The use of Emerging ICT [EMG]

Government of Canada has regarded the merging ICT as important elements into its Digital Economy Strategy, discussing about how to utilize Cloud Computing and IOT to benefit the citizens and industries. Government has established a shared service provider and put Big data into their internal agencies practice. However, there has no specific strategy about emerging ICT or regulations so far, official utilization through policy still needed to be discussed.

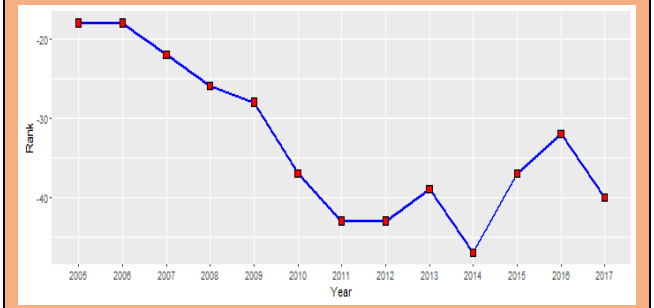
5 Some Highlights

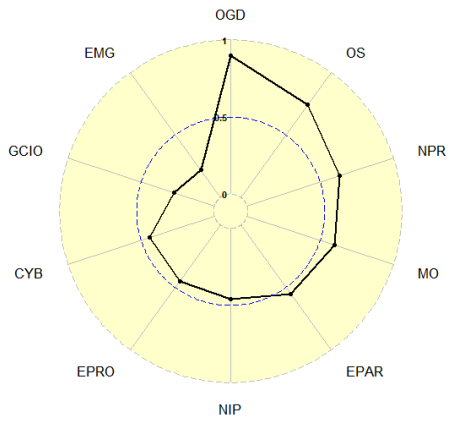
Canada has kept its pioneer position among other countries in providing advanced e-services to citizens, which has a splendid one-stop service system endeavoring to embrace all the information and services that citizens or enterprises need at one unified place. Massive contents have been divided into very plain and concise catalogs and users can always go to the destination directly through humanized introduction. Also, citizens are easily to interact with government agencies due to straightforward communication channels. That's why Canada has extremely good performance on the indicators of "Online Service" and "E-participation". As one of the leading nations in D-Government area, Canada is still expected to get more scores on the latest indicator for the usage of new technologies, which is to have efficient model of adopting emerging technologies such as Cloud Computing or IOT for developing countries to learn from in the future.

Chile

1 General Information

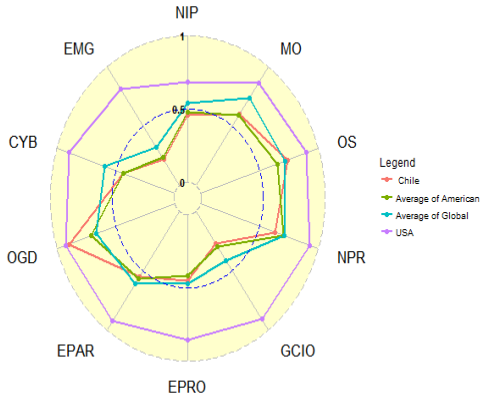
Area: 756,102 km²
Population: 17,508,260
Government Type: Presidential republic
GDP: $23,800
Historical Ranking (2005-2017):



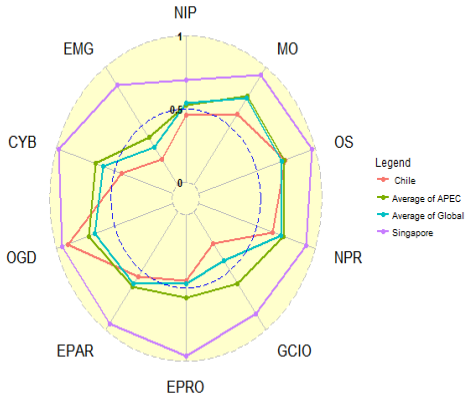


2 Positioning in a global organization and a region

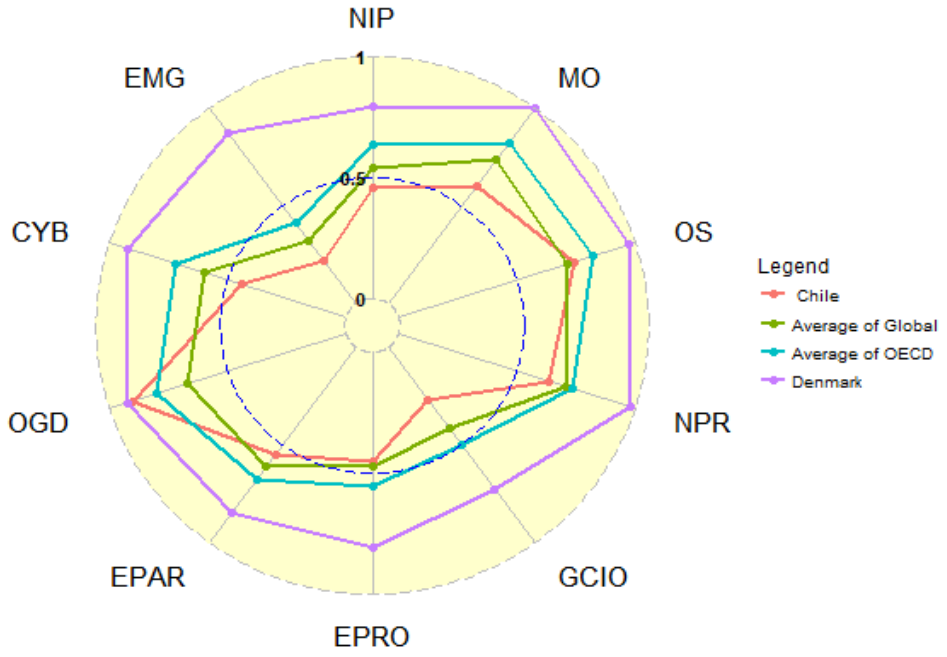
America Countries



APEC Economies



OECD Countries



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3 D-Government Development

Through 2004-2006, the action plan concentrated on promoting the generalization of the access and the sophistication of IT usage through using Internet by citizens and societies in major six areas (massive access, education/training, D-Government, national industry, IT, and legal infrastructure). In November 2010, Chile's government unveiled a new digital action plan for public sector IT development for 2010-2014. The plan is intended to drive state modernization and wider utilization of ICT nationwide. Among specific targets is a plan to expand the number of government agencies that offer D-Government services by around 20 during each year of the plan.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Chile, 79.9% of the population uses the Internet in 2017, an increase over the previous year. The number of fixed-broadband subscriptions is 15.2 per 100 inhabitants, while the number of active mobile broadband subscriptions is 57.6 per 100 inhabitants. Chile's broadband market is one of the most developed in Latin America.

4.2 Management Optimization [MO]

In Chile, D-Government is in full swing and is one of the top countries in Latin America in terms of Internet access, but Chile faces many challenges such as how to reduce the digital divide and the lack of technical infrastructure as well as implementation policies on D-Government.

Its D-Government strategy is presented in the government Digital Agenda 2020, which identifies 13 fields of action across 5 areas: rights for digital development, digital connectivity, D-Government, digital economy, and digital competences. For each area, challenges and goals are established, and measures for each field of action are explained. In addition, the agenda has its own website (http://www.agendadigital.gob.cl), which provides news and information on D-Government, and most importantly, the current status and level of achievement for each of the areas previously mentioned.

4.3 Online Service [OS]

The Chilean government offers various online services through user-friendly websites. This survey found that websites for e-procurement, e-tax, and the one-stop service site scored high in functionality. Particularly, the e-tax website (homer.sii.cl) offers full functionality and useful information, while being clear and user-friendly. The websites for e-customs and e-health are limited to offering information to the users, and thus can be improved.

4.4 National Portal [NPR]

The national portal (http://www.gob.cl/) provides government information, news, and links to other government agencies, but does not offer e-services, and is not a one-stop service website as is the case of other Latin American countries. The portal also lacks basic and demographic information on the country. It offers subscription to a newsletter to receive weekly news about government activities, as well as integration with SNS. It also allows citizens to access documents regarding D-Government and open data. The website is also available in English.

4.5 Government CIO [GCIO]

No information was found regarding the appointment and activities of a CIO in Chile, as well as CIO related positions and organizations. Also, no evidence of CIO training programs in Chile was found.

4.6 D-Government Promotion [EPRO]

The main document regarding D-Government promotion is the Digital Agenda 2020, which is available to everyone on its own dedicated website. This document specifies the government initiatives to promote D-Government at national level, with the participation of different government agencies, although little is mentioned about local governments.

Apart from this document, D-Government promotion is limited; no evidence was found of publications on the subject. However, some training programs and events on D-Government do exist.

4.7 E-Participation [EPAR]

Citizens have access to information related to the government, like its structure, budget, and legislation. Moreover, citizens can send messages to officials and the president, who has an official website. News on government activity is also widely available on many different government websites.

4.8 Open Government Data [OGD]

The Chilean government has made much of its information open in order to ensure transparency and promote citizen participation. Based on legislation related to access to information and social participation

in public administration, the government launched the Open Government website (http://gobiernoabierto.gob.cl) to facilitate access and interaction between citizens and the government.

The portal of open data is http://datos.gob.cl/, which contains more than 2400 datasets that comes from 196 organizations belonging to the government. Available information include demographic and e-procurement datasets, among others.

4.9 Cyber Security [CYB]

Chile has a specific law to penalize cybercrime. It also has laws on information protection, data security, electronic documents, and digital signature. There is no official government agency in charge of handling incidents related to cyber security, although there is a recognized CERT that belongs to a educational institution. The government has established a special committee to discuss cyber security issues and establish a national cyber security policy.

4.10 The use of Emerging ICT [EMG]

There is no evidence that the Chilean government has used any of emerging ICT technologies, like Cloud Computing, Internet of Things or Big Data, to promote D-Government activities.

5 Some Highlights

Chile has achieved its D-Government success due to three main factors: a continuous long-term strategy, efficient policy-making and its modern socioeconomic qualities. Unlike other countries in the region, Chile began designing its long-term D-Government policy plans by the early 2000s, when its first webpage for official procedures, “Easy Errand,” was created. By 2004, Chile had designed its first Digital Agenda to start with a continuous process that would lead up to today’s 2013-2020 version.

Many of Chile’s programs, such as Startup Chile, which has become a regional leader in promoting tech and other businesses, are well-designed and strategically planned based on shared knowledge with scholars or think-tanks. Chile’s policy-making processes show an adequate performance in evidence-based instruments and societal consultation.

Good D-Government systems in Chile have engaged people to a good level of e-participation, but this certainly does not mean that there is a better overall democratic process. Other factors – such as citizen’s knowledge and understanding of policies that concern them – must be taken into consideration to find integral solutions. It is necessary to inform citizens and provide proper education in use of the new tools to see major benefits offered by these new opportunities.

China

1 General Information

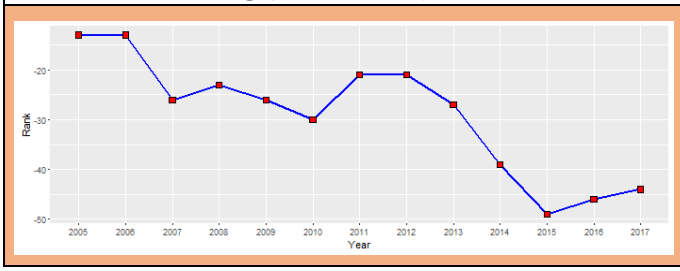
Area: 9,596,960 km^2

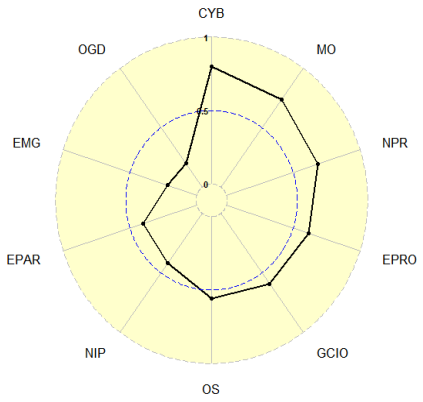
Population: 1,367,485,388

Government Type: communist state

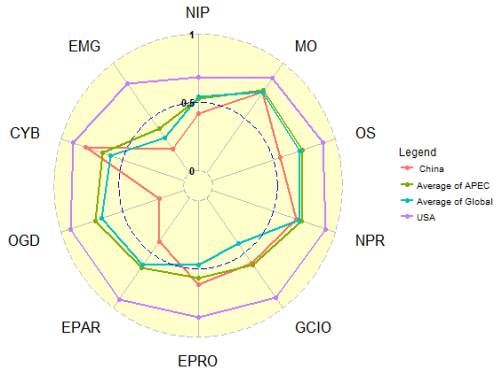
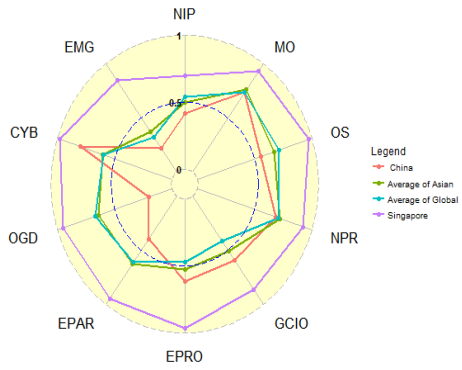
GDP: $14,300

Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

APEC Countries	ASIAN Countries
	

China has still showed his weak points compared with other Asia countries and APEC members, on indicators of E-Participation for instance, relatively low within its economic status. By comparison, Indicators of Open government data seem remaining progress in recent years. Many areas in China are exploring open government data to the outside world. Such as Beijing, Shanghai, Guizhou and other provinces and cities have built a dedicated data open website. The governments can jointly rich resources, advanced technology of large data companies, to provide customers with data resources, large data processing tools and technical training, and cultivate a large number of big data enterprises".

(source: http://opendatachina.com/； http://www.bjdata.gov.cn)

3 D-Government Development

In 2016, the general offices of the Central Committee of the Communist Party of China and the State Council have jointly issued the Outline of National Informatization Development Strategy (the "Outline").According to" the Outline of National Informatization Development Strategy", by 2020, the total information consumption will amount to CNY6 trillion, and the scale of e-commerce transactions will reach CNY38 trillion; by 2025, the two figures will reach CNY12 trillion and CNY67 trillion, and a number of large cyber-tech multinationals with strong international competitiveness will emerge; in the middle of the 21st century, China will play a bigger role in leading the global information development. The Outline determines three basic strategic missions including strengthening the development capacity, promoting the wide application and optimizing the development environment, which consist of 56 specific tasks in 14 aspects. Specifically, with respect to strengthening informatization development capacity, it is required to deepen the reform on the system for public offerings and review, implement the policies on extra deduction of research and development expenses of enterprises, and to improve public service systems covering intellectual property, technical standards, commercialization of scientific achievement, testing and certification, appraisal of industrialized investment, and other aspects.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

At present, China's Internet users reached 50.3%, at the meantime 18.6% are broadband access users and 56% are wireless users.

4.2 Management Optimization [MO]

In early 2017, General office of the State Council issued Notice of guidelines for construction Internet plus government service system, Considering the online government service content is not standardized, the service is not convenient, Online government service platform interoperability, data sharing, online and offline Unicom is not smooth, government service of higher standardization is not enough. To further strengthen the overall design requirements of the integration of "Internet plus government services to technology and service system, and constantly improve the online government service level in various regions and departments.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service and e-Health have the lowest score, compare to other three online services. According to Notice of guidelines for construction Internet plus government service system, Chinese government would pay more and more attention To further strengthen the overall design requirements of the integration of "Internet plus government services to technology and service system, and constantly improve the online government service level in various regions and departments.

4.4 National Portal [NPR]

The Chinese national portal www.Gov.cn provides a general gateway for users to access and search information published by the government. The national portal allows users to link to the portals of local governments, departments and agencies and also provide popular E-services. The national portal includes information from government documents to government structures. Moreover, the portal is provided in multiple languages (simplified Chinese, traditional Chinese, and English). The portal contains pages that

allow users to download application forms, search for information, and provides platform for administrative departments to exchange information with each other. There are also video feeds and other multimedia contents in the portal. The national portal includes 8 topics which are government structures, news, State Council, Premier, policies, services, seeking advice for administration, data and national conditions. Through the topic of seeking advice for administration, users can up load their opinions, advice and comments. There is also a sub-topic named I have a word to the premier in which people can express their viewpoint directly to the Premier. Furthermore, the national portal also provides online social media platform such as Microblog and WeChat where citizens can share their opinions and inquiries while the government responding them effectively (Microblog and WeChat are two of the most popular social media in China). (The Microblog and WeChat account of government are mainly posting and publishing the government's policies and news, not for sharing and responding).

(source: http://english.gov.cn/)

4.5 Government CIO [GCIO]

At all levels of government in China, there is no clear setting up of CIO positions and departments, but the CIO has always been the responsibility of the corresponding departments. Governments at all levels to assume the responsibility of the Department of CIO are: all levels of Office on the Cyberspace Affairs, government office, D-Government office, information office, development and Reform Commission, industrial (economic) and information management department, etc. Specifically, in the central government, Office of the Central Leading Group for Cyberspace Affairs, National Development and Reform Commission, General office of the State Council and the General office of the CPC Central Committee, are held in their respective areas of responsibility of the informatization construction and management ; in the local government, CIO responsibilities were borne by the above 1 or several departments, Settings of each CIO mechanism differs greatly from place to place.

GCIO exists in less public sectors like the General Administration of customs, the State Administration of Taxatio, the Ministry of land and resources, etc. and not exists in most other government sectors. On Feb 27, 2014, China established another leading group which named The Central Leading Group on the Cyberspace Affairs, which is led by Chinese president Xi Jinping.

4.6 D-Government Promotion [EPRO]

According to "The United Nations D-Government survey report 2016 (Chinese Edition)", Chinese D-Government international ranking steadily rising, China's D-Government development index (egdi) was 0.6071, ranked sixty-third, compared to the previous survey increased by 7, the current level of D-Government in China has been in the global average level.

4.7 E-Participation [EPAR]

Despite several developments in China e-participation is still lacking as a platform bringing the Chinese citizens on board as main stakeholders in promotion of ICT. Even through the government provides blogs or any other means of interaction, there is still a long way to go for Chinese D-Government to develop its E-participation for online users to fully have decision make stake at national level.

4.8 Open Government Data [OGD]

In August 31, 2015, the State Council issued the "Outline" to promote the development of big data, based on the reality of China and the need to promote the development and application of big data in the next 5 to 10 years to achieve the following objectives: to create a new social governance model of governance, precise multiparty collaboration; to establish a stable, safe and efficient operation mechanism; build a new system of people's livelihood and benefit the people; open the drive new pattern of innovation and entrepreneurship,

innovation of the public; foster the development of high-end intelligent, emerging prosperity of the new ecological industry.

4.9 Cyber Security [CYB]

In December 27, 2016, approved by the Central Leading Group for Cyberspace Affairs, the Cyberspace Administration of China issued a "National Cyberspace Security Strategy", pointed out that China topped the list of the number of Internet users and the size of the network world. To maintain good cyberspace security, is not only the needs of China, it is of great significance for the maintenance of global network security and world peace. China is committed to safeguarding the sovereignty, security and development interests of the national network space, to promote the benefit of the Internet for mankind, and promote the peaceful use of cyberspace and common governance. There is no national security without cyberspace security, no modernization without informatization. Cyberspace security and informatization are the two wings of one body, two wheels of the driver.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The evidences show that local governments in China are eager to implement Cloud Computing or Big Data into their public sectors, especially the economic advanced cities and provinces such as Beijing, Shanghai and Guangdong Province. And the central government becomes more and more active in making policies and plans for emerging technologies.

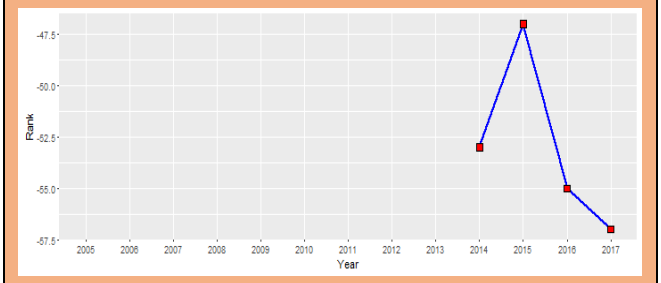
5 Some Highlights

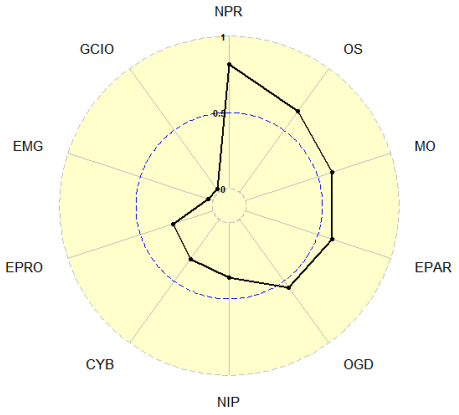
Compared with other economics, China has a comparatively slow process on D-Government development. Except the indicator of “Management Optimization”, performance on all the segments of ranking could be considered backward than advanced nations. The absence of GCIO not only pares down the scores for evaluation, but more importantly, has influenced the execution of ICT plans in each government level. According to China’s strategy, D-Government has been regarded as a tool for administrative reform and government process re-engineering rather than developing D-Government itself. More and more online service comes to the phase of transaction, although the lack of e-decision making. However, some megacities in China has promoted advanced e-Service and data share process to citizens (For example Beijing, Shanghai, Guangzhou), which continues to pull ahead the gap with underdeveloped areas. The gap of wealth has affected every aspect of the societies in China, and the implementation of better D-Government is no exception. China's Internet users reached 688 million, Internet penetration rate reached 50.3%, Internet users, broadband access users ranked first in the world. The future of Open government data in China is promising just like its e-commerce developing.

Colombia

1 General Information

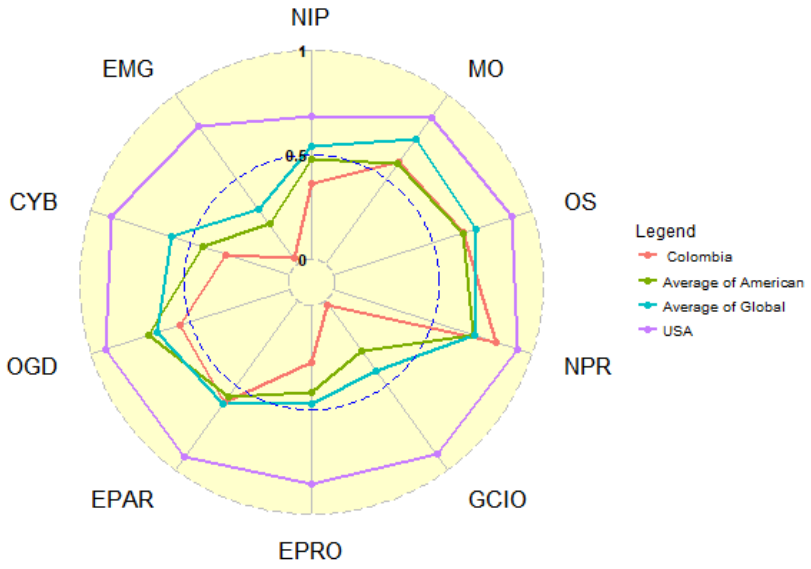
Area: 1,138,910 km^2
Population: 46,736,728
Government Type: Presidential Republic
GDP: $14,000
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Countries in the Americas



3 D-Government Development

Colombia is making great strides in some areas, but the overall trend has not been positive in recent years. In the United Nations' D-Government Development Index, Colombia slipped from 31st to 50th place from 2010 to 2014. Much of this change can be attributed to a much more competitive and crowded D-Government environment as more countries develop their ICT infrastructure. However, recent efforts to enable and promote D-Government in the country indicate that the governments has recognized its importance. Also, it should be noted that Colombia continues to be a top-twenty country in the area of e-participation.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Colombia, 58.6% of the population uses the Internet in 2017. The number of fixed-broadband subscriptions is 11.2 per 100 inhabitants, while the number of active mobile broadband subscriptions is 41 per 100 inhabitants, which is slightly lower than other Latin American countries.

4.2 Management Optimization [MO]

The Colombian government has defined its D-Government strategy in a clear and easy-to-read document called "Online Government Manual," which is available for online reading and download. In it, it establishes various goals in four areas: ICT for open government, ICT for services, ICT for administration, and information security and privacy. For each goal, criteria and relevant information is provided, although no way to measure those is specified. In addition, the strategy has its own website called "Online Government Strategy" (http://estrategia.gobiernoenlinea.gov.co), in which news, details, and links to other related websites is provided. The Ministry of Information and Communication Technologies (MINTIC) also has a website called "Arquitectura TI Colombia", where details about the framework for establishing a government network and promote the D-Government strategy are presented.

4.3 Online Service [OS]

The Colombian government maintains websites for all five types of e-services assessed in this survey, and all of them obtained medium to high scores. The e-tax website integrates e-customs as well, and offers a wide range of e-services. The e-procurement and e-health websites offer limited functionality but are clear and simple. On the one-stop service website, it is possible to obtain information concerning different types of procedures by doing a search or browsing a menu showing various categories.

4.4 National Portal [NPR]

Colombia's national portal is also the President official website (http://es.presidencia.gov.co). On its main page, it prominently features news, as well as SNS and links to other government sites. It does not provide basic or demographic information about the country. Information on the government, legislation, and services is provided. The website is also available in English with limited content.

4.5 Government CIO [GCIO]

Although a GCIO position is not specified in any official document, the functions of a GCIO are performed by the vice minister of IT, according to the MINTIC. No additional information on CIO regulations, CIO office, or training programs was found.

4.6 D-Government Promotion [EPRO]

Through MINTIC, the Colombian government is consistently working to promote the use and development of D-Government. Their strategy is to identify how to create increased value for the government itself,

businesses, and citizens through the use of D-Government. In fact, many reforms and relevant legislation have been established to enable the application of the national D-Government strategy, with increased focus on open government in recent years. All related legislation is available on the Online Government Strategy website. However, local governments are not directly addressed in the strategy. No information on publications, training programs, or events related to D-Government was found.

4.7 E-Participation [EPAR]

Colombia consistently ranks very high on the United Nations' E-Participation Index. It has been ranked 11th in the world since 2012, which is nearly identical to its 12th place rankings in 2004 and 2005. Colombia's national portal and most of its government websites actively encourage citizen participation by soliciting feedback, posting links to social media, and hosting regular online live-chats. The government also offers a site called "Urna de Cristal", or Crystal Urn (http://www.urnadecristal.gov.co/), which provides information about the major recent issues and promotes citizen participation through different channels. The government answers questions and proposals from citizens, and provides brief online audio and video broadcasts.

4.8 Open Government Data [OGD]

The government is committed to provide open information to its citizens, for which it offers an open data portal located at www.datos.gov.co. According to the site, there are currently 4,082 datasets available from 943 institutions, grouped in many different categories. The datasets are viewable online, or downloadable in Excel or text format. The website is also available in English.

4.9 Cyber Security [CYB]

Colombia has enacted legislation to penalize cybercrime through its criminal code. It also has laws on information and privacy protection, data security, e-commerce, and e-payment. There is an official government agency in charge of handling incidents related to cyber security, the ColCERT. In addition, the Police Cybernetic Centre offers information and support to the citizens on cyber security.

4.10 The use of Emerging ICT [EMG]

No evidence of usage or regulations by the government of emerging technologies such as Cloud Computing, the Internet of Things, or Big Data was found.

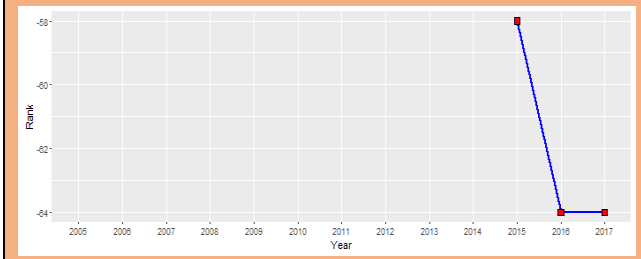
5 Some Highlights

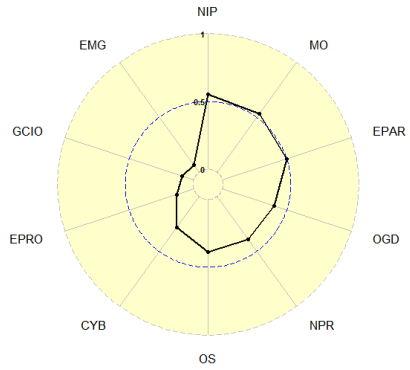
Colombia has participated in several international efforts to improve D-Government in the Americas. For example, it has offered many candidates for excelGOV awards, and generally participated in regional and international working groups at a rate higher than its neighboring nations. Though it still has much room for improvement in terms of rankings, Colombia is poised to continue on its upward trajectory and make some important advances in the coming years, as demonstrated in recent efforts to promote D-Government and in its national strategy.

Costa Rica

1 General Information

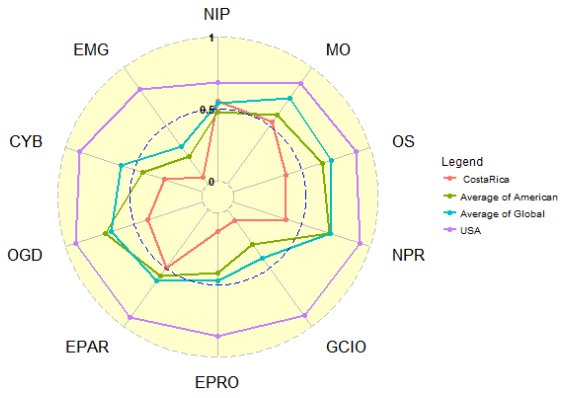
Area: 51,100 km^2
Population: 4,872,543
Government Type: Presidential Republic
GDP: $ 16,100
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

America Countries



Among America Countries, an only Network Infrastructure Preparedness (NIP) indicator is above with the average score of America region. And Costa Rica is placed below USA, the best country in America region.

3 D-Government Development

The Costa Rican government is just finishing its Digital Government Master Plan 2011-2014. This plan was put into place after the previous Digital Government Action Plan 2008-2010. The country's digital government planning began in earnest with Executive Decree No. 33147-MP, issued in May 2006. This proposed that a plan to digitize the Costa Rican government be drafted and implemented with cooperated to South Korean Government. This master plan has the mission statement: "Improving the national competitiveness with environmental responsibility through providing transparent and high level services to the citizen based on interconnected government and ICT development".

Digital Government Master Plan 2011-2014

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 59.8% of people in Costa Rica were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 11.2% have fixed-broadband subscriptions, and wired broadband subscription has reached 95.5%.

4.2 Management Optimization [MO]

The Costa Rican government is just finishing its Digital Government Master Plan 2011-2014. This plan was put into place after the previous Digital Government Action Plan 2008-2010. However, now, there is no evidence about the new version of ICT strategy or D-Government plan. In all, Costa Rica has achieved the haft score in Management Optimization domain.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and their URL Address. All of those services were investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Costa Rica is only providing e-Procurement, e-One-Stop Service and e-Health. Among these Online Services, e-Health has the highest score, compare to other online services. The number of available e-Services continues to grow, but many of the designs operate using different platforms, and are not well-integrated. In terms of complexity level, most of Online Service in Costa Rica has reached only information provider in which user can start the find the information through the portal.

For measuring the level of convenience, the third party application result has shown that three portals are the same with the average considerably in terms of speed. The third party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	http://www.mer-link.co.cr/index.jsp
e-Tax	N.A
e-Customs	N.A
e-Health	https://registrelo.go.cr/
One-Stop Service	http://gob.go.cr/es/servicios-en-linea

4.4 National Portal [NPR]

The Costa Rican government's main portal site "http://gob.go.cr/" is only available in Spanish and is not compatible with most major translation services. It offers a great deal of links to information, services, and data, but many of the options take the form of long lists of links, rather than intuitive menus. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below the average both from PC and from Mobile Device. However, the portal does not provide the user with some functionality such as searching, site map, and an inquiry form.

4.5 Government CIO [GCIO]

Alicia Avendaño Rivera has served as the Director of Digital Government since 2009, and this is the closest analogue to a CIO position in Costa Rica. The Director has administration over the three Digital Government divisions, Projects, Technology, and Digital Inclusion.

4.6 D-Government Promotion [EPRO]

The Costa Rican government's D-Government promotion plan was laid out in its Digital Government Master Plan 2011-2014. The prior plan succeeded in establishing a base structure for D-Government.

4.7 E-Participation [EPAR]

According to the United Nations E-Participation Index, Costa Rica is the leading country in Central American and 14th in the world for e-participation. This is a major improvement from 2005, in which they placed 90th. This indicates that the government's ICT initiatives have succeeded in making the population more connected, and providing a platform those appeals to users. For instance, parliament member has their website and provides the information to citizens that can contact with them.

4.8 Open Government Data [OGD]

The Technical Secretariat of Digital Government operates an open data site populated with data from Costa Rica's other online services, including Mer-link (public procurement), Controlpas (operated by the Ministry of Public Security), Register it (Ministry of Health), and CrearEmpresar (National and Municipal Registry) among others. The database is powered by the U.S.-based open data platform Junar. However, the data is not yet as voluminous, standardized, or searchable as it could be. Also, data from previous years have not been uploaded.

4.9 Cyber Security [CYB]

As a member of the Organization of American States (OAS), Costa Rica approaches many cyber security issues in collaboration with fellow OAS member states. The OAS Inter-American Committee against Terrorism (CICTE) developed and passed the OAS-Cyber Security Strategy in 2004. Since then, OAS member states have collaborated on increasing cyber security in each country, and in the region. There are still significant weaknesses.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Costa Rica has the plan to implement Cloud Computing for Public Sector. However, the evidence shows that it is not officially launched. Other emerging technologies for government agencies are still nullity in Costa Rica.

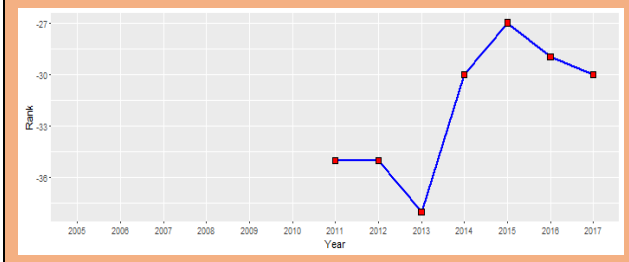
5 Some Highlights

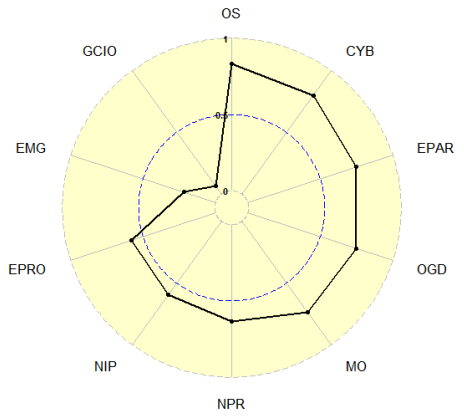
This year is the 3rd year of ranking; Costa Rica still has the weakness. The use of emerging technology and Government CIO are the weak point of Costa Rica. Director of Digital Government is the closest analogue to a CIO position in Costa Rica. The Director has administration over the three Digital Government divisions, Projects, Technology, and Digital Inclusion. And Costa Rica also has low score on Cyber Security. Even if Costa Rica is a member of the Organization of American States (OAS), Costa Rica approaches many cyber security issues in collaboration with fellow OAS member states.

Czech Republic

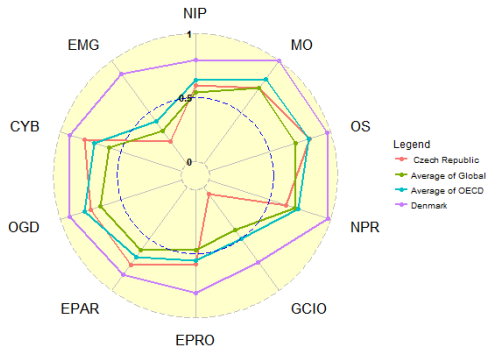
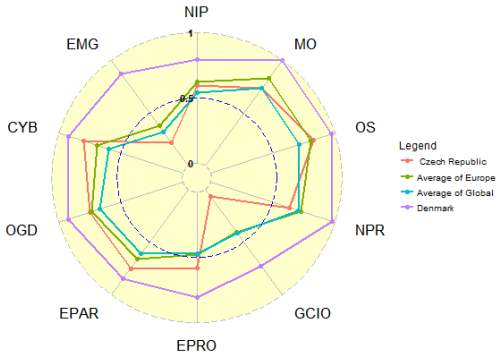
1 General Information

Area: 78,867 km^2
Population: 10,644,842
Government Type: Parliamentary republic
GDP: 31,500$
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

OECD Countries	Europe Countries
	

3 D-Government Development

Since the late 1990s, Czech Republic had strategic in promoting information technology, one of them known under the name "State Information Policy". This policy defined eight priority areas for the development of the information society, including D-Government and e-Democracy. This strategy can be considered as the first ICT project to promote D-Government services in Czech Republic. In 2006, the Czech government issued "State Information and Communication Policy" or "e-Czech". The main objective of this project is to maximize the use of ICT by improving D-Government services, e-Procurement and e-Health. In 2007,

D-Government concept was associate with the modernization of public administration. This project called "Smart Administration Strategy".

From 2008 to 2012, Czech published Strategy for the development of Information Society services for the period 2008 - 2012. This was a strategy for the development of services in an open, democratic society. The strategy divided into five program: (i) Basic registers and identification; (ii) Universal point of contact; (iii) Secure communications; (iv) Digitization of data archives; and (v) Personalized Information Society services.

The State Policy in Electronic Communications - 'Digital Czech Republic' was adopted in early 2011 and aims to assess the current overall status of accessibility and development in selected areas of electronic communications which have the greatest growth potential.

In 2014, Czech government introduced GeoInfoStrategy 2014 - 2020. The Strategy draft has been designed in a strong connection to other national strategic documents, i.e. the Strategy of international competitiveness of the Czech Republic for 2012-2020, the Czech Republic's National reform program, Strategic framework for the public administration development for 2014 -2020 and other key national strategic documents.

In 2015, the national government of the Czech Republic approved the Strategy for ICT Services Development in Public Administration. This document provides an updated overview of D-Government status in Czech Republic.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The KIVS (Public Administration Communication Infrastructure) enables the interconnection of all Public Administration (PA) bodies (e.g. ministries, central administrations, regional authorities, municipal offices, labor offices, revenue authorities and public libraries), ensures secure and cost-efficient data and voice communications, as well as access to central information resources.

Czech POINT is a network of one-stop access points to D-Government services intended to prevent citizens from visiting several offices, thus significantly reducing excessive administrative burden.

4.2 Management Optimization [MO]

In the Czech Republic the issue of ICT is under the responsibility of two ministries. Electronic communications are under the responsibility of the Ministry of Industry and Trade URL: http://www.mpo.cz/en/e-comm-and-post/ and D-Government issues are under the responsibility of Ministry of Interior URL: http://www.mvcr.cz/mvcren/scope-of-activities-D-Government.aspx

The latest version of the National D-Government Development Strategy was published in the form of a government decision "Resolution of the Government of the Czech Republic 889/2015 to the further development of ICT services in public administration" from the November 2, 2015. URL (in Czech only): http://www.mvcr.cz/clanek/vestnik-vlady-pro-organy-kraju-a-organy-obci-717579.aspx; pages 206 – 228)

Another significant governmental material is a document, Digital Czech Republic v. 2.0 –The Way to the Digital Economy". This is a program of the state policy on electronic communications in the Czech Republic - material was published in May 2014.

4.3 Online Service [OS]

The Czech Republic has a centralized e-Procurement system based on a national platform managed by the Public Procurement and Public Private Partnership Department of the Ministry for Regional Development.

The Czech electronic health record (elektronickázdravotníknížka - EZK, in Czech) is a highly secure, free-of-charge summary of patient health information in electronic form, accessible 24 hours a day via the Internet and smartphones. It is a safe environment that links healthcare providers, patients and health insurers. It can be used to transmit and sharing in real time medical information between the doctor and patient or between different doctors. In the Czech Republic there is no alternative system of real time information sharing in this field. The two regions where the number of health records stored on the IZIP system is growing the most are Vysočina and Karlovy Vary.

4.4 National Portal [NPR]

In Czech, the public administration portal is developed by Ministry of Informatics. Citizens can access to (www.portal.gov.cz) for getting data, information or other publication from government. Beside the national portal, a local self-government portal (ePUSA) is an information system that contains an up-to-date database of self-government entities in the territory of the Czech Republic. The system enables the selection of required data according to different criteria.

Towns and Communities Online Portal (TCOP) is nationwide tele-democracy website, which support e-information exchange between local government and Czech citizens. Portal for data boxes was first launched in 2011. It provides a more comprehensive service to users of Data Boxes.

4.5 Government CIO [GCIO]

In the D-Government is in the ministry in charge (Ministry of Interior) responsible for the D-Government matters the Department of the D-Government in the section of Information and Communication Technologies. Each ministry has its own CIO, who is responsible for the (development) of ICT in the area of responsibility.

4.6 D-Government Promotion [EPRO]

The opportunities for greater engagement with citizens through D-Government channels will continue as the introduction of high speed broadband and the increased use of new communication technologies provide the Czech Government with greater flexibility in delivering better services to people, communities and business, as well as improved government operations. Significant increases in The Czech accessing the web via mobile phone or similar portable devices, and making phone calls over the Internet. There was also continuing growth in the use of social networking sites and SMS

4.7 E-Participation [EPAR]

The Czech government and ICT companies provide e-information, e-consultation services, forms, articles and resources about trends and issues related to citizens participation in government democratic processes using the Internet, mobile communications, and other information and communications technologies.

The aim is to provide a one-stop shop for individuals and organizations to obtain information on, and communicate directly with, the Czech authorities. The Ministry as the site's administrator and Czech Post as the technical provider completely revamped the look and feel of the previous Public Administration Portal as well as its functioning, so as to make navigation easier, faster and more intuitive. The portal's target audience is made of: Czech citizens; foreigners living in the Czech Republic; entrepreneurs and businesses; public authorities.

4.8 Open Government Data [OGD]

A national data portal is available at http://opendata.cz/. It includes 73 datasets, which come from 1 organization. In government agencies, they have a local portal, to provide open data in each government agency (http://data.mfcr.cz/en). Most of the necessary data is produced from the tax payer's money. The data is even often available on the web. The Government of the Czech Republic fully supports attempts to remove regulatory and technical barriers to access to information and its goal is to enable the general public to share, combine and freely use the available data.

4.9 Cyber Security [CYB]

Czech National Security Authority Cyber Security was established according to the Decision n. 781/2011 of the Government of the Czech Republic. The name is National Cyber Security Centre (NCSC) and it's headquarter is in Brno. The main task of the NCSC is coordination of cooperation on both national and international level to prevent cybernetic attacks, to propose and adopt measures for incident solving and against ongoing attacks.

In 2015, the Director of the National Security Authority submitted to the government the new strategy with large focus on the national cyber security of the Czech Republic for the period of the upcoming five years and marks an important milestone for the Czech Republic in terms of cyber-security.

4.10 The use of Emerging ICT [EMG]

The Czech Republic works on consolidation of data centers of various government offices with the target to launch the government cloud.

5 Some Highlights

In 2015, Czech government introduced strategy for ICT Service development in public administration. The strategy focuses on national cyber security until 2020 and also introduces the idea to legislatively delegate to the Department of Chief architect of the D-Government at the Ministry of the Interior the role of "watchdog" to oversee the efficiency of public spending in public administration ICT area. The strategy includes a list of improvement opportunities that should lead to a better nation-wide governance of ICT services in public administrations.

In the D-Government is in the ministry in charge (Ministry of Interior) responsible for the D-Government matters the Department of the D-Government in the section of Information and Communication Technologies. Each ministry has its own CIO, who is responsible for the (development) of ICT in the area of responsibility.

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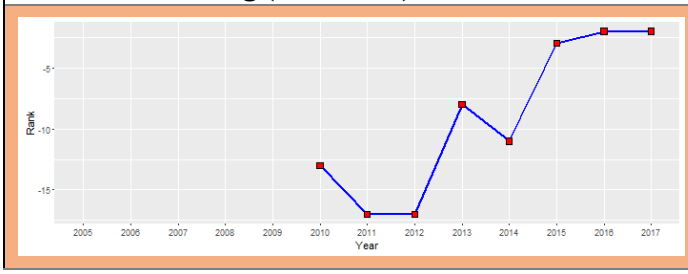
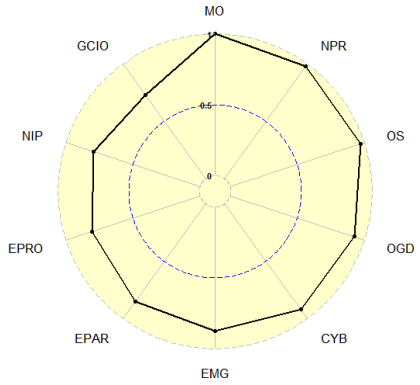
The Czech Republic works on consolidation of data centers of various government offices with the target to launch the government cloud.

Denmark

1 General Information

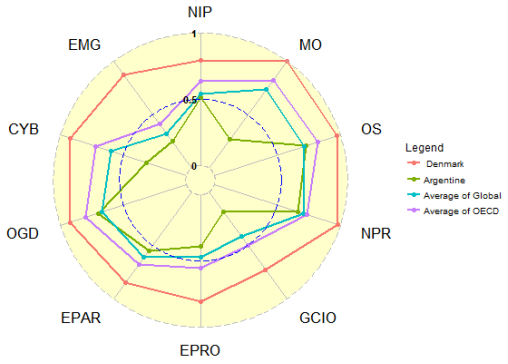
Area: 43,094 km^2
Population: 5,581,503
Government Type: Parliamentary Constitutional Monarchy
GDP: $45,800
Historical Ranking (2005-2017):



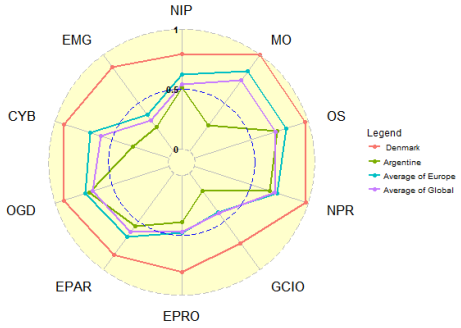


2 Positioning in a global organization and a region

OECD Countries



Europe



3 D-Government Development

In 2016, Denmark transitioned to its new Digital Strategy 2016-2020. This ambitious strategy sets Denmark on a course to rapid development and competition with other comparable governments. As part of its efforts on countering the digital divide, Denmark is promoting the enhanced accessibility of its public websites. Denmark's new mandatory digital mailbox is an intriguing development. It allows the government to communicate instantly and securely with businesses in an official manner. As part of its e-Inclusion efforts, public documents on the information society recognizes the needs of at risk (of exclusion) groups. The USO (Universal Service Obligation) in Denmark has provisions for a PC based text telephone service and access

to the Internet. In the area of ICT and aging, Denmark has established drop-in centers for the elderly to learn new ICT skills.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The current Danish D-Government strategy, published in August 2011, is entitled 'The Digital Path to Future Welfare: D-Government Strategy 2011-2015.' The strategy proposes that the central government, regions and municipalities cooperate in order to accelerate the adoption of digital solutions in the public sector. The report emphasizes that the government must capitalize on its leading position and continue to be a digital government leader well into the future.

4.2 Management Optimization [MO]

The strategy is divided into three main tracks, each covering a different area or theme:

1) No more Printed Forms or Letters

2) New Digital Welfare

3) Digital Solutions for Closer Public Sector Collaboration

According to the report, "the adoption of digital solutions and new technology will provide DKK 3 billion [about $500 million] every year by 2020 in gains." The national government has also passed a Digital Post law requiring all businesses to establish a digital mailbox address. This mailbox is of equivalent legal status to the physical mailbox, meaning that businesses have the responsibility to read all of their digital mail. This system allows the public sector to communicate with businesses and to send official notifications more efficiently, and it allows businesses a quick and secure channel to respond.

4.3 Online Service [OS]

Denmark has a healthcare portal, Sundhed.dk which was launched in December 2003 and was given a major update in 2012. The site is a public, Internet-based health portal that collects and distributes health care information among citizens and health care professionals. It is unique in bringing the entire Danish health care sector together on the Internet and providing an accessible setting for citizens and healthcare professionals to meet and efficiently exchange information. From the main portal, all Danish citizens have access to sundhed.dk and everyone has a personal page, which reflects the specific needs of the individual

4.4 National Portal [NPR]

The Danish national portal, Borger.dk was originally launched in 2007. The latest version of the site (version 3) was published in June 2012. Borger.dk (*borger* is Danish for 'citizen') is where Danish citizens can find all public information and self-service options on a one-stop basis. This is a single entry point to the public sector for all citizens. A single sign-on is made available for citizens to access services of different agencies without having to repeatedly log-on.

Denmark also has an official website, Denmark.dk, from which both citizens and non-citizens can access public information and services. The portal supports many foreign languages including English, Spanish, French, German, Chinese, Arabic and more. It also has SNS features on the homepage, such as Facebook, Twitter and Google Plus to enhance citizens' participation with blogs, and provides information for foreigners who want to study and work in Denmark. Denmark also has a business portal which delivers fully digital public services for the benefit of companies. The portal includes more than 200 e-forms, some of which may be filled out and signed with an OCES signature.

4.5 Government CIO [GCIO]

While there are government CIOs at the national and ministry levels, information about CIOs at lower levels of government is not available. There is no single CIO position for the Danish government. However, the Steering Committee for Joint-Government Cooperation (STS) is responsible for coordinating D-Government initiatives throughout the public sector. This committee reports its findings twice each year. There is no current legislation regarding the CIO position in government

4.6 D-Government Promotion [EPRO]

Since 2001, municipalities and regional government have worked together on D-Government solutions to renew and rationalize the public sector. The new strategy sets clear and binding goals for D-Government implementation of the D-Government solutions established in recent years, which not only require a strong capacity for decentralized implementation capacity, but also demands a centrally focused coordination effort.

According to news from epractice.eu, the Danish Government, supported by the Local Governments Association (KL) and the Danish Regions has recently created a new public plan for the digitization of health care for 2013-2017. The strategy aims to create better cross-sector relationships and safe treatment based on the individual's resources and needs.

4.7 E-Participation [EPAR]

The Danish government's web portals demonstrate a developed understanding of e-participation. Information and services delivered online encourage a high level of social responsibility and accountability. For instance, the portal for citizens (borger.dk) functions as a national debate and voting portal enabling citizens at all levels of society to participate in debates and participate in polls and elections organized at the local, regional and national levels. Moreover the hosting of blog services creates the opportunity to comment on the Danish lifestyle and encourages foreigners to participate.

ROSTRA is an online system for public debate and expression of opinions through voting facilities based on the Danish Digital Signature. The tool is a part of the Danish citizens' portal developed by the Danish National IT and Telecom Agency. It functions as a national "debate and voting portal" allowing citizens, businesses, politicians and journalists to participate in debates and votes organized by levels of government, subject, etc. The tool can handle debates and votes at the local, regional and national levels and it is possible to confirm your identity through login with the Danish Digital Signature.

4.8 Open Government Data [OGD]

In 2012, the Danish Government presented its first National Action Plan for Open Government Partnership. The vast majority of the projects and initiatives have been implemented and several of them are taken forward and further developed in this OGP National Action Plan. The Danish OGP National Action Plan 2013-2014 was created with contributions from a public consultation where citizens, companies, NGOs and public authorities were invited to propose initiatives and activities. The National Action Plan has been divided into five themes:

- Local democracy and participation
- Full digital communication - and inclusion
- New forms of collaboration and involvement
- Open data - innovation, transparency and enhanced efficiency
- The promotion of open government

4.9 The use of Emerging ICT [EMG]

The Danish government has been using a domestic standard for information security called DS 484 for over a decade. As of January 2015, government institutions are required to abide by Information Security

ISO/IEC 27001, an international standard. The Ministry of Finance's Agency for Digitization is tasked with enforcing this standard and "developing tools, templates, seminars and workshops to support [its] implementation and maintenance."

5 Some Highlights

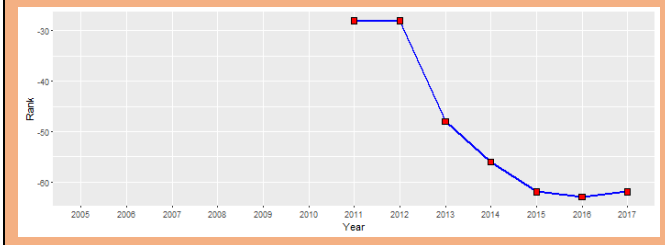
Denmark has shown marked development in D-Government projects but there are few available resources on D-Government related promotions particularly at the local level. In 2017, the Danish authorities followed a successful D-Government strategy, which included a large-scale communication campaign to raise citizens' awareness of D-Government services. The OIO Committee for Architecture and Standards (OIO Committee) has a mandate to support the strategy to facilitate the work of D-Government in the state, regions and municipalities, with particular emphasis on ensuring interoperability between IT systems across organizational boundaries.

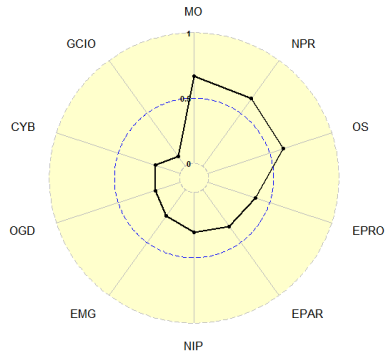
The government released its D-Government strategy 2016 - 2020 on in May, and it outlines 33 projects for the government to accomplish in the coming years. The government is always trying to establish online services that are simpler and more effective. In order to do this, the government will establish horizontal cooperation throughout local, regional and central governments. Institutions for education, knowledge or culture can still apply for funds to provide their users with free Internet access. The funds will be used to prioritize Internet connectivity and use. The government will also invest 500 million. DKK and municipalities will up to 1 billion. DKK tailoring teaching in public schools for future needs.

Egypt

1 General Information

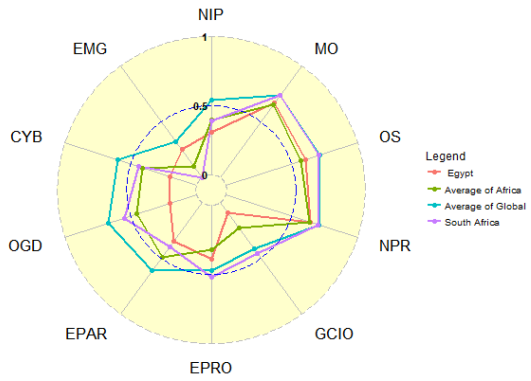
Area: 1,001,450 km^2
Population: 94,666,993
Government Type: Presidential Republic
GDP: $12,100
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

Africa Countries



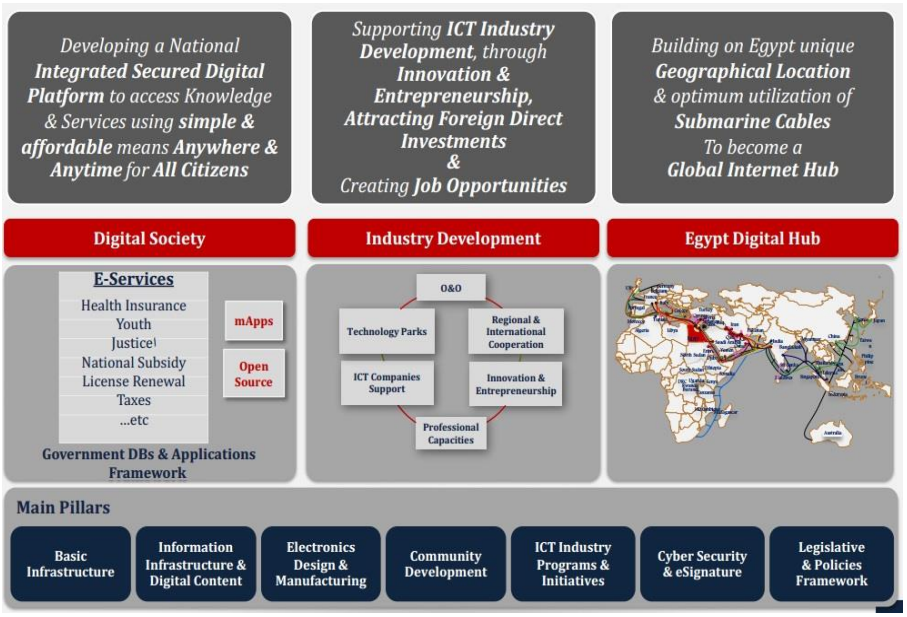
Among Africa Countries, only Management Optimization (MO), D-Government Promotion (EPRO) and the use of Emerging Technologies for government (EMG) indicators are above with the average score of Africa region. In addition, the use of Emerging Technologies for government (EMG) indicator of Egypt is better than those of South Africa, the best country in Africa region.

3 D-Government Development

In 1999, the Ministry for Communications and Information Technology (MCIT) was formed to build momentum to create an information society and to improve the information infrastructure. Shortly after its formation, the Ministry revealed the Egyptian National Communications and Information Technology Plan

(NCITP). The NCITP has paved the road for launching the Egyptian Information Society Initiative (EISI). Although, Egypt's D-Government program was initiated in by the MCIT in 2000, the Ministry of State for Administrative Development (MSAD) took over the leading role in 2004. Egypt's D-Government was divided in to two stages. The first stage (2001-2007) incorporated setting and approving the government strategic plan, implementing and assessing pilot projects, and starting geographical and sectorial deployment of some projects. The second stage (2007-2012) aimed at expanding successful pilot projects on national level, and the development of government administrative body.

MCIT supports other ministries in facilitating D-Government programs and services as part of the Egyptian Information Society Initiative (EISI). In April 2013 MCIT launched the Egypt's ICT Strategy 2013- 2017. MCIT future vision focuses on achieving the digital socio-economic development in Egypt: Prosperity, Freedom and Social Justice. Moreover, Digital Economy 2020 was announced with the vision for "Achieving the Digital Economy through ICT to Provide Prosperity, Freedom and Social Equity for All". According with the Digital Economy 2020, Egypt's ICT 2020 Strategy was finalized, and focuses on three key objectives: the transformation of Egypt into a digital Society, the development of the ICT industry and the establishment of Egypt as a global digital hub. The goals of Egypt's ICT Strategy 2020 are to create a digital society allowing Egyptian citizen to use IT services and maintaining communications growth by attracting global companies, in addition to benefiting from the geographical location of Egypt and maritime cables in Suez Canal. And beginning of 2017, MCIT launched newly the Egypt's ICT 2030 Strategy that it does not have more information about this new strategy. However, ICT 2030 strategy supports the development of the communications sector both regionally and internationally by designing new initiatives such as the electronics design and manufacturing and capacity building to maximize ICT contributions to the economic growth of the country.



Objectives of Egypt's ICT Strategy 2013- 2017

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 35.9% of people in Egypt were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 4.5% have fixed-broadband subscriptions, and wired broadband subscription has reached 50.7%.

4.2 Management Optimization [MO]

In April 2013 MCIT launched today the Egypt's ICT Strategy 2013-2017 which has 4 Strategic Goals: 1) Supporting the Democratic Transition; 2) Promoting Digital Citizenship and Information Society; 3) Promoting Sustainable Development; and 4) Strengthening the National Economy. In addition, the Digital

Economy 2020, Egypt's ICT 2020 Strategy was finalized. Its mission is to enable the development of a knowledge-based society and a strong digital economy relying on equitable and affordable access to knowledge; digital rights; and the development of a competitive, innovative national ICT industry.

Moreover, MCIT endeavors to promote the development of the ICT infrastructure and digital services of government entities, one of its key priorities. Activities on this track aim to enhance the performance of ministries and other government bodies – and to raise the quality and efficiency of the services they provide to the public – by improving the work environment, providing support for decision-making and finding solutions to issues of concern to the community. These efforts will boost local markets and raise demand for ICTs.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and their URL Address. All of those services were investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. e-Procurement has the highest score, compare to other online services. The Egyptian government has made significant developments in terms of G2G services such as e-tender, geographical networks and ERP systems. In general, the lack of comprehensive legislative framework for D-Government has slowed the development of some e-Services such as tax procedures, filling out and submitting official forms, and online tax payments. There is also a lack of policies and laws and citizens are most unlikely to use D-Government services without a guarantee of protection of their privacy.

In terms of complexity level, most of Online Service in Egypt has reached the two ways interaction in which user can download and summit application from through the portal. In addition to that, only e-Procurement has implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

For measuring the level of convenience, the third-party application result has shown that e-Procurement, e-Customs and e-Health are above the average considerably in terms of speed. The third-party application for assessing the portal is the application from Google PageSpeed™ Insight. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://etenders.gov.eg/
e-Tax	http://www.incometax.gov.eg/
e-Customs	http://www.customs.gov.eg/
e-Health	http://mhealth.cu.edu.eg/
One-Stop Service	https://www.egypt.gov.eg/english/home.aspx

4.4 National Portal [NPR]

Egyptian D-Government portal "https://www.egypt.gov.eg/" was inaugurated in January 2004 as Egypt's information portal. Through the national portal, e-contents industry encompasses the creation, design, management and distribution of digital products and services and the technologies that underpin these activities. D-Government portal demonstrates well-structured navigation and interface features. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average both from PC and from Mobile Device. However, the portal provides interactive features such as blog and polls. There is also a Live Support chatting feature for assistance. Besides national language of Arabic, much of the portal is available in English.

4.5 Government CIO [GCIO]

Regarding the CIO concept, the Egyptian public administration at the national and local levels does not appoint clear CIOs or equally influential positions within its legal framework. Nevertheless, it is observed that there is increasing concern on positioning of CIO equivalent executives with administrative body.

4.6 D-Government Promotion [EPRO]

Egypt's D-Government initiatives pursue capacity-building and market maturity along with essential public-private partnerships. MCIT has implemented a number of programs with the chief aim of providing benefits to users, promoting computer literacy, and encouraging increased use of ICT by the public. In terms of assessment aspects of D-Government, the Egyptian Cabinet's Information and Decision Support Center (IDSC) stands as one of the distinguished Think Tanks in Egypt, particularly for the Cabinet. IDSC strives to enhance relations with different ministries and government authorities, and to open communication channels with the public to measure the society's attitudes towards national issues. IDSC also works on disseminating data and information, focusing on electronic dissemination.

4.7 E-Participation [EPAR]

In general, Egyptian government web sites demonstrate interactive functionality and good design, however in terms of participatory decision making processes or public discussions, national portal and other government web sites at national and local levels offer very limited public engagement. In the national portal and other government websites, users can follow and receive information through SNS such as Facebook and Twitter. Government leaders are also using ICT applications for management and operations.

4.8 Open Government Data [OGD]

Some Egyptian government entities share information when available, as also foreseen in the ad hoc legislation. However, there are still important challenges concerning the level of interoperability of the databases and the varying quality of data available. There is no evidence about the Egyptian government's efforts on developing open government or open data.

4.9 Cyber Security [CYB]

The Egyptian Computer Emergency Response Team (EG-CERT), established by the National Telecommunication Regulatory Authority in April 2009, provides 24-hour support to protect critical information infrastructure. In 2012, EG-CERT provided support to entities across the ICT, banking and government sectors, helping them tackle cybersecurity threats including denial of service attacks. Moreover, in the National ICT Strategy 2012 – 2017, the cyber security draft law has been mentioned as a document which "represents the biggest response possible to the requirements of civil society, taking into consideration national security dimensions, and corresponding with the most recent legislation of its kind in the world".

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies to evaluate this indicator. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Egypt has a strategy plan for cloud computing for the public sector according to Egypt's ICT 2020 Strategy. The Egyptian Government Cloud (EG-Cloud) Strategy seeks to improve the efficiency and performance of the government. MCIT has signed MOU with Telecom Egypt to provide cloud computing application services to private and public sector organizations in Egypt. However, the evidence shows that it is not officially launched. Other emerging technologies for government agencies are still nullity in Egypt.

5 Some Highlights

Egypt has the impressive point on Management Optimization, National Portal, and Online Service. MCIT endeavors to promote the development of the ICT infrastructure and digital services of government entities, one of its key priorities. The project of D-Government is being executed by MCIT in cooperation with the MSAD, and will involve all the Egyptian Ministries and Government bodies.

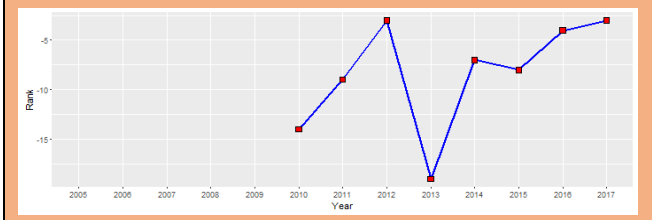
Egyptian government is using the Facebook "https://www.facebook.com/egyptgovportal/" to provide information, and citizens can follow and receive information through Facebook as one channel of e-Participation. And the data is also update time to time though Facebook account of Egyptian government.

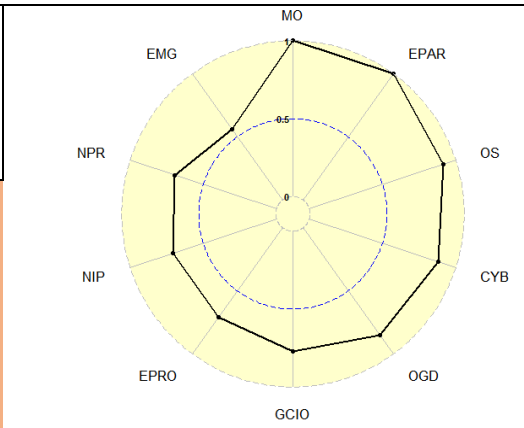
In the opposite, Egypt has the high score with the use of emerging technology event if it is the new indicator for this year survey. Since 2011, MCIT has been considering the Cloud Computing model, decision was crated Egyptian Government Cloud (EG-Cloud) strategy that is one of Basic Infrastructure pillar of the Digital Economy 2020, with the vision to accelerate the government adoption of the cloud computing for superior performance, productivity and service delivery.

Estonia

1 General Information

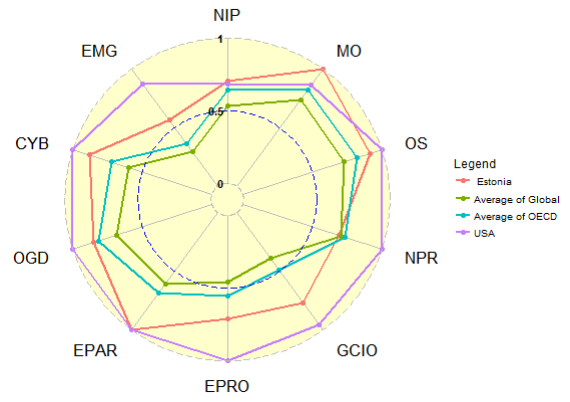
Area: 45,228 km^2 [9]
Population: 1,258,545 [10]
Government Type: Parliamentary Republic [11]
GDP: $29,500[12]
Historical Ranking (2005 – 2017):



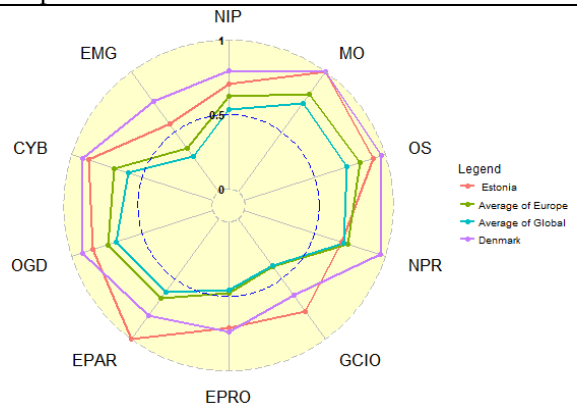


2 Positioning in a global organization and a region

OECD Countries



European Countries



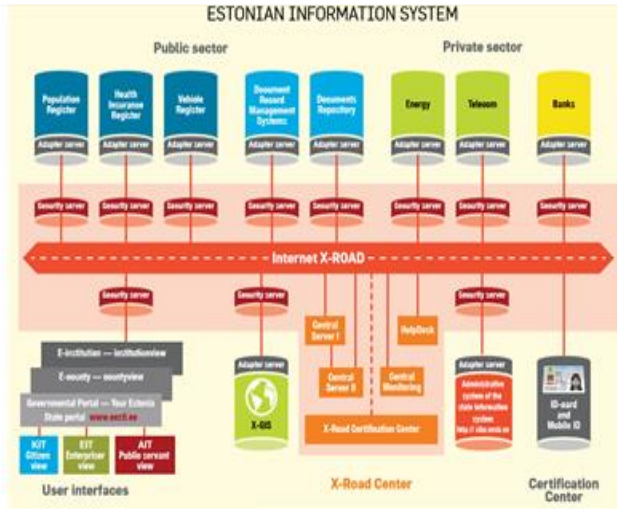
Among OECD Countries, all indicators except the use of Emerging Technologies for government are above the average score of OECD members. The Management Optimization (MO) indicator of Estonia get the better score than that of United States, the best country in the global ranking and also in OECD.

Amongst European countries, Estonia is posed below Denmark. However, the e-Participation and Government CIO of Estonia are better than those of Denmark, the best country in Europe region.

[9] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html
[10] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[11] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[12] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

3 D-Government Development

D-Government in Estonia has reached the connected stage. Since 2000, Estonia has implemented X-Road as the core of government information system integration. Hitertho, X-Road is considered as a symbol of Estonian D-Government. It is the core of D-Government system in Estonia. Using X-Road, public and private sector agencies can share their information, thus, enabling them to offer e-services without redundancy. E-Tax system in Estonia is one of the online services utilize the presence of X-Road. Estonians enjoy the simple procedure for filling tax report in which they simply click four to six button for completing the procedure. It is not necessary to input the similar data time over time because the data is already there. Hence, everything is prefilled. Unless something is wrong, they do not need to fill anything.



Source: Estonian Information System Authority
https://www.ria.ee/public/publikatsioonid/x-road.jpg

To expose the position of Estonia to become a world-class public e-service, Estonia joined with the United Kingdom, South Korea, Israel, and New Zealand to establish a Digital 5 (D5) Cooperation. The first D5 Meeting was held in London in December 2014. Tallin hosted the second summit in November 2015.

Strong commitment to ICT is inherent in the part of the prime minister and senior government officers. Prime Minister chaired E-Estonia Council, which lead the making and execution of national digital agenda in the country.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 88.7% of people in Estonia were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 28.4% have fixed-broadband subscriptions, and wireless broadband subscription has reached 114.3%.

4.2 Management Optimization [MO]

In early 2014, Estonia has launched the Digital Agenda 2020. The ultimate goal of this agenda is not merely an ICT use in daily life and business. The current plan emphasizes the improving economic competitiveness, the well-being of people and the efficiency of public administration. Some priorities have been set on the agenda such as completing the next generation broadband network, generating greater control over personal data, and utilizing data analytics in public sectors.

In all, Estonia has fully achieved the maximum score in Management Optimization domain. Contribution from operationalization of X-Road is very significant in this area.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL

Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service and e-Health have the lowest score, compare to other three online services.

In term of complexity level, most of Online Service in Estonia has reached a transactional in which user can start the transaction from applying to receiving the service through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

For measuring the level of convenience, the third party application result has shown that three portals are above the average considerably in term of speed. The other two portals, i.e., e-Health and One-Stop Service are slightly above the average. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://riigihanked.riik.ee
e-Tax	http://www.emta.ee
e-Customs	http://www.emta.ee
e-Health	https://www.eesti.ee/eng/teemad/kodanik/riigiportaali_abi
One-Stop Service	https://www.eesti.ee

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Estonia (http://estonia.eu) contains proper information for local citizens and foreigners. Information about Estonia is available on the portal. People can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and from Mobile Device. However, the portal does not provide the user with some functionalities such as searching, site map, and an inquiry form.

4.5 Government CIO [GCIO]

Estonia government has clearly defined the need of ICT leadership on D-Government. The Digital Agenda 2020 stated the role, the mandate, and the position of CIO in central and local authority. The agenda also mentioned the need to establish GCIO Network among them. In addition to that, to provide a formal education that focused on CIO Competency, Tallin University has opened CIO program as one of Master Degree program.

4.6 D-Government Promotion [EPRO]

The Digital Agenda 2020 covers all aspects of developing ICT in government. Not only the technical side but also managerial and awareness is mentioned on the document. The programs, initiatives, and funding for increasing the awareness on Digital Government have taken place. Some efforts regarding D-Government Promotion has been found during this research. E-Governance Academy has several awareness programs about utilizing ICT in Public Sector. As part of European Union (EU), Estonia gets some support from EU under the scheme ““Raising Public Awareness about the Information Society”.

4.7 E-Participation [EPAR]

Culture and society in Estonia have been created as a high-tech society. These factors have driven Estonia to the next horizon of D-Government. Citizens and government can take the benefit of ICT in their daily life. For instance, parliament member has their website and provides the citizens with the alternative channel to communicate. The presence of e-participation portal (osale.ee) contributes to the high achievement of Estonia in this indicator.

4.8 Open Government Data [OGD]

In 2000, Estonia launched Public Information Act 2000 to participate in the Freedom of Information Act movement around the world. To strengthen the implementation of these act, Estonia has established Open Data Portal (http://pub.stat.ee) to provide public with government information. To keep the information up-to-date, Estonian government uses Data submission procedure through eSTAT system.

4.9 Cyber Security [CYB]

Estonia has ratified several laws related to cybersecurity. Some of them are as follow:

- State Secrets and Classified Information of Foreign States Act
- Public Information Act
- Personal Data Protection Act 2003
- Database Act 1997
- Information Society Act

In addition to these laws, Estonia has strengthened organization capacity for cybercrime countermeasure by setting up CERT-Estonia and give a mandate to Information System Authority (RIA) to exercise supervision over the continuous application of security measures in regards to the information systems used for the provision of vital services. Moreover, Estonian government decided to change the encryption method for Digital Identity code from RSA 1024bit to Ecliptic Curve Cryptography.

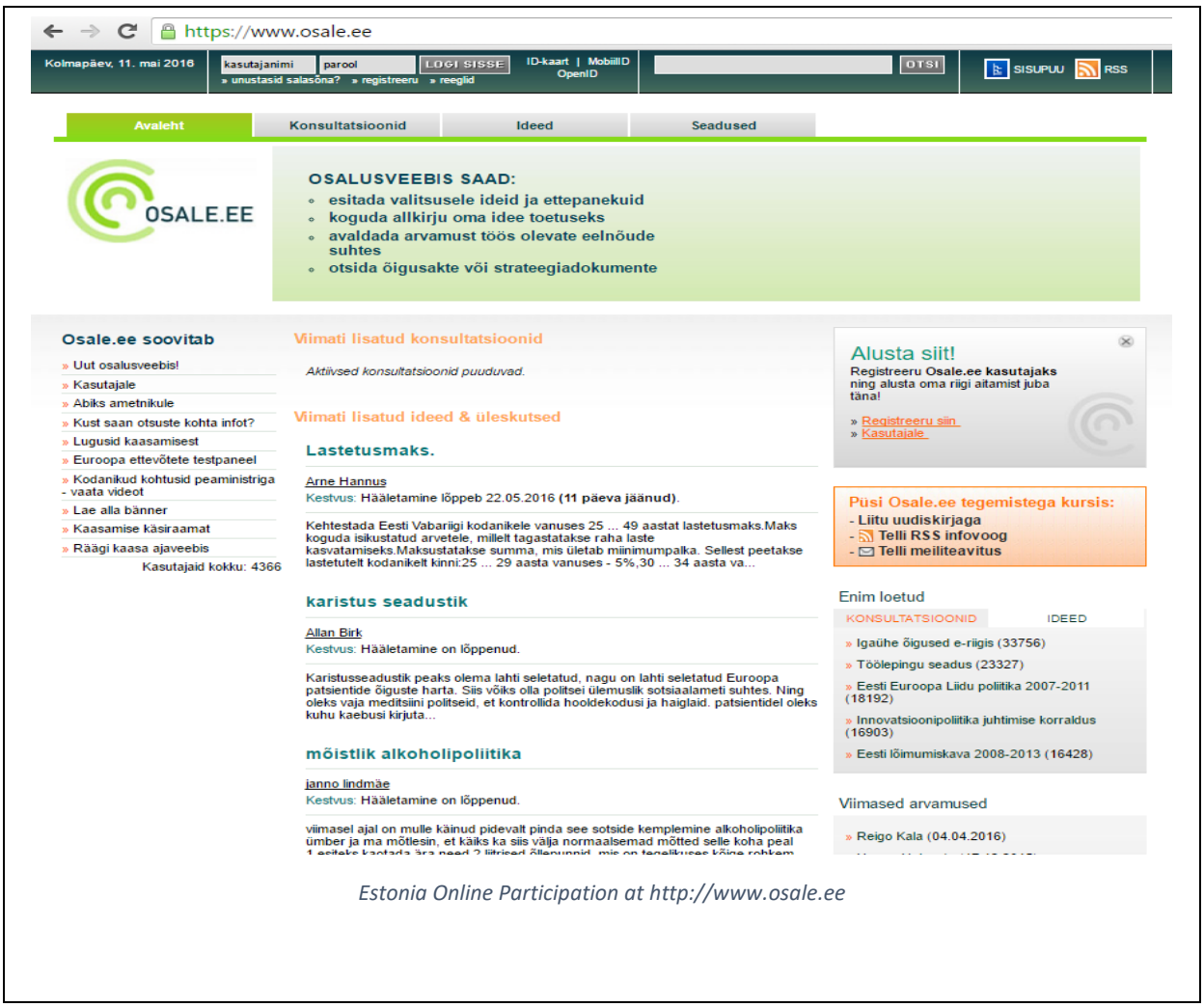
4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Estonia has attempted to implement Cloud Computing for Public Sector. However, the evidence shows that it is not officially launched. Other emerging technologies for government agencies are still nullity in Estonia.

5 Some Highlights

The operationalization of X-Road has brought the Management Optimization as the best indicators for Estonia. X-Road enables secure Internet-based data exchange between the state's information systems. Not only state's information system but also private sector can take the benefits of X-Road. In addition to that, citizen uses X-Road seamlessly by using Citizen ID, due to the fact that interaction with government is considerably simple through Online Participation Portal. As a result, the e-Participation indicator for Estonia places the second-best performer. The situation is similar to Online Service indicator that sets the third best performer.

Despite the excellent score on these three best indicators, Estonia still has weakness on utilizing the emerging ICT. Emerging ICT is the new indicator in the year 2106 ranking. Also, this new technology; Cloud Computing, Big Data, and IoT are still the new toy for government due to their concerns about security. Since many countries are still attempting to take the optimum benefit of emerging ICT, there are many rooms for improvement in this domain.

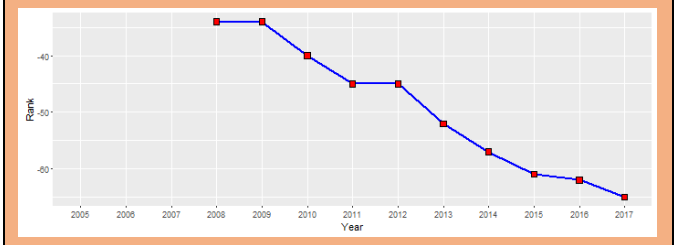


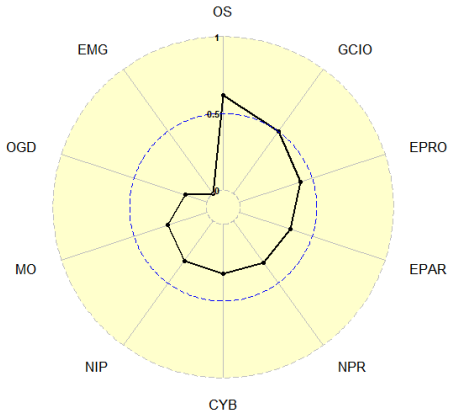
Estonia Online Participation at http://www.osale.ee

Fiji

1 General Information

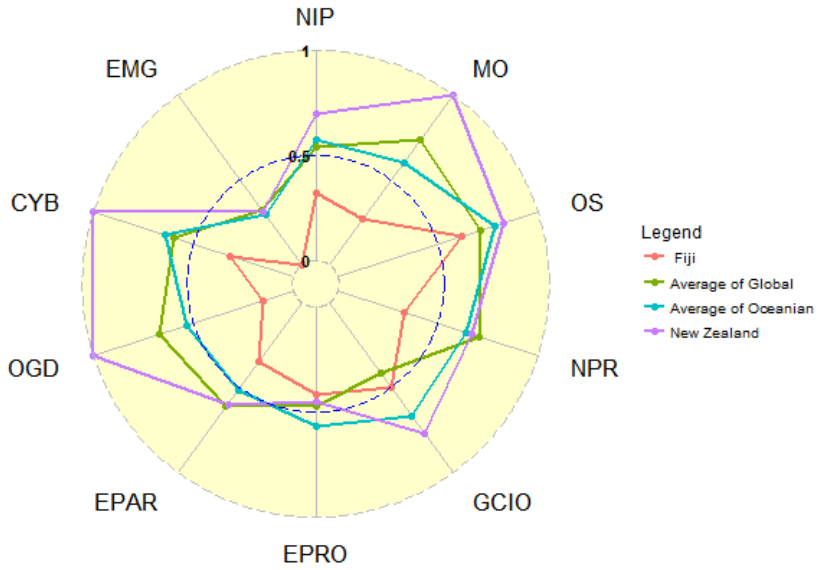
Area: 18,274 km^2
Population: 909,389
Government Type: Parliamentary republic
GDP: $8,800
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Oceania Countries



3 D-Government Development

The D-Government program is the single most massive ICT project for the Fiji Government. With the Fiji government facing the challenge of using technologies to fundamentally transform government service delivery with a vision to provide citizen-centered and integrated. The following critical success factors or D-Government strategic thrusts are needed to achieve the national objectives: (i) Implement financially sustainable service delivery models; (ii) Reinvent services delivery model to provide citizen-centric outcomes; (iii) Enhance operational efficiencies within and across government agencies; and (iv) Enhance ICT skills competency of government employees at all levels. It made Fiji became the newest government to join a UN alliance of governments and organizations committed to accelerating the transition from cash to digital payments in order to reduce poverty and drive inclusive growth.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 46.8% of people in Fiji were Internet users in 2017 and there is 55% have wireless broadband subscriptions, but only 1% of the population has a wired broadband connection. Fiji is island nation, so it is difficult in the deployment of ICT infrastructure to serve the development of D-Government.

4.2 Management Optimization [MO]

One of ITC Service's strategic priorities is to transform or re-engineer government services across all government agencies through the realization of the D-Government strategy. This holistic strategy adopts the three legged stool approach, focusing on People, Processes and Technology. In collaboration with other Government agencies, cooperate sectors, NGOs and other stakeholders, ITC Services will develop, promote, coordinate and support strategies that foster service excellence through the utilization of D-Government Application tools.

In 2016 the Fijian Government used e-cards pre-loaded with approved amounts to assist families who had lost their homes. Under this Help for Homes Initiative, recipients were able to purchase building materials with the e-cards from selected hardware stores. In the same year, Fiji completed its first medium term financial inclusion strategy and is embarking on the second "National Financial Inclusion Strategic Plan 2016 – 2020″ with a target of increasing access to formal financial services to at least 85 percent of the adult population by 2020. The goal of the strategy is to elevate digital financial services. The strategy aims to increase the percentage of adults using digital payments from eight to 15 percent over the next five years.

4.3 Online Service [OS]

E-Services online provides Government Services over the Internet. There are 3 Clusters in which the Government will provide services. These are: (i) G2G Cluster, This cluster focus on the exchanging of data between Government Ministries and Departments where necessary. These services are only available to government officers; (ii) G2B cluster: This cluster focus on providing Online Services to Investors and business that need approval from the concerned Government authorities. These services require free business user registrations and login; (iii) G2C cluster: This cluster focus on providing Government Services online to the Fiji Citizen. Where by citizen will be able to access and extract the required information from the Government Departments. Also citizen will be able to submit applications online to relevant authorities should the services is available online. These services require free citizen user registrations and login.

Compared to other countries in a region, the D-Government services in Fiji has no good position. There are some services which are provided to citizens such as e-tax, e-health, and e-procurement but there are no

transactional services. The level of complexity is only dynamic. Fiji government has national portal, but this portal is not integrated e-services inside.

4.4 National Portal [NPR]

www.fiji.gov.fj is one of national portal. This portal together with one other government portal, egov.gov.fj, so called the citizen portal, collectively makes up the Fiji Government Online (FGOL) presence. The national portal demonstrates a consistent page layout and navigation with English as the main language used. There is also an option for users to easily increase the sizes of the letters or decrease them which very convenient for those with bad eyesight. There is a clear lack of citizens` participation mechanisms such as blogs, polls and forums but citizens can access and follow the Government activities though Facebook through a link on the national portal services.

4.5 Government CIO [GCIO]

The Minister of Information was appointed to the position of CIO. Fiji National ICT Governance Structure comprises of a CIO Council which reports directly to the D-Government Steering Committee on all D-Government matters and is responsible for implementing the D-Government Master Plan at the agency level. However, there are further requirements to penetrate CIO concept within government.

4.6 D-Government Promotion [EPRO]

In Fiji, there are some private companies, which provide a holistic range of IT and communications engineering solutions to support our customers' business goals throughout their technology life-cycle.

In order to increase and deliver services to citizens, the Fiji government is interested in recruiting from the Fiji Volunteer Service (FVS). They are promoting the regional component of the FVS as part of Fiji's Development Co-operation initiative and that it be mutually beneficial to participating countries.

4.7 E-Participation [EPAR]

In order for e-participation to develop there needs to be more improvements and efforts placed on infrastructure and capacity building. Fijian Government national portal still lacks features to confirm engagement of citizens in the decision making process.

Some government officers in Fiji has their own website, such as Prime Minister. Universal access to information and greater public awareness of Government programmes including broad-based appreciation of Government is achieved through cyberspace modality. This is the essence of the Ministry's website to bring to all and the world his vision and of his Government on where and how they want to take Fiji as per the aspirations of the people in the Charter.

4.8 Open Government Data [OGD]

Official Fiji Government website with information about departments, ministries, news briefs, and press releases, this portal is gateway to share information on e-health, e-tender system but nothing found on open government data.

4.9 Cyber Security [CYB]

The increased availability and use of computers in Fiji has led to a corresponding growth in international data transmission requirements. The cyber environment in Fiji includes licensed operators, telecoms, as well as the ISPs, TAF, Commerce Commission, and other organizations and is linked to an Internet ecosystem. One of the challenges in Fiji is that there is not sufficient awareness amongst stakeholders within the cyber-environment of the stakeholders within the Internet ecosystem and how each relates to each other.

4.10 The use of Emerging ICT [EMG]

There is no emerging ICT in Fiji.

5 Some Highlights

In Fiji, the D-Government program involves three (3) main streams: Public Contact Center (PCC), Government Information Infrastructure (GII) and E-Applications. These 3 streams address the tasks of handling inquiries or complaints from the public, connection of government offices to the network and managing and developing various government online applications for the D-Government SharePoint Framework respectively.

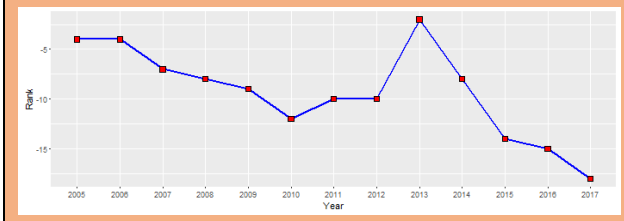
E-Services Fiji is one stop portal providing services to be delivered online on a real time basis to users be it citizens, visitors to Fiji, individuals / companies local or foreign setting up businesses in Fiji or Government department employees providing various services and performing various back office functions.

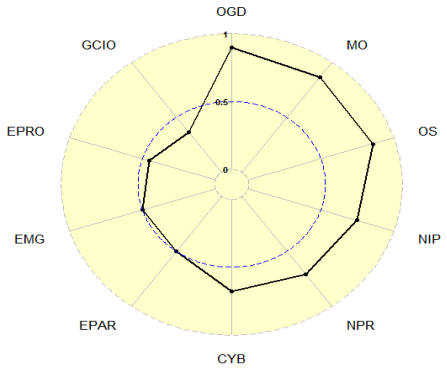
The users, based on the access rights granted, will have access to various services from a single services platform that are required to perform various activities in the day to day life of the user. Compared to last year, Fiji goes down one step and ranks at 64. It made Fiji is still standing in a low position on D-Government development.

Finland

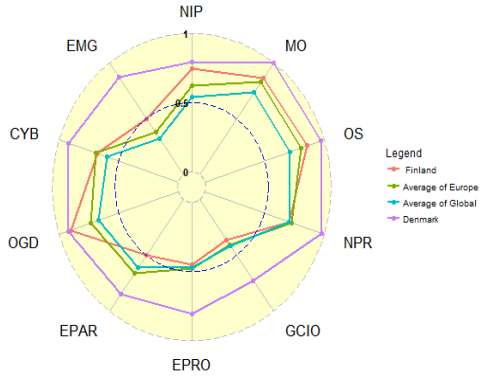
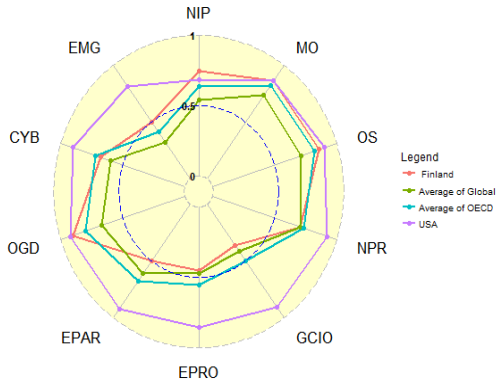
1 General Information

Area: 338,145 km^2
Population: 5,476,922
Government Type: republic
GDP: $41,200
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and region

European Countries	OECD Countries
	

Among European countries, Finland scores lower than the average in Government CIO, D-Government Promotion and e-Participation. Similar result was observed in the comparison with other OECD countries meanwhile Finland has surpassed the region's average in most of indicators except these indicators.

3 D-Government Development

Finland has one of the highest broadband penetration rates in Europe. Finland is also one of the early adopters of D-Government initiatives within the OECD, and has achieved impressive results based on international comparisons. (OECD, 2010). In Finland, in responsible for D-Government, information

society portfolio and participation policy are collaborated across three ministries – the Ministry of Transport and Communications; the Ministry of Finance and the Ministry of Justice. The Ministry of Finance has central policymaking responsibilities for public administration reform and development of general ICT and D-Government strategies. Within these responsibilities, Public Sector ICT dep., as part of the Ministry, is leading the overall D-Government development, e.g. by promoting cooperation between central and local government on common information management, formulating common functional and technical solutions and methods, and developing information and data security in public administration.

In order to maximize the cooperation among government bodies, Finland established the Ubiquitous Information Society Advisory Board which involved of representatives from major ministries, agencies, business and academicians and headed by the Minister of Transport and Communication.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

There are more than 90% of people in Finland were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). Among them, 31.7% have a fixed-broadband connection while the portion of the total population has a wireless subscription is 144.1%.

4.2 Management Optimization [MO]

Digitalization become the top priority in Finnish Government's agenda, marking by the announcement of the Government Programme in May 2015, which specifies that public services should be developed primarily as digital13. In the efforts of accelerating e-services provision, Finland adopted Estonia's X-Road system, the data exchange layer which provides a standardized method to exchange information and data among public sector organizations and connect different national datasets.

The Ministry of Finance has launched The National Architecture for Digital Services which is considered as a compatible infrastructure for facilitating information exchange between organizations and services. The programme consists of several components such as: "a national data exchange layer, the shared service views required by citizens, companies and authorities, a new national e-identification model and national solutions for the administration of roles and authorizations for organizations and individuals"[14].

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. For e-Procurement, due to the highly decentralization in Finland, e-Procurement initiatives were not provided on a single national platform. Information on public tendering however is provided via Hilma service (https://www.hankintailmoitukset.fi/fi/). Tax and Customs are the two services reaching the highest complexity level, with various security mechanisms are fully implemented.

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. Finland's national portal (http://finland.fi/) was designed in the blog style, with articles being categorized into different topics (culture, life style, politics, and so on). There are different social networks

[13] https://joinup.ec.europa.eu/sites/default/files/ckeditor_files/files/eGovernmnent%20in%20Finland%20-%20February%202016%20-%2018_00%20-%20v2_00.pdf

[14] http://vm.fi/en/national-architecture-for-digital-services

integrated with the portal. However, this portal does not include the information about Government, although there is a link to Suomi.fi where government's services are provided. Regarding technical aspects, the portal operates well with different browsers and devices, with acceptable loading speed (according to Google Speed Test result).

4.5 Government CIO [GCIO]

Each ministry and government agency has its own chief information officer, although the formal title and precise job description may vary. There is no law mandating the presence of CIOs in each ministry and government agencies but the CIO position is decided based on each organization's own internal process.

The mandate and role of CIOs are currently changing, particularly at the ministerial level. In the past, they have been responsible for all the ICT technology within their own organization. Nowadays, due to the fact that infrastructure services (or sector-independent ICT services) are provided by a Government ICT Centre Valtori (established in 2014), the operative tasks of CIO are decreasing and the mandate is becoming more strategic oriented. The most important tasks in this new role includes designing and managing enterprise architecture, defining ICT strategy and information and cyber security strategy. It should be noted, however, that this changing role of CIOs in government agencies are still transition process which may take few years.

4.6 D-Government Promotion [EPRO]

The Ministry of Finance plays perhaps the most important role in the horizontal co-ordination of D-Government. It has a central policy-making function and helps the government to translate its vision and principles into effective guidelines and related D-Government strategies.

At the national level, the Association of Finnish Local and Regional Authorities (AFLRA) plays a major role in representing the interests and perspective of local government partners. The Association of Finnish Local and Regional Authorities seeks to promote the opportunities of the local government sector to make efficient use of ICT.

According to the Act on Information Management Governance in Public Administration, major central government IT projects (projects costing over EUR 5 million) shall be reviewed by the Ministry of Finance before the investment decision is made. This review process ensures that major IT projects are compatible with overall enterprise architecture and thus meet state wide interoperability requirements. Cost-benefit analysis (business case) is also required.

The National Audit Office occasionally scrutinize and reviews selected IT projects. These reviews, however, are completely up to the NAO that what, when and to what extent it wish review and scrutinize government's reform programme (including IT) or single IT projects.

At agency or project level each government agency is responsible of evaluating its own projects. Ministry of Finance recommends usage of a common evaluation framework for projects costing more than 1 million euros.

4.7 E-Participation [EPAR]

Several initiatives were established to facilitate the interacting between citizens and government. This enables citizens to participate in various government activities. For example: Public consultation: lausuntopalvelu.fi; Questionnaires, polls: otakantaa.fi and Citizen Initiatives; kansalaisaloite.fi. These initiatives are the components of the e-participation environment project 2010-2014, which is a part of the Ministry of Finance's Action Programme on e-Democracy and e-Services.

4.8 Open Government Data [OGD]

Regarding Open Government, Finnish Government has cooperated with other Nordic countries such as Denmark, Sweden and Norway to share their open data strategies and promote for opening up data.

Led by the Ministry of Finance, the Open data Programme – 17 May 2013 to 30 June 2015 – was eliminating obstacles to the re-use of public data as well as creating the preconditions for open data within the public administration. The Open data policy for 2015 – 2020 covers the proposals of the programme for the key goals and actions in the field of open data in the public administration in Finland.

4.9 Cyber Security [CYB]

The Government of Finland released its Cyber Security Strategy as a Government Resolution in 2013, defining vision and the key objectives of the government for protecting society and its vital functions against cyber threats. Finnish Government took a further step in securing government network by introducing the Act on the Government security network which came into force early 2015. By doing this the communication of state administration's leaderships could be secured in all situation15.

The Ministry of Finance is responsible for the steering and development of the state's information security. The Security Committee was established on February 2013 with the role is to assist the Government and ministries in matters relating to comprehensive security. There is also an incident response team called VIRT (Virtual Incident Response Team) which is a governmental network consists of 50 cyber security professionals, with the duties are to plan and prepare co-operation and responses to major cyber security incidents encountered by the Finnish Government agencies.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT).

Internet of Things was mentioned in the new Government Programme as a key project to coordinate the ministries' activities. This will be a joint effort by businesses and the public sectors in order to "create a favorable operating environment for digital services and new business models"[16]. An implementation plan for leveraging big data and for piloting My Data will be drawn up (based on the Big Data Strategy of the Ministry of Transport and Communications, 8/2014).

5 Some Highlights

In Finland, the new appointed government - Sipilä's Government – has published its Government Programme, focusing on overarching reforms with five strategic priorities and 26 key projects. Among these, digitalisation is a cross-cutting theme which is appeared in almost of the key projects of the Government. These efforts contribute to the increase of Finland's score on Management Optimization and Online Services this year.

Being one of the most developed information societies who's functioning heavily relies on digitalized networks and services, Finland has already been the target of various types of cyber threats. That explains

[15] https://joinup.ec.europa.eu/sites/default/files/ckeditor_files/files/eGovernmnent%20in%20Finland%20-%20February%202016%20-%2018_00%20-%20v2_00.pdf

[16] http://valtioneuvosto.fi/documents/10616/1986338/Action+plan+for+the+implementation+Strategic+Government+Programme+EN.pdf

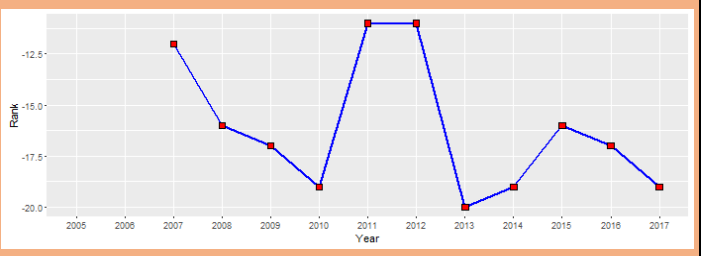
why Finland is giving high priority to information security, however until 2013, the first national Cyber Security Strategy was published as a Government Resolution.

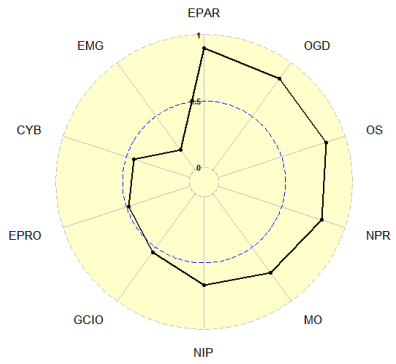
With an advanced D-Government development level, the D-Government promotion activities of Finnish Government are no longer surrounded the matter of citizens' awareness. Instead, the target is focusing on how to improve users' experience with government digital services due to the increase in citizens' expectation. More attentions need to be paid to the utilizing of emerging technology such as internet of things or big data within government agencies.

France

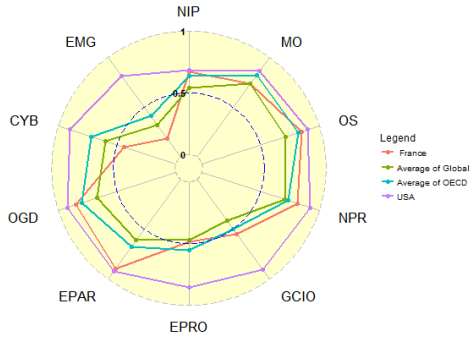
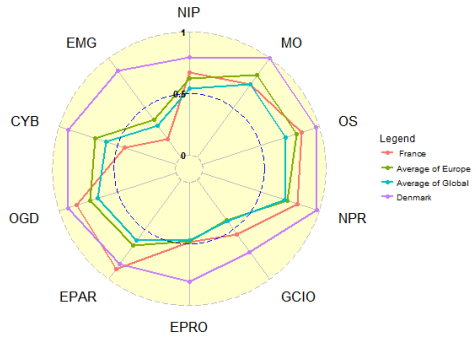
1 General Information

Area: 643,801 km²
Population: 66,836,154
Government Type: Semi-Presidential Republic
GDP: $42,400
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

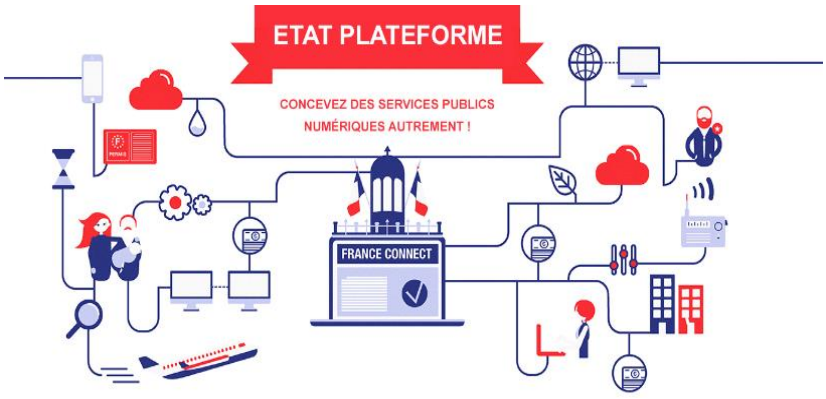
OECD Countries	European Countries
	

Among OECD Countries, all indicators except D-Government Promotion (EPRO), Cybersecurity (CYB) and the use of Emerging Technologies for government (EMG) indicators are above or same with the average score of OECD members. Amongst European countries, France is placed below Denmark. However, the e-Participation (EPAR)indicator of France is better than those of Denmark, the best country in Europe region.

3 D-Government Development

In France, there was a development plan called the “Digital Economy by 2012”. This was France's national D-GovernmentD-Government strategy aiming to make France a digital nation by 2012. The plan was comprised of 150 actions centering on four major priorities 1) access to all digital networks and services 2) production and supply of digital contents 3) diversification of digital services and 4) governance modernization of digital economy. And On November 2011, the Minister of Industry, Energy and the Digital Economy presented the results and prospects of the “Digital France Plan 2012-2020”, with 57 new priority targets to develop the digital economy by 2020.

The Inter Ministerial Directorate for Information Systems is building the foundations of the "ETAT PLATEFORME" (State platform), an architecture supporting the creation of a new kind of digital public services. This strategy of transforming the state information system presupposes that the administration itself needs to bring together the various data of the user necessary for its purposes, and offers in return almost ready-to-use services. It deals with services centered on its needs, and not from the organizational carving of administrative structures. The main principles of the State platform are the opening of API by large public providers of data, the flow of data between administrations, and the flow control by users through France Connect. Open up data for exchange between agencies, but give end users control over how information of a confidential nature is exchanged, such as personal data. Besides France Connect, the platform will offer other State resources. Including a store to reference the available APIs, the type of data that covers and related service contracts. A blacksmith will also be available to developers to encourage the reuse of software components required for the construction services. Finally, the General Repository for Interoperability and Architecture Frameworkof the State Platform API will enable developers to rely on the same exchange protocols.



State platform

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 84.7% of people in France were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 41.3% have fixed-broadband subscriptions, and wired broadband subscription has reach 74.7%.

4.2 Management Optimization [MO]

The National D-Government strategy of France “Government as a platform” is led by Prime Minister’s services on the behalf of the Ministry for State Reform and the Ministry for Digital economy. And on February 2013, the government presented its Roadmap for the Digital Economy. This strategy revolves around three pillars, which are to 'Provide opportunities for youth', 'Reinforce competiveness', and 'Promote our values in society'.

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services:., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-Procurement, e-Tax, e-Customs and One-Stop Service are the best performer among five online services. Furthermore, there are various fully transactional e-Services provided in France. Users can file taxes, search for jobs, apply for social benefits, register vehicles, request certificates, and access many other services by searching as category.

In terms of complexity level, all online services have reach interaction level where the citizen can obtain the service without necessarily visit to the government office. Initial stage of interaction with government through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

To measure the level of convenience, the third party application result has showed that all five online service portals are above the average considerably in terms of speed. E-Procurement and e-Health (personal medical account - 'dossier médical personnel': DMP) are the only portal that scored about the same with average. The third party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	https://www.marches-publics.gouv.fr/
e-Tax	http://www.impots.gouv.fr/
e-Customs	https://pro.douane.gouv.fr/
e-Health	http://esante.gouv.fr/
One-Stop Service	https://www.service-public.fr/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of France "https://www.service-public.fr/" contains proper information for citizens. Information about France is available on the portal, and there is other government portal "http://www.gouvernement.fr/" that provide many government information and service. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is well on PC but it is about average on from Mobile Device. However, from the user experience aspect, this website is tremendous.

4.5 Government CIO [GCIO]

There are also other established organizations responsible for D-GovernmentD-Government policy/strategy development and coordination: The Council for the Modernization of Public Policies (CMPP) and the Directorate-General for State Modernization (DGME). The members of the council and the directorates carry out D-GovernmentD-Government responsibilities in an in termsinisterial/departmental setting. The Head of the Interdepartmental Agency for Digital Projects and Information System of the Government (Direction in termsinistérielle du numérique et du système d'information et de communication de l'Etat, DINSIC) - is at the same time GCIO, Governement Chief Digital Officer and Government Chief Data Officer.

4.6 D-Government Promotion [EPRO]

France is committed to making the country a major digital power through D-GovernmentD-Government promotion. Various mechanisms are being strengthened to boost development such as laws and legislation, plans and strategies, public and private collaborations, and transforming to electronic administration.

4.7 E-Participation [EPAR]

The official French website for e-participation is "http://www.gouvernement.fr/". This e-participation promotes French citizens to get online and 'e-democracy' is aimed at involving the citizen and hearing their voices in major areas of democratic governance. And it can follow the government action which the progress and any related to its. Political and ideological debates are opened online to the citizens, which serve as a dialogue avenue with political officials. More ever there are have personal information and contract for each parliament member that citizen can write an opinion, and also see more information about public meeting for each parliament activity.

4.8 Open Government Data [OGD]

France has released the beta version of its open government data website, "http://data.gouv.fr/". Following the wave of open government data portals around the world and the Commission's Open Data Strategy the French open data portal is one step towards a new governance model which aims to be more open, participative and Internet-driven. France became the first country to appoint a national Chief Data Officer (Administrateur général des données - AGD). And according to the site, there are currently over 24,638 datasets hosted on the site on in late February 2017.

4.9 Cyber Security [CYB]

To meet the growing challenges posed by cyber-attacks and in light of the recommendations made in the White Paper on Defense and National Security, the French Network and Information Security Agency (ANSSI) was set up in July 2009. ANSSI is an interdepartmental agency operating under the authority of the Prime Minister.

As part of the reinforcement of cyber defense capabilities at the Ministry of Defense, the post of Cyber Defense General Officer was created in 2011, with responsibility for coordinating the Ministry's cyber defense activities and acting as the main interface in the event of a cyber-crisis. The Ministry of Foreign Affairs ensures the consistency of French positions on cyber security within the various international organizations and supports the development of international collaboration to address this issue.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Government of France issued the "Guide to Cloud Computing" that guide government use the Cloud Computing that is one of enterprise architecture of D-Government. For example; Interdepartmental Agency for Digital Projects and Information System of the Government (DINSIC) and Interdepartmental Purchasing Department (DAE) purchase cloud computing solutions for all departments. And Etalab team (part of DINSIC) have been employing data scientists for 2 years to develop predictive analytics use cases of big data.

5 Some Highlights

Among ten indicators in the current ranking, the E-Participation, Management Optimization, Open Government Data and Online service are the best among other indicators in D-Government France. And also National Portal score is high, with "http://legifrance.gouv.fr/" and "http://vie-publique.fr/" gives citizens to legal texts and knowledge about the public policies. France's national portal provides a gateway

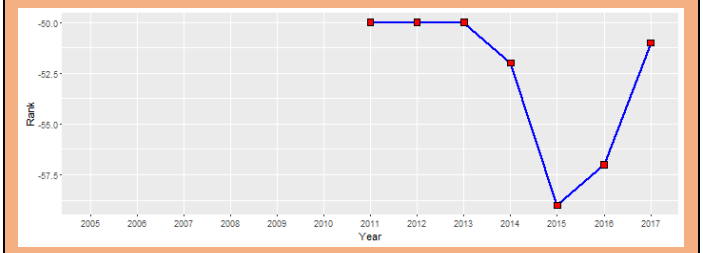
for users to access government information easily. The national portal of France also provides the online forms and services. The portal also provides several media contents including videos, audios and photo galleries. There is also help functions to guide users' browsing experience. The main aim of the portal is to simplify routine relation between government and citizens.

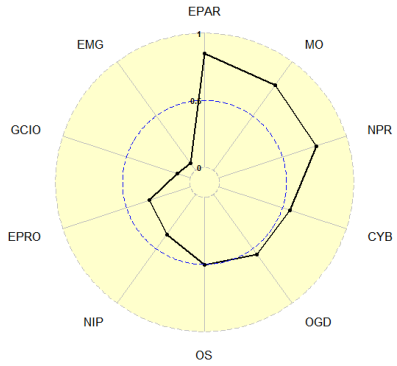
The weak point in France is about Government CIO and the use of emerging ICT. On 24th September 2015, the nomination of Henri Verdier for the new CIO of French was officially announced, he is at the same time GCIO, Government Chief Digital Officer and Government Chief Data Officer. And the use of Cloud Computing on government should be increase after "Guide to Cloud Computing" was progress.

Georgia

1 General Information

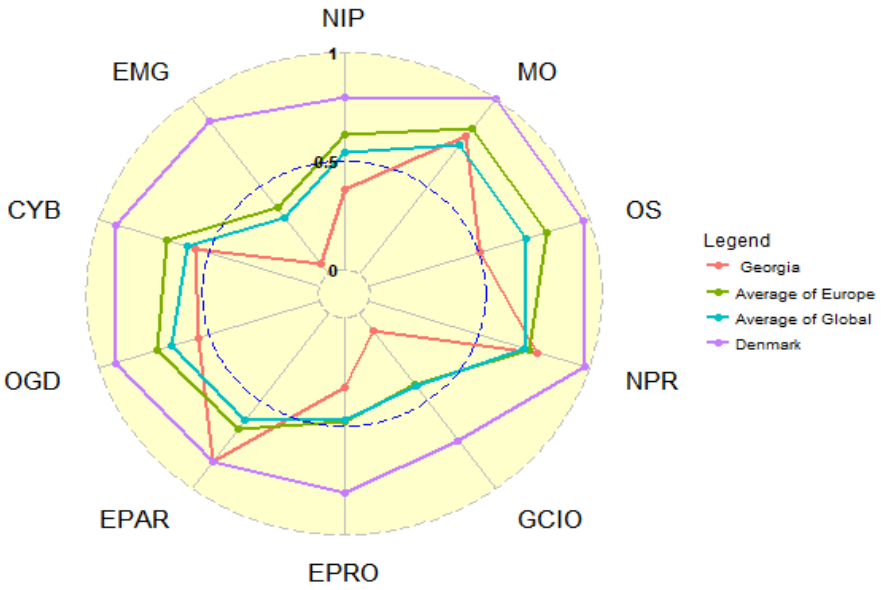
Area: 69,700 km²
Population: 4,931,226
Government Type: Semi-presidential republic
GDP: $9,500
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Europe Countries



3 D-Government Development

During the processes of evaluation, most of D-Government services such as: E-tender, Social Security Services, Civil Registration Services, Consular Services and Labor Related Services are provided at static websites available. E-payment and e-voting services are not available yet. E-health is being actively promoted by the Georgian Telemedicine Union, whose activities include tele-pathology, education, and development of policy for particular scenarios, such as e-consultations for conflict regions. It also developed a proposal for the creation of an e-health national network in Georgia.

e-Georgia strategy and action plan was introduced for the period 2014-2018. The aims of this strategy is to develop Georgia as IT-based governance state which implies the increase of access to e-services for businesses as well as for citizens, strengthening of transparent and open governance, defining the role of information-communication technologies in the process of administration reform. The vision for the e-Georgia strategy reflects this wider scope and is defined as "Georgia will become a more efficient and effective public sector offering integrated, secure, and high quality e-Services. Improved usage and participation enable ICT-driven sustainable economic growth."

e-Georgia focuses on 10 thematic priorities, e-Services, e-participation and Open government, e-health, public finance management system, e-business, ICT-hub Georgia, infrastructure, e-security, skills and e-inclusion, and Enabling frameworks and governance. In this year, they have done within the framework of Component 4 of the twinning project "Promote the strengthening of E-Governance in Georgia (D-Government Georgia)"

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Internet users in Georgia is around 2.4 million users as of early 2017. The penetration is about 60.7%. By early 2017 mobile penetration in Georgia had approached 130%, subscriber penetration having increased tenfold over the previous nine years.

4.2 Management Optimization [MO]

The newest document "A Digital Georgia: e-Georgia strategy and action plan 2014-2018" defines the path leading to a modern Georgia and provides a comprehensive framework for societal changes enabled by ICT. It focuses on those potential fields, where the public sector is able to take measurements and to set frameworks to exploit the full potential of ICT. The eGeorgia strategy is, however, not limited to the activities covered under the term D-Government.

The vision for the e-Georgia strategy reflects this wider scope and is defined as "Georgia will become a more efficient and effective public sector offering integrated, secure, and high quality e-Services. Improved usage and participation enable ICT-driven sustainable economic growth."

4.3 Online Service [OS]

There has been very little progress in Georgia regarding the provision of D-Government services. Most of D-Government services such as: E-tender, Social Security Services, Civil Registration Services, Consular Services and Labor Related Services are provided at static websites available. E-payment and e-voting services are not available yet. E-health is being actively promoted by the Georgian Telemedicine Union, whose activities include tele-pathology, education, and development of policy for particular scenarios, such as e-consultations for conflict regions. It also developed a proposal for the creation of an e-health national network in Georgia. However, this has not yet been implemented. This year there is no information change in this indicator

In Georgia, the government focusses on an effective public service channel strategy with the aim to move interaction from the analogue realm of physical, telephone and written service requests to the digital world. All services from e-Georgia strategy focuses on the supply side, that is: Planting the seeds of sophisticated G2C, G2B and G2G e-Services i.e. ensuring the availability and supply of user-friendly and accessible electronic services.

To date, the main e-services in Georgia are focused on the development and implementation of digital services for the issuing of passport, ID and residency, life event services related to marriage, divorce, birth adoption, change of name, death, power of attorney. As for business services, the government introduced some services such as e-Notifications, e-Tendering, product catalogues, qualification profiles, e-Orders, e-Invoices, and e-Payment

4.4 National Portal [NPR]

The Georgian national portal http://government.gov.ge/ provides very basic functions for users. The portal links to all government agencies' websites. Information provided in the portal seems to be targeting foreign visitors and business who want to know more about the country. The portal is available in Georgian official language and English. There is not SNS feature in the National Portal.

The Georgian government separated e-services to citizens and business by introducing my.gov.ge portal. This portal combines all services but it is only in Georgian language.

4.5 Government CIO [GCIO]

The official CIO position is still absent in the Georgian bureaucracy. Policy development in ICT areas comes from the Telecommunication and Information Technology Department of the Ministry of Economic Development. However, the Ministry does not have a published forward-looking strategy for development across industry.

4.6 D-Government Promotion [EPRO]

Georgia is short of legal framework for D-Government development. There are no legislations, strategies, policies or plans regarding D-Government. Most D-Government projects are sponsored by international organizations.

To promote the e-Georgia strategy, the government cooperates with Data Exchange Agency of the Ministry of Justice of Georgia and EU TWINNING creates a project aiming to promote the strengthening of E-governance in Georgia are in a process of finalizing e-Georgia strategic paper.

4.7 E-Participation [EPAR]

E-Participation in Georgia is still limited at offering information to the citizen through government website. Web 2.0 tools are not yet being used to allow more interaction between government and citizen. However, citizen can contact with government officials through feedback forms or email addresses available at some government websites.

E-participation in Georgia focusses on 4 areas: feedback on e-Services, (co-)design of e-Services and open data, transparency and open government and decision-taking and policy making. To get the feedback from users, the government develops many feedback mechanisms such as through social media networks, chat rooms, discussion forums and blogs, and survey online or consultations. "provide your suggestion" is one of the most ideal to collect feedback from users. This mechanism is integrated in my.gov.ge portal and it is very easy for using.

4.8 Open Government Data [OGD]

In April 2012, the country's government presented a relevant Action Plan which is focused on improving public services, increasing public integrity, managing public resources effectively, and creating safer communities. The implementation of these commitments is currently coordinated within an NGO forum created under the Ministry of Justice. The Georgian government had no specific plan to engage civil society and the private sector in the development of OGP commitments.

Georgia's OGP action plan is structured around four grand challenges: improving public services, increasing public integrity, managing public resources more effectively, and creating safer communities. The OGP requires countries to undertake at least one grand challenge of its list of five grand challenges, so by undertaking four Georgia is going beyond this requirement.

Data.gov.ge is operational, but it is a navigation portal linking to information provided by different public sector institutions rather than an open government data portal, where actual data can be retrieved. With the Institute for Development of Freedom of Information (IDFI - http://www.idfi.ge) and Transparency International Georgia (http://www.transparency.ge) very active NGOs exists that carry out research projects on Freedom of information, public information (e.g. http://www.opendata.ge), e-Participation and preventing corruption in Georgia.

4.9 Cyber Security [CYB]

The Government of Georgia publishes its Cyber Security Strategy for the first time in 2008, it has clearly demonstrated that the national security of Georgia cannot be achieved without ensuring security of its cyberspace. The National Security Concept of Georgia defines cyber security as one of the principal directions of its security policy. Georgia aims to set up a system of cyber security that will facilitate resilience of cyber infrastructure against cyber threats as well as will represent additional factor in the economic growth and social development of the country.

Georgia aims to develop a system of information security that is able to minimize harmful effects ofany cyber-attack and allows rapid recovery of information infrastructure to being fully operational in the aftermath of such attacks.

4.10 The use of Emerging ICT [EMG]

There is no emerging of using ICT in Georgia government.

5 Some Highlights

A "Georgia Health Management Information System Strategy" was already developed by the Ministry of Labour, Health and Social Affairs in 2011. The e-Health action plan is a vital part of the e-Georgia strategy.

Through 7za years of evaluation and based on the methodology of Waseda D-Government ranking, Georgian D-Government ranking is decreasing, especially this year. The official CIO position is still absent in the Georgian bureaucracy. Policy development in ICT areas comes from the Telecommunication and Information Technology Department of the Ministry of Economic Development.

There has been very little progress in Georgia regarding the provision of D-Government services. Most of D-Government services such as: E-tender, Social Security Services, Civil Registration Services, Consular Services and Labor Related Services are provided at static websites available. E-payment and e-voting services are not available yet.

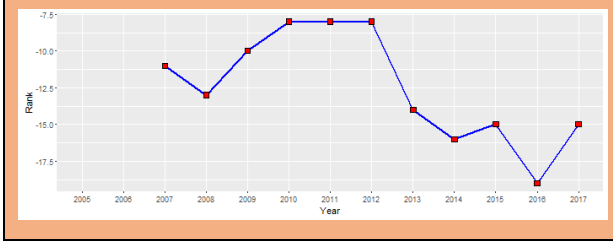
Georgia was among the first group of countries to join the Open Government Partnership (OGP). In April 2012, the country's government presented a relevant Action Plan which is focused on improving public services, increasing public integrity, managing public resources effectively, and creating safer communities.

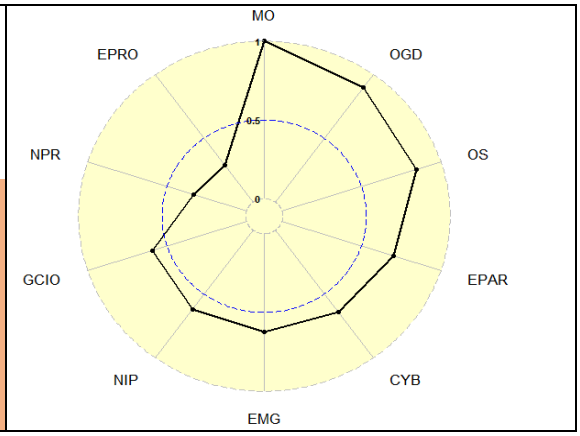
Georgia adopts New Cyber Security Strategy that will be the main document defining state policy and establishing basic guiding principles in cyber security field. It should be mentioned that strategy considers cyber space protection equally important as inviolability of land, air and maritime boundaries.

Germany

1 General Information

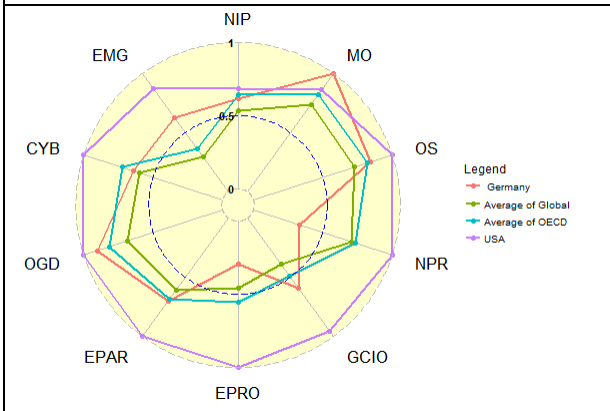
Area: 357,022 km²
Population: 80,722,792
Government Type: Federal republic
GDP: $48,200
Historical Ranking (2005 – 2017):



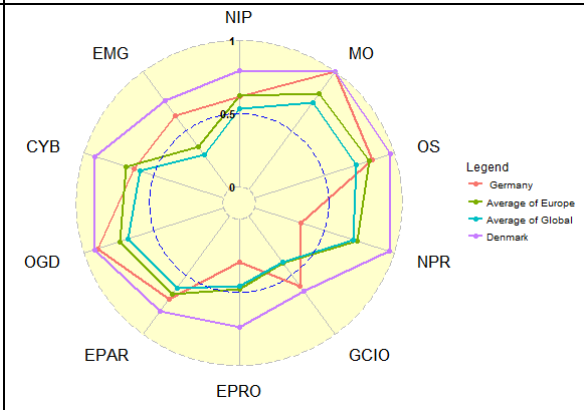


2 Positioning in a global organization and a region

OECD Countries



EUROPEAN Countries



Among OECD countries, Germany's Government CIO and Cyber Security are ranked higher than the global, Europe and OECD's average scores. Especially for GCIO, Germany secures the top position in European countries. Meanwhile, the country stands below the world and OECD in terms of utilizing emerging technologies.

3 D-Government Development

Germany, being a developed country, has significant experience with D-Government and as such has very evolved D-Government plans, policies and goals.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 87.2% Germany's population were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). Among them, wired broadband subscribers accounted for around 37.8% while more than 75.6% of total population have a wireless broadband connection.

4.2 Management Optimization [MO]

The Germany Federal Government has approved the Digital Agenda 2014-2017 on August 2014. This agenda was planned by the joint efforts of by the Federal Ministry of the Interior, the Federal Ministry of Economic Affairs and Energy and the Federal Ministry of Transport and Digital Infrastructure. With its Digital Agenda, the Federal Government aims to three targets: to further exploit the innovative capacity for economic and employment growth; to expand the national networks and imporve digital literacy for public access and participation;and to enhance IT systems and services' security and saferty, thus increase trust among the public and the business sector.

In addition, the Federal Government's "Digital Administration 2020" programme establishes an overarching framework for the federal administration of the future, where potential benefits of digitalization are utilized to enable the administration reform, targeting to effectiveness, transparency, efficiency, accessibility and responsiveness to the needs of individual citizens and businesses.

In term of government network, the project "Netze des Bundes" was implemented to consolidate a cross-departmental communication infrastructure with the highest level of security. All existing federal administration's networks are planned to be fully migrated to this infrastructure.

4.3 Online Service [OS]

The score for Online Service comprises of five sub-dimensions: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In term of complexity level, almost Online Services in Germany have reach the transactional level in which users can totally conduct their businesses via electronic portal. For e-procurement, in line with the new European procurement law, German Federal Government plans to make electronic procurement binding for the federal administration by April 2016. 'XVergabe' is a project initiated in 2007 to provide a standard interface for data exchange formats and data exchange processes of all electronic tendering platforms in Germany. Regarding customs, since 2006 the German Federal Government bring the Electronic Customs Tariff (EZT) system to the internet, known as "EZT-online". In addition, users can switch to an alternative solution provided by the European Commission – the Integrated Tariff of the European Community (TARIC) information system. With both systems, users can look up the importing/exporting code and customs duties. For healthcare, there is a telemedicine portal launched by the Federal Ministry of Health as a part of the eHealth initiative which was initiated in mid-2010. The portal provides a nationwide looking up on more than 200 projects involving telemedicine applications and tele-monitoring in Germany[17]. In addition, as of December 2015 the "Act on secure digital communication and applications in the health care

[17] http://www.bmg.bund.de/en/health/the-electronic-health-card/background-material-on-the-e-health-initiative-of-the-federal-ministry-of-health.html

system" - E-health Law - came into effect, establishing a framework for utilizing ICT into health care area. From 2018 onwards, patients can choose to have the relevant emergency data stored on their health card.

To measure the level of convenience, the third party application Google PageSpeed™ Insight[18] has showed that all services have a good access speed.

List of Online Services

Online Service	URL
e-Procurement	http://www.evergabe-online.de/
e-Tax	https://www.elsteronline.de/
e-Customs	http://www.zoll-d.de/
e-Health	http://telemedizin.fokus.fraunhofer.de/
One-Stop Service	https://www.bund.de/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. deutschland.de is considered as the national gateway of Germany. It presents a wide range of information resources about different aspects of Germany, from politics to culture. However, government services were not provided on this portal.

In technical aspect, the result of Google PageSpeed™ Insight showed that the website operates well both from PC and from Mobile Device. The portal also connects to various Social Networks such as Facebook, Twitter, Youtube, Flicker as well as there is a feature allowing user to receive update mail notification.

4.5 Government CIO [GCIO]

Under the new strategy, the future development of federal IT will be in charged by the Chief Information Officers Council together with the Federal IT Management Group led by the Federal Government Commissioner for Information Technology.

In 2015, Klaus Vitt, head of IT at Germany's Federal Employment Agency was appointed by the German federal government to become the new IT Commissioner of the federal government. by the German federal government.

CIO-equivalent positions were also found in federal states' agencies[19].

4.6 D-Government Promotion [EPRO]

The Federal Ministry of the Interior is in charge of the strategic orientation and development of D-Government in Germany. The IT Planning Council is the main body for managing federal and state IT. The council consists of the Federal Government Commissioner for Information Technology and the representative of 16 German states. The IT Planning Council has a clear directive: facilitating mandatory cooperation among federal, state and local governments on IT and D-Government, with the target of delivery user-centric electronic public services and cost-effective, efficient and secure IT operations for public administration.

In August 2013, the federal D-Government Act (EGovG)[20] was enacted, establishing the regulatory framework for digitization in the federal administration. The Act mandates the deadlines for adapting

[18]https://developers.google.com/speed/pagespeed/insights.
[19]http://www.cio.de/a/klaus-vitt-wird-neuer-bundes-cio,3243557
[20]http://www.bmi.bund.de/SharedDocs/Downloads/EN/News/egovernment.pdf?__blob=publicationFile

electronic access for individuals, businesses and the public administration, which enforces the federal administration to follow in order to ensure the successful implementation of D-Government programs.

Initiative D21 is a nonprofit organization based in Berlin. It represented the largest public-private partnership in Germany for the Information Society. Two of projects supported by Initiative D21 are the D-Government Monitor and the Digital Index for Germany which are published annually.

4.7 D-Government Participation [EPAR]

In 2015 there is a pilot project titled "Digital Voluntary Social Service Year" (FSJ-digital) launced to gather and summaries best-practice experience about how young people can offer their skills and talent in managing and applying new media to help non-profit organizations.

No evidence has been found regarding to electronic voting in D-Government.

4.8 Open Government Data [OGD]

In 2014, the Federal Government issued the National Action Plan to implement the G8 Open Data Charter[21] to define measures for facilitating access to government data. This Action Plan takes into consideration the results already achieved in previous programs: the Federal Government's "Transparent and Network-Based Administration" program, the IT Planning Council's "Promoting Open Government" program, and the prototype development for the data portal GovData (http://www.govdata.de/).

In line with the national plan, the Federal Government seeks to strengthen the legislation for publishing government data by amending the Act on Access to Geodata (GeoZG); the D-Government Act; the Environmental Information Act (for environment information); the Freedom of Information Act and so on.

4.9 Cyber Security [CYB]

The Federal Ministry of the Interior works with the Federal Office for Information Security (BSI) to provide appropriate IT security. Germany's Cyber Security Strategy was adopted on 23 February 2011. This strategy called for establishing the National Cyber Response Centre and the National Cyber Security Council, among other things.

Laying a comprehensive legal foundation for cyber security is the target of the German Government. The Federal Government stated in the digital agenda that it will aim to modernize European data protection law in the digital market by adopting the General Data Protection Regulation by 2015[22]. The National Cyber Response Centre will be assigned a greater coordination role in responding to cyber security incidents and improving cooperation between specialized authorities.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The Federal Government is pursuing to boost up the development and introduction of cloud computing facilities by issuing the new Cloud Computing Action Programme[23].

[21] http://www.bmi.bund.de/SharedDocs/Downloads/EN/Broschueren/2014/national-action-plan-open-data.pdf?__blob=publicationFile

[22] http://www.bmi.bund.de/SharedDocs/Downloads/EN/Broschueren/2014/digital-agenda.pdf?__blob=publicationFile

[23] http://www.bmwi.de/English/Redaktion/Pdf/normungs-und-standardisierungsumfeld-von-cloud-computing

There is a research project known as THESEUS, aiming to utilize The Internet of Services and the Internet of Things. With this project, the German Federal Government is seeking to utilizing semantic technologies and the creating new standards for the Internet of Services.

5 Some Highlights

In the attempts to promote for publishing government datasets and information, early 2015, German Government presented 'The General Government's National Action Plan to implement the G8 Open Data Charter'. By doing this the government put into action one of its pledges to maintain the top position in Open Government ranking indicator.

Cyber Security is another strong point of Germany. With the presence of a Cyber Security Strategy alongside a comprehensive, frequently amended legislation framework (Federal Data Protection Act (2003), Digital Signature Act (2001), Electronic Commerce Act (2001), Act on the Federal Office for Information Security 2009), German Government demonstrates a strong commitment to fight against cybercrime.

With a relatively low score in the National Portal (https://www.deutschland.de), it is recommended that the government should put more efforts on providing more information about the country, the government and available services for citizens and businesses.

Although German Government has planned to use cloud computing (ICT strategy of the German Federal Government 2015[24]) but no evidence of actual usage in Federal Government has been found. The government should pay a close attention to all challenging aspects such as cloud security and standards to put cloud computing plan into action.

[24] https://www.bmwi.de/English/Redaktion/Pdf/ict-strategy-digital-germany-2015,property=pdf,bereich=bmwi2012,sprache=en,rwb=true.pdf

Hong Kong

1 General Information

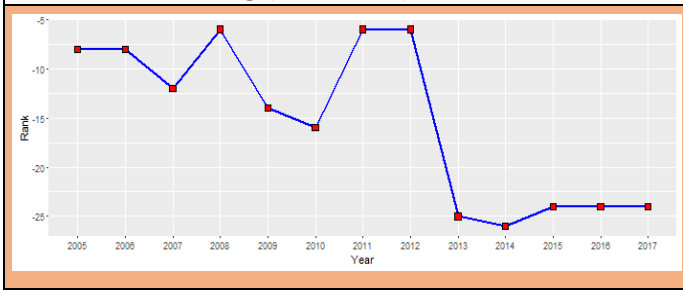
Area: 1,108 km^2

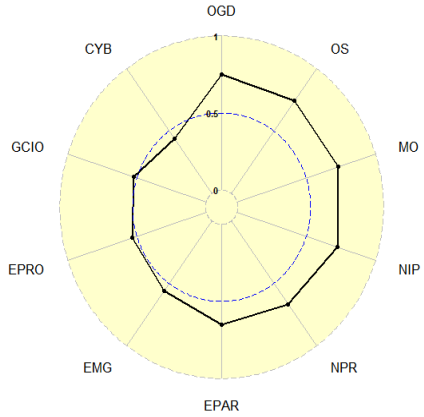
Population: 7,141,106

Government Type: Limited democracy

GDP: $57,000

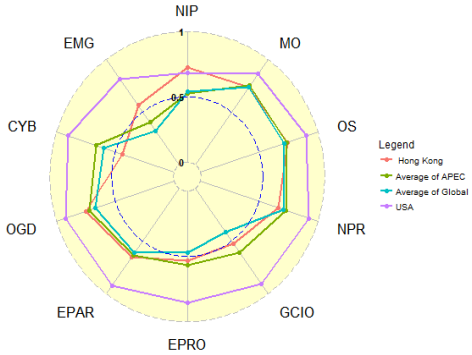
Historical Ranking (2005-2017):



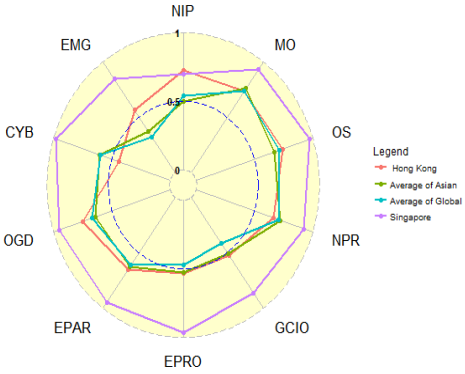


2 Positioning in a global organization and region

APEC Countries



ASIAN Countries



Hong Kong has achieved comparatively high scores on most of indicators compared with other APEC members and ASIAN countries, especially on the indicator of Network Infrastructure Preparedness, Online Service, Open Government Data and Emerging Technologies. HK has showed their efforts to deliver high quality e-Service and reform on the governmental structure to implement D-Government strategy.

3 D-Government Development

The 2008 digital 21 strategy is the latest document for ICT development in Hong Kong which has updated regularly to adapt technological advancement and changing needs of the society. The Office of the

Government Chief Information Officer (OGCIO) has been set up to serve as GCIO of Hong Kong, taking the responsibility to lead ICT strategy implementation and providing measures. As the main goal of strategy is to build a world digital city, OGCIO also actively collaborate with industries, organizations and academics to seek for the best IT solutions for the whole society. Recently the government has constructed cloud computing motel energetically and provided government cloud platform for e-service. It contains "in-house private cloud" "outsourced private cloud" and "public cloud" to respond to different needs and functions. Economic advancement is expected by the HK government with supporting and creating the best IT environment for business and individuals.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

According to the report of ITU, 84.9% of people in HK were Internet users, about 31.9% have fixed-broadband subscriptions, and wired broadband subscription has reached107%. HK has a well-established infrastructure construction and penetration among Asia countries.

4.2 Management Optimization [MO]

Hong Kong's Digital 21 Strategy is the blueprint for the development of information and communications technology (ICT) in Hong Kong. It is updated regularly to take into account technological advancement and changing needs of the society. Two administrative applications have been established, one is the e-Payroll & Benefits System established by the HK Treasury via which users can make online enquiry on their general payroll, personal, appointment, payment-related and housing benefit information. The other one is the e-Leave System provided by the Civil Service. Bureau which is to support leave applications and the associated processing, recording and monitoring of leave taken by civil servants The Hong Kong Government will also be adopting the Cloud Computing model to meet rising public demands and community expectations on D-Government services and reap the benefits of emerging technologies. To be in accordance to the general strategy, HKG has launched continuous initiatives in the Policy Address and Budget such as "Innovation and Technology" in 2016 Policy Address.

4.3 Online Service [OS]

HK has got comparatively high score on the indicator of Online Services among Asia area. The e-service system also has won several awards especially the one-stop service portal. The Electronic Transactions Ordinance was enacted in 2000 and updated in 2004. It was the foundation of e-applications, which allowed HKG to develop further e-services for users. So far, HKG has established e-Tax, e-Payment, and consular services at the transactional level; e-Tender and civil registration services at two-way interactions level, while social security and labor related services allow downloading of documentation. All e-services in Hong Kong are interactive and doing by two-way transaction or dynamic website.

4.4 National Portal [NPR]

As for a national portal, the HKG launched a new portal (http://www.gov.hk) in 2008, which is no longer in cooperation with a private company but operated solely by the HKG itself. The new portal provides many kinds of services to not only citizens but also enterprises and foreigners. Generally speaking, it has an excellent navigation function, and an easy to understand interface. In the portal, there are three languages options: English, simplified Chinese, and traditional Chinese. Almost all web pages and documents can be found in these three language options. However, it is surprising to find that mobile version and accessible version started this year. Through mobile version people could read text only versions which can match various screen size. And an accessible version which provides several tools like non-text content, audio-only, video-only, no keyboard trap, is convenient for all the people including disables. In addition, HKG

organized the Web Accessibility Recognition Scheme to show appreciation to businesses and organizations that have made their websites accessible, with an aim to encourage adoption of web accessibility to facilitate access to online information and services by all segments of the community including persons with disabilities.

4.5 Government CIO [GCIO]

The HKG established the OGCIO in 2004. Mr. Allen Yeung has assumed the role of OGCIO from 2015. And there are two Deputy Government Chief Information Officers (DGCIO) who support OGCIO in daily work. The DGCIO is responsible for two major areas of responsibilities: Policy & customer Service, and Consulting & Operations. The main task of OGCIO is to provide leadership for the development of ICT within and outside the Government. In Hong Kong, while many universities provide CIO related courses, but there are few CIO related organizations in academia and the private sector. Headed by the Government Chief Information Officer (GCIO), the OGCIO provides a single focal point with responsibility for ICT policies, strategies, proMagrammes and measures under Digital 21 Strategy, in addition to providing information technology (IT) services and support within the Government. OGCIO is playing an important role under the Digital21 Strategy in five action areas: 1.Facilitating a digital economy; 2.Promoting innovation and technology; 3.Developing Hong Kong as a hub for technology and trade; 4.Development of the next generation of D-Government services; 5.Fostering a digital inclusive Society.

4.6 D-Government Promotion [EPRO]

OGCIO plays the main role in enabling D-Government promotion, such as in producing video material and pamphlets for example. Moreover, the Digital 21 Strategy Advisory Committee is the main supporter for the Digital 21 Strategy, while the Commerce and Economic Bureau provides the budget for D-Government implementation and promotion; 4.5 billion HKD in 2008 for example. As for an assessment mechanism, the HKG established an D-Government Steering Committee to assess the performance of the D-Government program.

4.7 E-Participation [EPAR]

Hong Kong is highly ranked in terms of the e-Participation indicator. In the Hong Kong national portal, there are many kinds of online services, not only for citizens, but also for business and foreigners. It is also really easy to navigate and find information in the portal. This also acts as a one-stop service center for citizens. The HK portal uses web 2.0 technologies such as RSS, online forums and blogs to facilitate communication between citizens and Government. In the portal there is also information about how the Government takes the opinions of citizens in decisions making processes.

4.8 Open Government Data [OGD]

The Code on Access to Information states that the government exists to serve the community well within available resources. It recognizes the need for the community to be well informed about the Government, the services it provides and the basis for policies and decisions that affect individuals and the community as a whole. This Code defines the scope of information that will be provided, sets out how the information will be made available either routinely or in response to a request, and lays down procedures governing its prompt release.

4.9 Cyber Security [CYB]

The Hong Kong police launched Cyber Security Center on December 7, 2012, in order to boost Hong Kong's Internet security. The center provides round-the-clock services under the bureau's Technology Crime Division. The center will strengthen co-ordination between Police, government departments, and local and overseas stakeholders when major information systems come under attack. Now HK also has Computer Emergency Response Team Coordination Centre (HKCERT) and Government Computer

Emergency Response Team Hong Kong (GovCERT.HK). The latter responds to cyber security incidents that affect public agencies. On the other hand, the Cyber Security and Technology Crime Bureau CSTCB) is responsible for handing cyber security issues and technological crime investigations, and so on.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The evidences show that HK government has put effort to implement Cloud Computing or Big Data into their public sectors, such as they create government cloud environment to service the communities and IT industry, benefiting government themselves as well. Cloud Computing remains one of the key government ICT strategies by OGCIO. The government values the usage of emerging technologies, to keep its leading position in eGovernment area among Asia.

5 Some Highlights

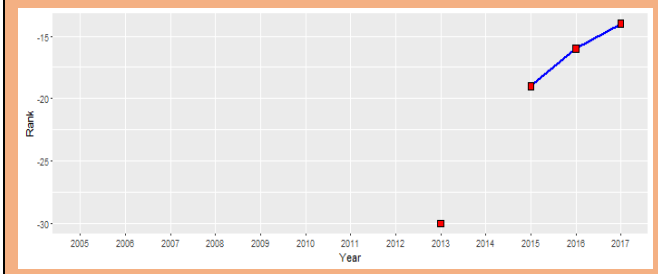
Since the HKG has enabled one-stop service portal GOVHK ((http://www.gov.hk), citizens could get public services and information through the website promptly. The portal site has won several international awards due to the convenience and enhanced contents, well-designed columns which helps citizens to find what they what without complicated introductions. More than that, GOVHK has upgraded the accessibility for people with special needs. The high score on indicator of “Online Service” could prove its significant improvement. With the penetration of mobile devices, mobile D-Government has shown its importance increasingly. HKG keeps promoted its user-friendly e-services on smart phones, followed by measures to assist the implementation created by OGCIO.

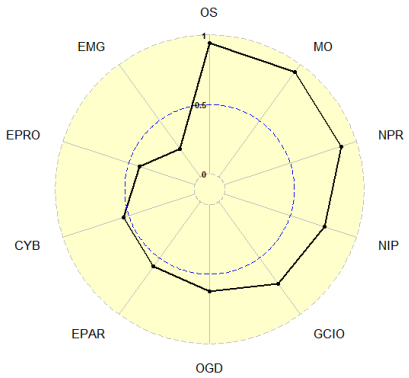
Perhaps HK has high rate of usage and awareness of D-Government and there is no need to conduct strong promotion, citizen’s engagement is the fundamental element for D-Government itself. In addition to that, legal framework preparedness for cyber security and emerging technologies is the next task for HK D-Government, if its objective is to maintain the first-class IT area in Asia, even around the world.

Iceland

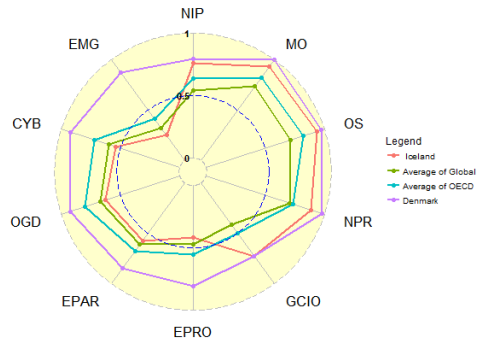
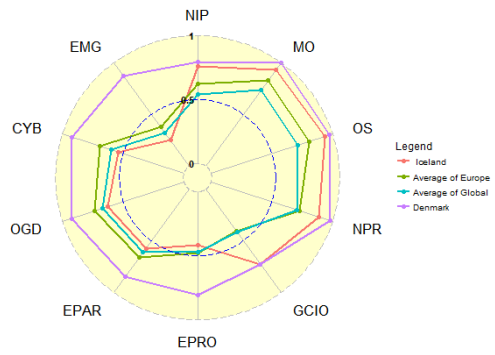
1 General Information

Area: 103,000 km^2
Population: 331,918
Government Type: Parliamentary Republic
GDP: $46,600
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

OECD Countries	Europe
	

3 D-Government Development

Iceland had a unique election in 2016 in that one of the main parties ran on a platform of unprecedented digital participation in the political system. It has made great strides in the past few years to improve its D-Government services and infrastructure, and it has become one of the top-performers in Europe by many measures. The government has also been using tools like social media in innovative ways. In 2012, for example, the government created accounts on social media sites like Facebook or Twitter to solicit feedback for the world's first 'crowdsourced' constitution. While the constitution was never formally adopted, this effort represented Iceland's approach to engaging its citizens and utilizing new platforms in unique ways.

The Icelandic government will need to redouble its efforts if it wishes to reach its goal of becoming a top-ten D-Government and e-participation country by 2020.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Iceland's development and implementation of ICT services and infrastructure is among the most advanced in the world. It has been ranked fourth in the world for ICT Development by the International Telecommunication Union (ITU). With a usage rate of 100%, Icelandic citizens are more likely to use the Internet than the citizens of any other country. 35.1% of citizens had wired broadband subscriptions in 2013, and 74.7% had wireless broadband access, placing the country within the top five for this metric.

4.2 Management Optimization [MO]

Iceland's current D-Government development strategy is a critical component of the Iceland 2020 initiative, and it is based in large part on the previous Icelandic Government Policy on Information Society 2008-2012. The goal of this initiative is to place Iceland within the top ten countries in the United Nation's D-Government Development Index (it ranked 19th in 2014).

4.3 Online Service [OS]

Icelandic citizens have had the option of submitting their annual income tax declarations electronically since 1999. Citizens can also calculate their future pension payments, and access personalized accounts pertaining to social security, and health insurance benefits at the portal www.tr.is. Citizens can also apply for unemployment benefits, passports, driver's licenses, and other documents entirely online. Businesses also have a wealth of online services available to them, including various tax and employee contribution declarations, customs' declarations, and procurement services. Many of these e-Services can be completed entirely online. Others provide forms and information on how to complete the process.

4.4 National Portal [NPR]

Iceland's national portal is located at www.island.is. From this portal, citizens can receive news and information, access a wide array of e-Services, sign or post petitions, access public data, find local government websites, and more. The site is available in both Icelandic and English (though the English version is limited). From this portal, citizens can sign up or login to My Pages, which allows citizens and business to "easily find personalized information from public sources." The portal has a simple front-end user interface, but provides an array of information, forms and services.

4.5 Government CIO [GCIO]

While Iceland does not have a specific CIO position, the Ministry of the Interior is responsible for D-Government development. ÓlöfNordal began serving as the Minister of the Interior on December 4th, 2014, so she currently has oversight over the development of ICT infrastructure and e-Services.

4.6 D-Government Promotion [EPRO]

The government of Iceland has laid out several important goals and policies to promote the use and development of D-Government. Some key goals are to become an 'e-Nation' that offers one-stop online service for all citizens and businesses. They also plan to increase efficiency and eventually become a world leader in D-Government.

Iceland also has a deep legal framework on D-Government and open information issues, especially since the 2012 passage of its new Information Act, which outlined the public's right to governmental data and the

government's responsibility to provide it in a timely manner. Iceland also has laws in place regarding digital privacy, e-commerce, and e-procurement.

4.7 E-Participation [EPAR]

Iceland has improved markedly in this category over the past few years, moving from 135th in 2010 to 65th in 2014 in the United Nations' E-Participation Index Ranking. The Iceland 2020 Initiative aims to place within the top ten by 2020 in this ranking. The Icelandic government continues to promote use of its e-Services to increase efficiency and reduce costs. As of April 2014, "over 90 % of Iceland's individual taxpayers file electronically."

4.8 Open Government Data [OGD]

Accessible directly from its main government portal, Iceland's open government database (http://www.opingogn.is/) provides data collections and packages from several government ministries and offices. Geographic, economic, and statistical data packages are publicly available through this portal, with more data sets added on a regular basis.

4.9 The use of Emerging ICT [EMG]

Iceland's Skilriki service (http://skilriki.is/) allows citizens and businesses to create personalized electronic certificates to provide secure authentication and signatures. Authentication can be set up to use a card, or a mobile phone for validation. Citizens and businesses can also apply for an IceKey—a password directly linked to the official identification number of an Icelandic citizen or legal entity—which adds an additional layer of security to online transactions.

5 Some Highlights

As mentioned, the Pirate Party received the third-most number of seats in the Icelandic government in late 2016. This party is organized by engaged voters participating digitally on a micro level on all of the decisions the party made, and they promised to make the government run in a similar manner. While this has not yet occurred, it would be a major experiment in using digital government as an main force in governance, and it could serve as a model for other governments throughout the world.

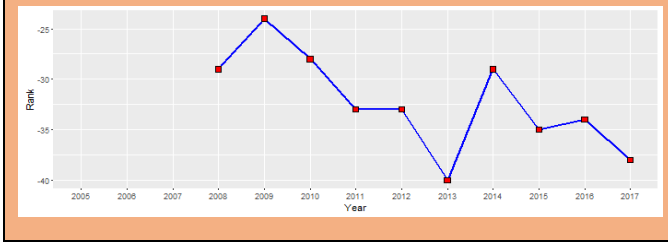
Iceland's government portal, www.government.is, continues to provide information, news, and resources, including links to each ministry. Visitors from around the world can access information about how the government is structured, biographies and contact information for various officials, and past publication from each office and ministry.

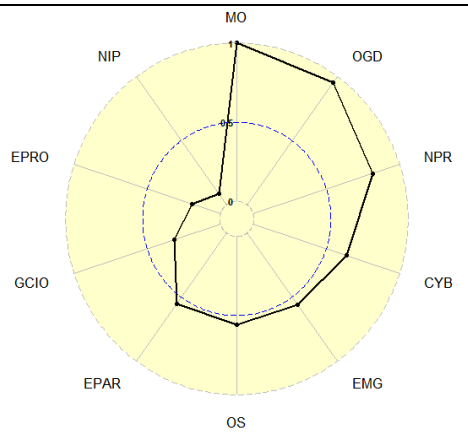
There is also a separate portal for foreigners, http://www.iceland.is/. This portal is presented in English, and contains information about travel and tourism in Iceland, investment opportunities, arts and culture, and the latest news and events.

India

1 General Information

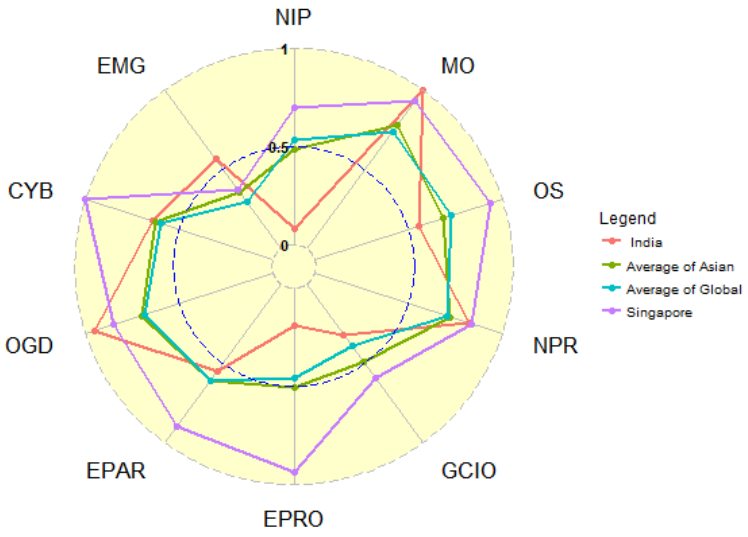
Area: 3,287,263 km^2 [25]
Population: 1,266,883,598 [26]
Government Type: Federal Republic [27]
GDP: $6,700 [28]
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

Asian Countries



Among Asian Countries, India has a better score than the average score of Asian countries in Management Optimization. As shown on the above picture, India is very low on the basic infrastructure. However, despite the lack basic infrastructure, India has been trying to take the benefit of emerging ICT such as Cloud Computing, Big Data, and IoT. Only Singapore can beat India underthe Use of Emerging Technology indicator. In addition to that, Open Data is one of attractive program in India to respond the demand of more data for empowering the society.

[25] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html
[26] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[27] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[28] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

3 D-Government Development

Government of India has acknowledged that expanding the telecommunication infrastructure needs a huge investment and demands some business opportunities that is very difficult to achieve. Digital divide is still wide in India. Classical problem about the gap in North-and-South and West-and-East is still coexisted. Instead of focusing mainly on the telecommunication infrastructure, India government focusing on improving the governance using ICT; e-governance.

Nine Pillars of Digital India.

D-Government in India has been steadily improved with clear direction. India government follow the best practices from advanced countries such as United States and United Kingdom for developing ICT Solution. Supporting by huge amount of IT Professional, India does never have issues on the lack of human resources on ICT.

Furthermore, business enterprises in India highly supported government vision on bringing the benefits of IT revolution to the masses. Government of India defined their e-vision as follow.

> *"To make India a global information technology superpower and to strive to make Indian software industry one of the largest exporters of software in the world".*

India has launched so many D-Government projects all over the country. The projects are mainly focused on delivering government services better to the citizen. Following is the list of D-Government project in India.

D-Government Projects at central and local government in India
1. Gyandoot (Madhya Pradesh)
2. Twin cities network services (Hyderabad and Andhra Pradesh)
3. Electronic Land Record Systems (Karnataka, Punjab, and Andhra Pradesh)
4. Automated Milk Collection (AMC) System (Gujarat)

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 26% of people in India were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 1.3% have fixed-broadband subscriptions, and wireless broadband subscription has reach 9.4%.

4.2 Management Optimization [MO]

In early 2010, India has launched Digital India Program, a flagship program of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. The program required all government institutions to leverage their ICT capacity. This program also adopts Public Private Partnership approach for supporting the successful of Digital India. The program has identified priority areas; Digital Infrastructure, Governance and Service on Demand, and Digital Empowerment. These areas were cascaded into specific actions and measurable targets.

India choses centralization for D-Government initiatives. As part of centralizing D-Government initiatives, India developed State Data Center. Furthermore, India has set an e-governance infrastructure to ensure the alignment among D-Government projects with national strategy. To increase interoperability, India prepared a Government Application Program Interface (API).

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services were investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e- Health is the only Online Service in India that cannot be investigated during the period of survey.

In term of complexity level, all of Online Service in India have passed an initial stage in which user can download the document requirement and still need a physical interaction with government officers. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services. Since the e-Customs is still in a one-way interaction, such security measures are not found in it.

To measure the level of convenience, the third party application result has showed that three portals are above the average considerably in term of speed. All online service in India have scored above average, thus, considerably fast to access. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	http://eprocure.gov.in
e-Tax	http://www.incometaxindia.gov.in
e-Customs	https://www.icegate.gov.in/
e-Health	N/A
One-Stop Service	http://india.gov.in/services/online-services

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of India (https://india.gov.in/) contains proper information for local citizens and foreigners. Information about India is available on the portal. User can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and from Mobile Device.

4.5 Government CIO [GCIO]

India government established the Department of Electronic and Information Technology under Ministry of Communication and Information India (DEITY). DEITY take a significant role for providing a sponsorship and leadership on D-Government in India. DEITY is considered as a GCIO for nation-wide. The role of head of DEITY is similar to the role of a CIO. To support the development program of CIO, there is a CIO Academy offered by Srini Raju Centre for IT & Networked Economy (SRITNE) and the Centre for Executive Education at the Indian School of Business (ISB) in partnership with the CIO Association of India.

4.6 D-Government Promotion [EPRO]

One program in Digital India is to create awareness about e-Governance services and service delivery points. There are numerous activities to introduce D-Government services from government to citizens. These activities were hosted by DEITY under National D-Government Plan (NEGP). In addition to that, to ensure the fairness and sustainability of D-Government projects, India government used a third party audit do so.

4.7 E-Participation [EPAR]

Culture and society in India has long been recognized as a high tech society. Government officers can take the benefit of ICT for supporting their role. For instance, parliament member has their own website and provide the citizens with the channel to communicate. However, the absence of e-participation portal for gaining citizen's expression reduce the quality of e-Participation in India so far.

4.8 Open Government Data [OGD]

In 2001, India has launched Freedom of Information Act to participate in the Freedom of Information Act movement around the world. To strengthen the implementation of these act, India has established Open Data Portal (https://data.gov.in) to provide public with accessible government information. The portal is maintained by National Informatics Center. To keep the information update, India government uses a module for contributing data catalogs by various government agencies, thus, making those available on the front end website after a due approval process through a defined workflow.

4.9 Cyber Security [CYB]

India has ratified several laws and regulation related to cybersecurity. Some of them are as follow:

- IT Act 2000
- IT (Ammended) Act 2008
- Trusted Company Certification
- Security incident - Early Warning & Response
- Cyber Security Assurance Framework
- National Cyber Security Policy

In addition to these laws, India has strengthened organization capacity for cybercrime countermeasure by setting up an Inter Departmental Information Security Task Force (ISTF) with National Security Council as the nodal agency. Indian-CERT was established to support India government for solving Internet Security problems.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). India has implemented Cloud Computing for Public Sector named "GI Cloud", which is later named "Meghraj". This Cloud is hosted by National Informatics Center. Infrastructure-as-a-Service is one of Cloud Computing Services available for government institution. Beside the Cloud Computing Technology, India has formally implemented IoT. The state government of Andhra Pradesh have approved their own internet of things policy, with an aim to capture at least 10% Indian IoT market share. Although the policy has been approved, however, the evidence show that it is not officially launched.

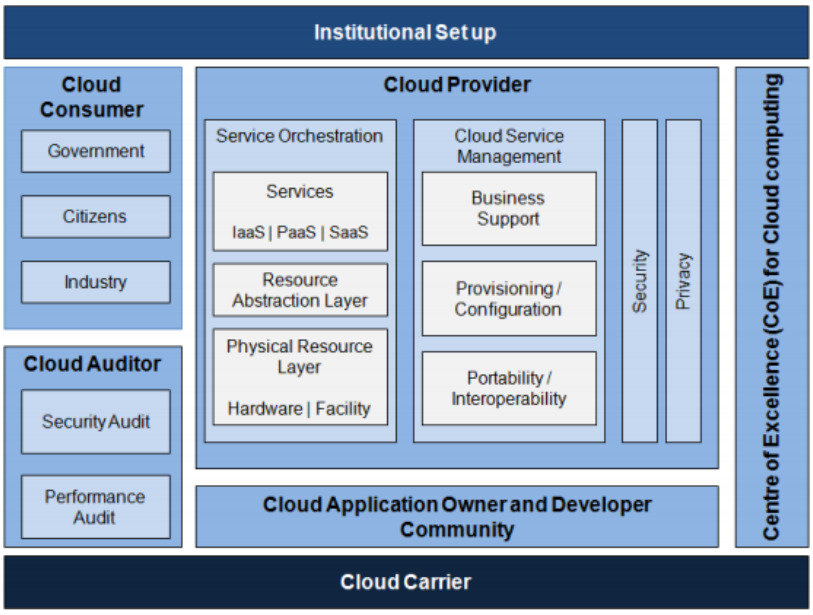
5 Some Highlights

Align with India's e-vision, India is struggling to adopt the Cloud Computing through a very ambitious initiative named "GI Cloud", which is later named "Meghraj". GI Cloud involves government, private

sector, and community. They have roles in every building block of GI Cloud initiatives; Cloud Consumer, Cloud Auditor, Cloud Provider, Developer Community, and Research & Development Center.

In addition to Government Cloud Initiatives, India also implements Internet of Things (IoT) as a way to take the optimum benefit of ICT in this era. Government has assigned Bangalore as the IoT Hub for India since the Bangalore has the largest IoT Community in India. To support the IoT era, government set up the Center of Excellent for IoT in partnership with NASSCOM.

In contrast to Cloud Computing and IoT, Big Data is still in an initial stage in India. Government is still collecting ideas from community about Big Data, especially Big Data Analytics for Public Sector.

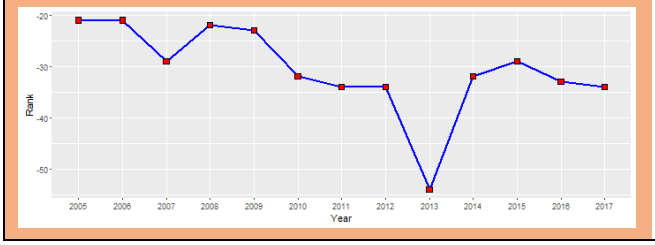


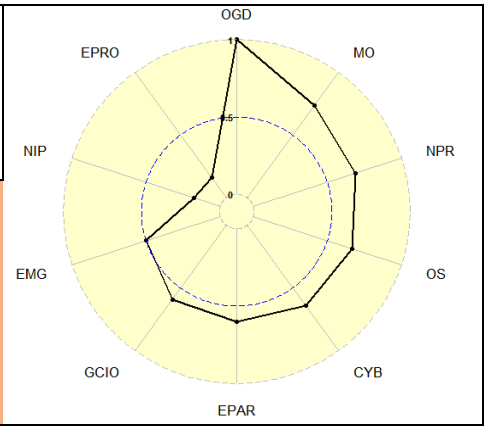
GI Cloud Architecture

Indonesia

1 General Information

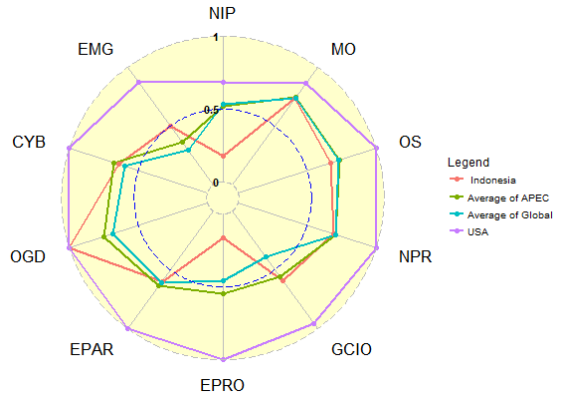
Area: 1,904,569 km[29]
Population: 258,316,051 [30]
Government Type: Presidential Republic [31]
GDP: $11,700[32]
Historical Ranking (2005 – 2017):



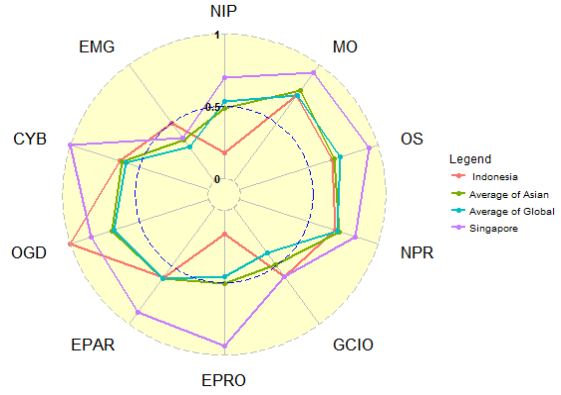


2 Positioning in a global organization and a region

APEC Countries



Asian Countries



Among APEC Countries, Indonesia has a better score than the average score of APEC in Open Government Data, Government CIO Institutionalization. As shown on the above picture, Indonesia is very low on the basic infrastructure. However, despite the lack basic infrastructure, Indonesia has been trying to take the benefit of emerging ICT such as Cloud Computing, Big Data, and IoT. Some progress in the area of emerging ICT has led Indonesia to get a better position than the average of APEC Countries.

These achievements also reflect the position in Asian region in which Indonesia considerably approached Singapore in the Open Data and the use of emerging ICT.

[29] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html
[30] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[31] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[32] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

3 D-Government Development

D-Government in Indonesia has been initiated formaly since 2003 along with the ratification of Presidential Instruction No. 3/2003 about implementatino of D-Government in Indonesia signed by the 5th President of Indonesia. Since 2014, there are two ministries responsible for D-Government, i.e., Ministry of Communication and Information (Kominfo) and Ministry of Apparatus Empowerment/Bureaucratic Reform (MenPAN-RB). Kominfo deals with the technical aspect and MenPAN-RB take responsibility on policy and procedure.

Source: National Development and Planning Agency, Indonesian Broadband Plan

D-Government in Indonesia is scattered all over government agencies either central and local. Most of them are not connected nor interoperable each other. The major theme of D-Government in Indonesia is improving public service for reducing corruption. Many D-Government applications are addressed to curb corruption such as e-budget system in Jakarta Province, e-Participation application provided by Presidential Task Force, and collaborative monitoring portal by Bandung City.

This year, Indonesia government is still processing the approvement for National D-Government Roadmap 2016-2019. This plan is aimed to optimize the use of information and communication technology in improving the public satisfaction of government services, promoting the economic growth, increasing the public engagement and trust, as well as improving the performance of public services.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 22.1% of people in Indonesia were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 1.1% have fixed-broadband subscriptions, and wireless broadband subscription has reached 42.7%.

4.2 Management Optimization [MO]

In 2016, Indonesia is still processing the National D-Government Roadmap 2016-2019. The ultimate goal of this agenda is the optimization of the use of ICT that will address the public satisfaction of government service, economic growth, and public engagement. The strategy was designed for supporting President's Vision named NawaCita 2016-2019. D-Government is the embodiment of mission no. 2 of NawaCita; "to ensure that the government is clean, efficient, democratic and trusted".

For supporting the inter government interoperability, Kominfo has launched a guidance named "Handbook for inter government document interoperability". In addition to that, there are one case that Indonesia have a centralized government financial information system which integrate local and central government financial system named "State Treasury and Budgetary System" (SPAN).

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service and e-Health have the lowest score, compare to other three online services.

In term of complexity level, most of Online Service in Indonesia has reached a transactional in which user can start the transaction from applying to receiving the service through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services. As for the One-Stop-Service, Indonesia adopts the decentralization in which all government agencies, especially the local government, have right to develop their own D-Government solution for improving the public services.

For measuring the level of convenience, the third party application result has shown that all portals, except the e-Health, are above the average considerably in term of speed. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://lpse.lkpp.go.id
e-Tax	https://djponline.pajak.go.id
e-Customs	https://www.insw.go.id/
e-Health	N/A
One-Stop Service	http://satulayanan.id/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Indonesia (http://www.indonesia.go.id) contains proper information for local citizens and foreigners. Information about Indonesia is available on the portal. People can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is very poor, which is far below average both from PC and from Mobile Device. In addition, the portal does not provide the user with some functionalities such as social network integration, and an inquiry form.

4.5 Government CIO [GCIO]

Indonesia government has clearly defined the need of ICT leadership on D-Government. Major ministries have CIO as the proper role in part of their structure. CIO in ministerial level is not necessary a head of ICT-related bureau. Most of them are high rank officer which is one level below the Minister. However, it depends on the size of organization, some organizations attach the role of CIO to the head of ICT-related bureau which is two level below the Minister. For the GCIO development program, Bandung Institute of Technology and GadjahMada University offer a Master Degree program specializing on CIO.

4.6 D-Government Promotion [EPRO]

There is a very few evidence to get the assurance that there were several programs in Indonesia related to the promotion of D-Government. However, there are two regular efforts in Indonesia that are aimed to

measure the Indonesia D-Government development. These efforts are Indonesian e-Govenrment Ranking (PeGI) and ICT Pura. Moreover, Indonesia has established National ICT Council (Detiknas) that consist of government, business enterprise, and academia.

4.7 E-Participation [EPAR]

Indonesia enjoyed the young society whose demand in utilizing ICT is very big and active. These factors have driven Indonesia to equip D-Government with mobile-friendly application. Despite its lack of basic infrastructure, e-participation related application is widely spread around the young generation. For instance, some government leaders have their website and provides the citizens with the alternative channel to communicate. The most interesting e-participation portal in Indonesia are lapor.go.id which is a portal for citizens to report any wrong-doing found in government service. This portal is maintained by Presidential Task Force and redirected to all government institutions.

4.8 Open Government Data [OGD]

In 2008, Indonesia launched Freedom of Information Act (UU No. 14/2008) to participate in the Freedom of Information Act movement around the world. To strengthen the implementation of these act, Indonesia has established Open Data Portal (http://data.go.id/) to provide public with government information. Jakarta City also developed Open Data at http://data.jakarta.go.id. To keep the information up-to-date, Indonesian government involves community in the area of Open Data to standardize and reformat all interesting data available on the government website to be displayed on the Open Data Portal.

4.9 Cyber Security [CYB]

Indonesia has ratified several laws related to cybersecurity. Some of them are as follow:

- Electronic Transaction Act No. 11/2008
- Electronic Transaction and System Provider Regulation No. 82/2012
- Information Security Guideline
- GOV-Cert
- ID-SIRTII
- ID-CERT
- ID-SIRTII

In addition to these laws, Indonesia has strengthened organization capacity for cybercrime countermeasure by setting up CERT-Indonesia and give a mandate to ID-SIRTII to exercise supervision over the continuous application of security measures.

4.10 The use of Emerging ICT [EMG]

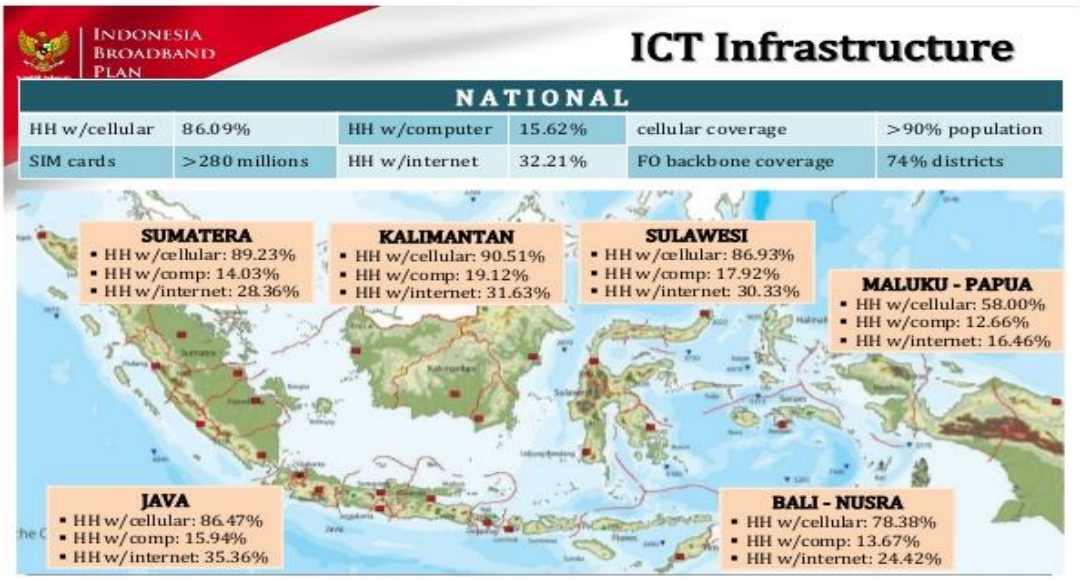
This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Indonesia has officially launched a Software-as-a-Service solution called SiMaya by Circular of Ministry of State Apparatus Empowerment and Bureaucratic Reform No.5/2013. The service is hosted by Ministry of Communication and Information. And, it is available for all government agencies that needs such service.

Jakarta Provincial Government has been implementing Big Data in Jakarta Smart City applications. Data on the application is taken from reports on public complaints on several social media and also Qlue, a social media community reporting. Reports from the public then digitally mapped and integrated with smartcity.jakarta.go.id pages and Quick Response on Public Opinion (CROP) application. The city government officials are required to install this application on their smartphones, especially the officials responsible for residential areas, the local leader. Moreover, Internet of Things has been applied in most

areas and government institutions such as CCTV monitoring for traffic and public facilities by Local Police Agency (TMC Polda Metro Jaya) and Bus Rapid Transit System in Jakarta.

5 Some Highlights

Among ten indicators in the current ranking, the Open Government Data, National Portal, and Cybersecurity are the top three indicators in Indonesia. Indonesia has sharpened the Open Data Initiatives so that the community can take the benefit of it such as more empowerment, more informed, and more expressive. The focus of advancing the Open Data is to create demand for Internet, hence, encourage the telecommunication company to increase the quality of telecommunication infrastructure. National Portal Indonesia contains useful information for local and also foreigners such as country information, tourism, and link to available e-services. To increase trust of citizens for using D-Government service, ensuring the security of digital transactions has been taken into account in D-Government Development in Indonesia.



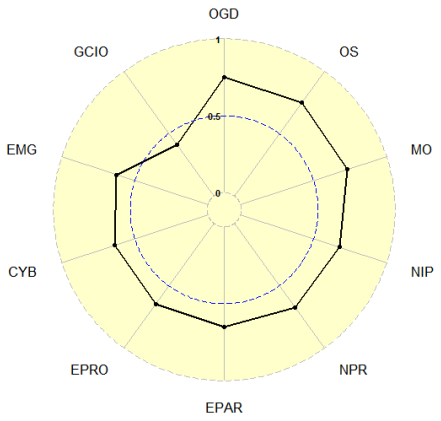
Source: National Development and Planning Agency

Despite its lack of basic infrastructure, Indonesian government decided to strengthen government capacity in ICT by utilizing the emerging ICT. Some examples of current implementation are SiMaya for Cloud Computing Service, Bus tracking and IP CCTV for IoT implementation, and Public Report Analysis for the Big Data implementation. In addition to that, Indonesia government has decided to extend the Palapa Ring Project under the Indonesia Broadband Plan (IBP) 2015-2019. Two procurements have been announced and the bid winner was appointed in 2015. It is expected that in 2019, the telecommunication infrastructure will be improved significantly.

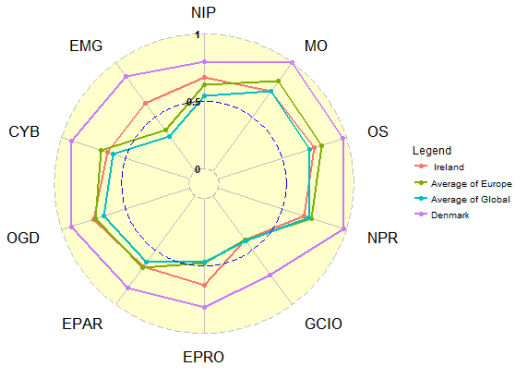
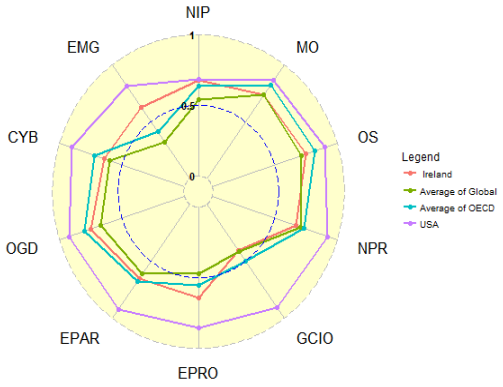
Ireland

1 General Information

Area: 70,273 km^2
Population: 4,892,305
Government Type: Republic, parliamentary democracy
GDP: $54,300
Historical Ranking (2005 – 2017):



2 Positioning in a global organization and a region

Europe Countries	OECD Countries
	

It is the second time for Ireland to be evaluated in Waseda D-Government ranking. Compared to other Europe countries, Ireland has got better performance on indicator of Network Infrastructure Preparedness, D-Government Promotion and Emerging Technologies, especially on new technologies applications. The strengths have been remained among OECD countries as well.

3 D-Government Development

The latest D-Government strategy in Ireland called "eGovernment 2012 – 2015" was published by COMD, a division within the Department of Public Expenditure & Reform, working with the Public Service CIO Council. The policy document is aimed to assist the programme for government and public service reform plan with the utilization of ICT technologies. Eight key projects including 44 specific actions are planned into the policy: Continue momentum with online services; Use new and emerging technologies and media; Ensure that D-Government is designed around real needs; Take steps to improve Take-Up; Ensure that public service data is available for Re-use; Digital mapping/Geographic information systems; Identity and authentication; Back-end integration. These actions show the priority of D-Government policy in Ireland, with the commitment to deliver better services and promote collaboration between government and citizens, and reduce administrative burden for business as well. The task for monitoring ICT and D-Government strategies implementation has been attributed to CMOD, who owns two cross-sectoral p groups: ICT frameworks steering group and Government networks programme board to take responsibility for strategical approaches to ICT development and overseeing the procurement details.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 80.1% of people in Ireland are internet users according to the report released by ITU. 27.7% are fixed-broadband users and the wireless-broadband users are 95%. The preparedness rates are exceeding average level of Europe countries.

4.2 Management Optimization [MO]

The Department of Public Expenditure and Reform has published national D-Government Strategy for 2012~2015 in co-work with the Public Service CIO Council to enhance public service delivery and better access to service channels for citizens and industries. For the interval governance structure, one division called CMOD (Centre for Management and Organization Development) in the Department of Public Expenditure and Reform is responsible for coordinating the development and implementation of D-Government policy and for central D-Government operation. Under the Public service CIO Council, it advises and requires report progress from different government agencies.

4.3 Online Service [OS]

Among five investigated online services, e-tax, and one-stop-service of Ireland are the better than the rest online services. They have provided the citizen the two way interaction with government, including e-payment, security, and automation. E-Health and E-Customs do not provide two-way interaction so far. The one-stop-service has listed the categories of each service in a brief links with simple name, which simplified the introduction and has saved time for citizens to search and access to the e-services they want.

4.4 National Portal [NPR]

The National Portal (http://www.gov.ie/) is integrated with one-stop-service portal, which has stick to its succinct rule to keep information delivery simple and easy for users. If users want to check public services and entitlements, the citizen information has provided information about every aspect of social life in Ireland interacting with government agencies including Social Welfare/ Education and Training/ Housing/ Employment and so on. However, for foreign users there could be more basic introduction to the nation.

4.5 Government CIO [GCIO]

In 2016, Ireland has appointed the third government CIO, Barry Lowry, the former head of IT in the Northern Ireland Civil Service. There has also established the Office of the Government Chief Information

Officer (OGCIO) at the Department of Public Expenditure and Reform since 2013. In second degree government agency such as the Health Service Executive, the Office of Chief Information Officer (OCIO) has been launched to turn the eHealth Ireland Strategy into reality ensuring that technology supports healthcare efficiently and effectively throughout the whole system.

4.6 D-Government Promotion [EPRO]

The latest D-Government strategy 2010-2015 has a detailed website to introduce each aspect of the strategy itself within links on previous plans. Ireland has a very clear picture of the D-Government promotion structure, from the organizational preparedness on each sector such as Ministry/Government/Cabinet Committee on Public Service Reform, CMOD, Public Service CIO Council and different departments in government. In specific agency, CIO has played a role to supervise ICT policy implementation and internal reform by the ICT.

4.7 E-Participation [EPAR]

The remarkable one-stop-service in Ireland has enabled citizens to interact with government in a most simple and convenient way. By different categories, different situation and different purpose, it provides multiple channels for users to search, apply and contact the government agencies. In a feedback process, the portal has prepared a completed list for complaining on different departments and variable issues which citizens may face during their interaction with public sectors.

4.8 Open Government Data [OGD]

Ireland has launched Freedom of Information Action (FOI) in 2014, to promise that every citizen has legal rights on accessing official records held by Government Departments and all public bodies, having personal information held on them corrected or updated where such information is incomplete, incorrect or misleading and being given reasons for decisions taken by public bodies that affect them. The first daft Open Government Partnership (OGP) National Action Plan has also been published at the OGP Europe Regional Conference in 2014. To the open data website (https://data.gov.ie/data), there has 4322 datasets by 85 publishers in government agencies so far.

4.9 Cyber Security [CYB]

Ireland has made several regulations and Acts related to Cyber Security, such as the Consumer Protection (Consumer Information) Regulations 2012, Data Protection Act2003, and Electronic Commerce Act 2000. To the strategical side, The National Cyber Security Strategy has been published in 2015 and the Data Protection Strategy2014-2016 was released earlier. At the meanwhile, organizational preparedness has been as the establishment of The National Cyber Security Centre(NCS) to operate tasks on network and information security. The NCSC encompasses the State's national/governmental Computer Security Incident Response Team (CSIRT-IE). CSIRT-IE is seeking international recognition with respected peers in the respective government and national CSIRT communities so that it can effectively undertake its work on situational awareness and incident response. CSIRT-IE is initially focusing on the State sector and acts as a national point of contact.

4.10 The use of Emerging ICT [EMG]

Government of Ireland has regarded the merging ICT as methods to reform public service, the key element of public service's ICT strategy. Cloud Computing Strategy has been made to support the reform, to engage with Cloud Computing and to undertake a comprehensive programme of Data Centre Consolidation. Considering Ireland's effort to promote open data, there should be more related legal framework and Data management engaged into the government's official departments.

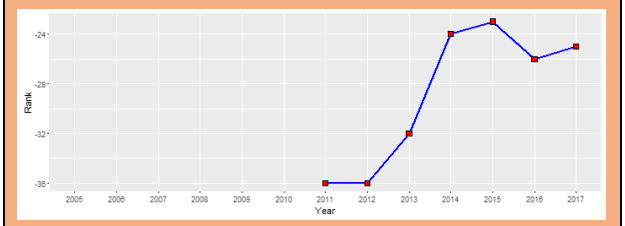
5 Some Highlights

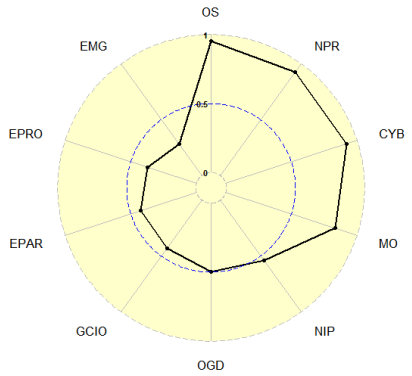
It is the second year for Ireland to enter Waseda D-Government ranking, scores on each indicator are balanced, and Ireland showed its strength on the indicator of "Online Service" "Management Optimization" and "D-Government promotion" which also are the common strong points for Top 20 countries. The one stop service of Ireland (http://www.gov.ie/) tries to minimize the website to provide most of the information and links to government agencies on simple options. It is also available for users to search information by 4 ordinary needs as "apply/find/complain/pay" on the first-level page. However, more information could be added to the national portal for non-Irish people to get known about the nation, in additions to the tourism website for Ireland. With a good foundation of D-Government plans and GCIO structures, Ireland may gain more progress on the D-Government development in the future.

Israel

1 General Information

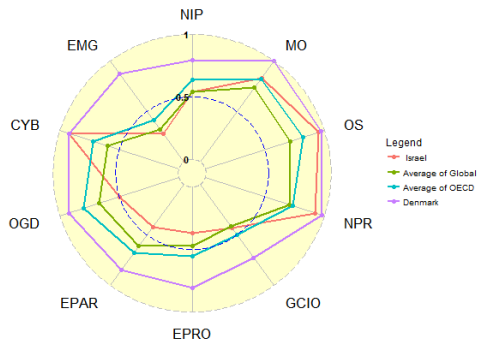
Area: 20,770 km^2
Population: 8,049,314
Government Type: Parliamentary Democracy
GDP: $34,300
Historical Ranking (2005-2017):



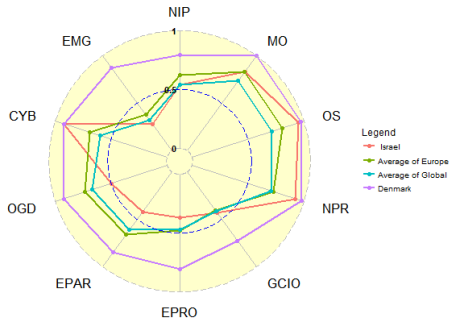


2 Positioning in a global organization and a region

OECD Countries



Europe



3 D-Government Development

In recent years Israel has stepped forward in D-Government services and joined the top 20 countries according to the United Nations. The strong effort and dedication in providing its citizens all information access and transparency and citizen participation in government has helped Israel advance to join top leaders in D-Government. Started D-Government projects as early as 1997, now Israel is a more advanced country in D-Government development compare to others in Western Asia. In the next years, the Israel government intends to focus on personalization government portal for Israeli citizens (my.gov.il); deployment of Smart-ID card for all citizens; developing new cross-government applications; develop infrastructure for cellular e-Gov; deploying Digital Signature in all government forms and upgrade all government websites with web 2.0 tools.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The State of Israel is a parliamentary republic in the Middle East, along the eastern shore of the Mediterranean Sea in Western Asia. The country covers an area of 20,770 square kilometers. It is bordered by Lebanon to the north, Syria to the north-east, Jordan to the east, Egypt to the south-west and the Mediterranean Sea to the west. It had a population of 8,323,248 in 2017. Israel joined the OECD in 2010. As of 2017, 76.3% of Israeli citizens connected to the Internet. 25.7% of citizens are broadband subscribers.

4.2 Management Optimization [MO]

D-Government projects in Israel began as early as the late 90's with the governmental Internet committee, the Tehila and Shoham (governmental payment services), Merkava (ERP system to government offices) and Tamar (public key infrastructure).

In terms of D-Government, Israel is an advanced country within the region. D-Government in Israel is well matured and widely used in administration implemented using the five Layer model of D-Government. The overall D-Government strategy places enhanced information access and integration, based on the Merkava concept, at the core. A strategic solution enabling the government as a whole to perfectly harness information and knowledge resources in order to achieve an order of magnitude improvements in effectiveness, efficiency and service delivery

4.3 Online Service [OS]

The E-signature Law, the Data Communication Law and Anti-spam Law are considered pieces of the basic legal framework for interface applications. The Israeli government is currently providing a comprehensive e-commerce services including e-tender, e-tax, and e-payment services at transactional level. E-voting system was tested in some areas but security issues and some flaws in the implementation process hindered the full take-up. Other e-Services allow users to download forms such as Consular Services, Civil Registration Services, and Social Security Services.

4.4 National Portal [NPR]

The Israel government portal http://www.gov.il/firstgov/ is part of the D-Government project; its goal is to improve and reinforce ties and communication between citizens and government institutions. The portal is the single gateway to all the governmental ministries and services on the Internet. The portal provides the entire range of services and information supplied by the government to citizens of the state Citizens can access information on government services in several ways: by target audience, topics and life events. Citizens can also use the portal's electronic identity management feature 'My Gov.' to filter content that interests them and to access the full range of online government services and make online payments.

The website presents information in five major categories: Ministries and Authorities (Information from the websites of Government Ministries), Guides (Information tailored to key target audiences such as tourists, students, immigrants, and investors), Subjects (Information regarding historic events of the state), Forms and Payments. It also has column with links to the gov.il forum, the tourism website and about Israel; and provides weather and exchange rate information for citizens. Despite the availability of the website in Hebrew, English and Arabic; mobile services, SNS and blog features are only available on the Hebrew website which is also richer in contents than the other language websites. The website also updates information about governmental activities and new D-Government initiatives.

4.5 Government CIO [GCIO]

Israeli public administration has appointed the first government CIO in 2012 after creating the CIO titled position under the Ministry of Finance. There was an initiative in the government to appoint CIOs in the government starting from 2012. The Ministry of Finance coordinates a sophisticated initiative for D-Government, which integrates all ministries, and is establishing highly developed services for citizens. The D-Government Department under the Ministry of Finance is in charge of D-Government implementation and coordination. However, there is no CIO related education in the Israel's current education system. On the other hand, there is significant number of CIOs and CIO positions within the private sector in the country.

4.6 D-Government Promotion [EPRO]

As far as specific D-Government promotion measure is concerned, the Israel government has directed all government ministries, through the Accountant General (responsible for D-Government practices), to include the www.gov.il portal logo and URL in any official publication (such as documents, envelopes, payment vouchers, etc.) for over a decade.

The Government of Israel has adopted and promoted the policy of open government, and has joined the International Open Government Partnership, which also promotes Open Government Policy. The goal of an open government is to empower the individual, the society and the state on the basis of three fundamental principles: Transparency through active reporting to the public, citizen participation and Accountability. Because D-Government has become an integral part of public sector transformation nowadays.

4.7 E-Participation [EPAR]

The Government of Israel is committed to freedom of information, and to promoting transparency and accessibility to data and information produced in the public sector. Now Israel is one of the figurehead countries which promote online public involvement. Most of public information such as elected officials, legislation, national budget information, etc. of Israeli government is available online. In Israeli government's websites, sharing, tagging and SNS tools such as Facebook, Twitter, YouTube, Flicks, etc. are widely adopted. Both Prime Minister and President of Israel have their own websites which provide feedback functions to communicate with citizens.

4.8 Open Government Data [OGD]

Open Government Policy—as it has developed throughout the Western world in recent years—aims to harness new technologies to improve communication between the government and its citizens. It also aims to correctly utilize and exploit the information that is at the disposal of the government, in order to bring about social and economic benefits. This policy paper proposes a model for the successful implementation of Open Government Policy in Israel.

In advancing the principles of transparency, making information accessible to the public, and public participation, the primary advantage of the digital age is an ability to supervise the actions of government.

Another advantage is that an increased level of accessibility to data in different fields leads to public and economic benefits and encourages development and initiatives. In addition, it goes without saying that public participation is an excellent tool for actualizing the concept of the "wisdom of the crowd" (the collective perception of a group of people, who are not necessarily experts).

4.9 The use of Emerging ICT [EMG]

A special program was established to prioritize the cyber defense industry, in cooperation with the Ministry of Economy, which will invest approximately 22 million dollars in R&D between 2013 and 2015. Perhaps,

the greatest asset though is Israel human capital. Due to the security threat, the government has a record number of young people who enter the fields of technology and cyber defense, every year, at the young age of 18, within the framework of their military service. They are young, dynamic and creative. In the field of cyber defense, the threat matrix is changing constantly and one must be incredibly flexible and creative.

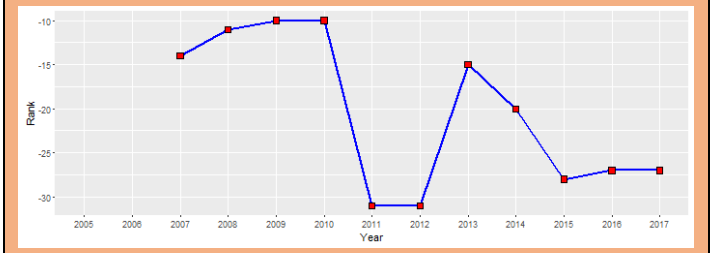
5 Some Highlights

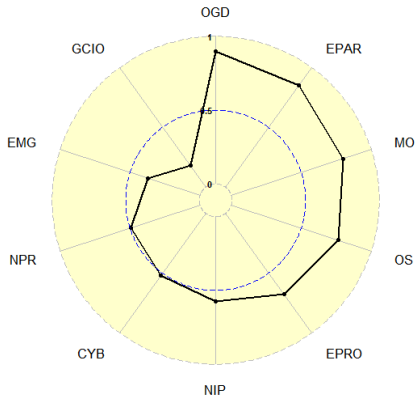
Israeli Prime Minister Binyamin Netanyahu designated the southern metropolitan area of Beer Sheva, as an international cyber center. All of governmental and military institutions which address the cyber threat will be transferred to city of Beer Sheva. Israel also acceded to the Budapest Cybercrime Convention in 2013. The government will continue to support other cooperation mechanisms that contribute to harmonizing cyber defense tools. In Israel they believe that cyber is not just a threat, but rather an opportunity for creative thought and economic growth. As the reliance on the Internet and the virtual realm increases, the need for cyber defense will only grow.

Italy

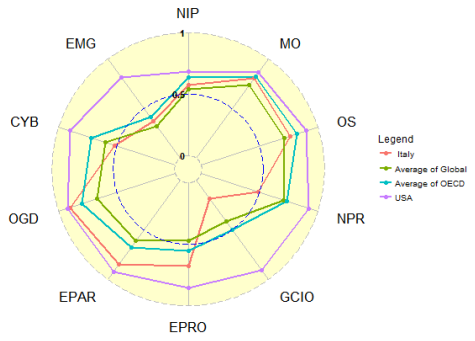
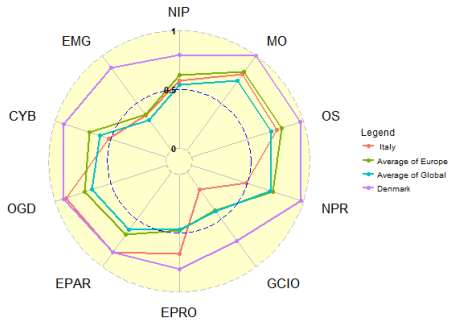
1 General Information

Area: 301,340 km^2
Population: 62,007,540
Government Type: Parliamentary Republic
GDP: $36,300
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	European Countries
	

Among OECD Countries, D-Government Promotion (EPRO), E-Participation (EPAR) and Open Government Data (OGD) indicators are above the average score of OECD members. GCIO indicator of Italy gets the worst score in European countries and also in OECD. Amongst European countries, Italy is placed below Denmark. However, the E-Participation (EPAR) and Open Government Data (OGD) indicators of Italy are the same with Denmark, the best country in Europe region.

3 D-Government Development

The Agency for Digital Italy (L'Agenzia per l'ItaliaDigitale: AGID) has been set up with the task of monitoring the implementation plans for ICT in public administrations in line with the Digital Agenda for Europe, thus creating the "Italian Digital Agenda" in line with the Digital Administration Code (Codicedell'AmministrazioneDigitale, CAD) at the end of March 2014. And AGID also reminded public administrations that they are obliged by a 2014 law to offer electronic payment solutions. AGID is offering support, by organizing meetings with municipal and regional administrations across the country, explaining the benefits of e-Payment solutions, and by introducing possible solutions and solution providers. Offering e-Payment to citizens and companies is key to the growth of D-Government services, AGID writes.

Strategy targets	Provide 85 per cent of population with access to broadband connection services above 100Mbps
	Provide access to broadband connection services above 30Mbps to 100 per cent of population
	Provide access to broadband connection services of at least 100Mbps for public administration, local schools, health care facilities, industrial parks, high demographic density areas
Strategy	Net neutrality, open networks, equivalent and non-discriminatory access conditions, integrated wired and wireless network approach
	Lower economic barriers for infrastructures deployment
	Coordinated management of underground facilities through the establishment of a Cadaster of utility infrastructures under and above ground to monitor the roll-outs and to take full advantage of existing infrastructures
	The Plan has been divided into clusters, based on NGA market competition and availability
	Uniform national limits to European ones in the field of electro-magnetism

The Italian strategy for next generation access network

In addition to legislative measures for general profiles and strategy in the field of digital agenda, the Council of Ministers has approved the Digital Growth Plan 2014-2020 and the UltraWideband Plan. Both plans have been defined by AGID and the Ministry of Economic Development under the coordination of the Prime Minister.

The national plan for ultra-wideband is synergistic to the Strategy for Growth Digital. The strategy has a dynamic character, to be able to adapt gradually to the scenarios in the reference period 2014-2020. This strategy aimed at growing digital citizens and businesses, also using the levers public. Integrate what has been achieved in a subsidiary or under construction in both the public sector, both in the private and must be realized a complete synergy with other public strategies in place, is attributable to the national government is a regional responsibility, to put helpfully "to system "objectives, processes and results.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 65.6% of people in Italy were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 23.8% have fixed-broadband subscriptions, and wired broadband subscription has reach 82.1%.

4.2 Management Optimization [MO]

This "Italian Digital Agenda" guideline provides operational guidance for Italian public administrations towards the implementation process of the national strategy for improving public information assets. Among other topics, organizational and operational schemes are proposed, technical standards and best practices are highlighted and cost and licensing aspects are considered.

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five e-Tax, and e-Customs are the best performer among five online services.

In terms of complexity level, only e-Tax, and e-Customs have reach interaction level where the citizen can obtain the service without necessarily visit to the government office. Other services have the downloadable form and like to other service. In tern of enable citizens to securely access e-Services, the Italian Government has also developed the National Services Card (CNS). It is a smart card allowing for the secured identification of citizens online.

To measure the level of convenience, the third party application result has showed that e-Tax, and e-Customs and One-Stop Service portals are above the average considerably in terms of speed. The third party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	https://www.acquistinretepa.it/
e-Tax	https://telematici.agenziaentrate.gov.it/Main/index.jsp
e-Customs	https://assistenza.agenziadogane.it/assistenza/index.asp
e-Health	Regional and hospital portals available
One-Stop Service	http://www.impresainungiorno.gov.it for business Regional portals available for citizens

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. The "http://www.governo.it/" government portal provides a gateway for users to access government information easily, and "http://www.agid.gov.it/" is the Italia Digital Agenda which provides single-window access to information and government services to citizens and organizations/businesses. Moreover, "http://www.impresainungiorno.gov.it/" is D-Government portal for business which has been offering useful information on a wide range of topics that are of interest to businesses. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average on both

from PC and from Mobile Device. And also from the user experience aspect, this website is not much functionality.

4.5 Government CIO [GCIO]

There is no dedicated GCIO post. There are no specific laws or mandates for CIO positions in Italy. AGID under the Prime Minister's Office is the leading institution for Digital Italy and is responsible for the provision of technical support and consultancy for the Italian Public Administration and the Italian Government. And Director of AGID is partly addresses the GCIO position.

4.6 D-Government Promotion [EPRO]

The passage of the D-Government Code (Codicedell'AmministrazioneDigitale) in 2006 marked a milestone in Italian D-Government efforts. Passage of such legislation heralded stronger emphasis on D-Government in Italy. This also provided the legal framework for succeeding D-Government initiatives both at the national and local level. And this situation is similar to the one in any developed countries where the IT Culture has been embraced in the society.

4.7 E-Participation [EPAR]

Having web forums to enable citizens to participate in e-discussions is one of the remarkable functions that central and local Italian government is seeking to deploy at length. And Polls delivered via the national portal allow citizens to express their views on topics raised by some administrators. Generally speaking, Italy has a certain level of understanding of e-participation in decision-making policies. On May 2016 The Italian Council of Ministers has approved a Transparency Decree providing for access to information. "The first Italian FOIA" has just entered into force and still has some handicaps, like the lack of sanctions for public bodies that illegitimately refuse to disclose documents and the absence of an ombudsman in many Italian regions.

4.8 Open Government Data [OGD]

The "http://www.dati.gov.it/" is D-Government portal for open data that is promoted by the Ministry for Public Administration and Innovation in order to enable the access to the data of all the Italian authorities, both at the national and local level. It contains links and descriptions for about 10,338 datasets produced by 76 governments including Geographical data and 695 Statistical data as one the end of February, 2017. The data available any citizen intending to use it to develop applications for analysis or study purposes, in a complete, quick and accessible to all format. In local level such Roma, also has open data "http://www.opendata.provincia.roma.it/" however it is not much of data set.

4.9 Cyber Security [CYB]

In Italy, since 2013 following the adoption of the Prime Minister's "Decree Containing Strategies Guidelines for the National Cyber Protection and ICT Security", the Cybersecurity Working Group was established under the Committee for the Security of the Republic, and chaired by Department for Intelligence and Security (DIS) and developed the National Strategic Framework for Cyberspace Security 2013. In addition, the Ministry of the Interior established the National Anti-Cybercrime Center for the Protection of Critical Infrastructure (Centro Nazionale Anticrimine Informatico per la ProtezionedelleI nfrastrutture Critiche - CNAIPIC) as a special unit within the Postal and Communication Police Service.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The strategy for implementing Government Cloud has been approved by Italian Digital Agenda. Along with the implementation of Government Cloud, it started the second phase of the Consip tender for the supply to the PA central and local cloud computing

services and were sent invitation letters to competitors who have pre-qualified, responding to tender. In addition, Italy's Revenue Agency used the computer system to compare taxpayers' income declarations with their expenditures, it works under concept of Big government meets big data.

5 Some Highlights

Among ten indicators in the current ranking, the Open Government, e-Participation and Online service are the top indicator in Italy. However, the weak point in Italy is about the use of emerging ICT for government and GCIO. In June 2015, AGID launched a new version of the National Open Data portal: "http://www.dati.gov.it/" in order to promote the quality of the data published. The new portal ensures uniformity of the contents of the catalog, which now includes metadata that describe open data held by the public authorities involved. Moreover, it publishes only the metadata of data available in formats recognized as open and associated with open licenses compatible with the definition of open data.

Public System for Digital Identity Management (SPID) is a unique personal code that certifies the digital identity of citizens and businesses. SPID can be used to access and enjoy all the telematic services of the PA which a unique identification code. The launch in April 2015 within the system SPID is one of the priorities set by the President of the Council of Ministers. In addition, the Italian electronic identity card grants access to secure D-Government services requiring electronic identification, and the possibility to perform related online transactions. Strictly for electronic use, they also have the National Services Card (NSC). Online interfaces are also provided for citizens to access to e-Procurement, e-Tax, and e-Customs, which have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

Japan

1 General Information

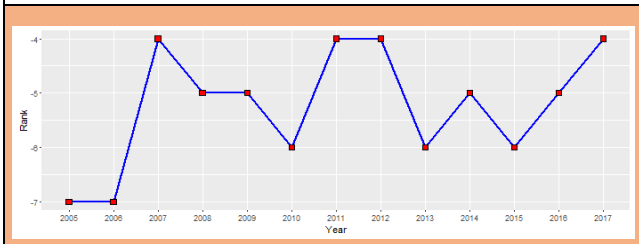
Area: 377,915km^2

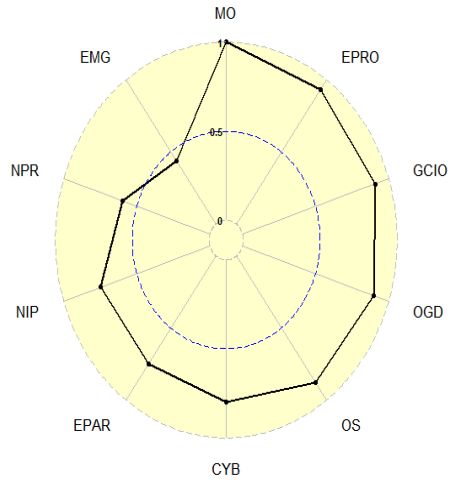
Population: 126,919,659

Government Type: A parliamentary government with a constitutional monarchy

GDP: $38,200

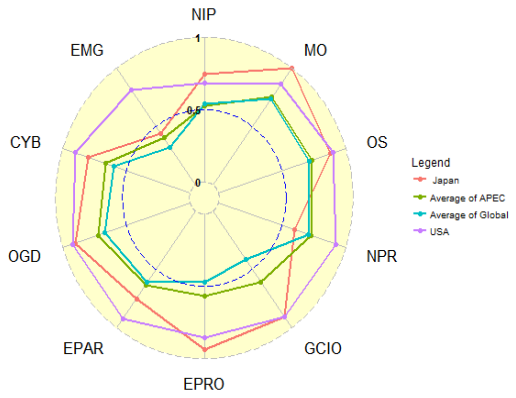
Historical Ranking (2005 – 2017):



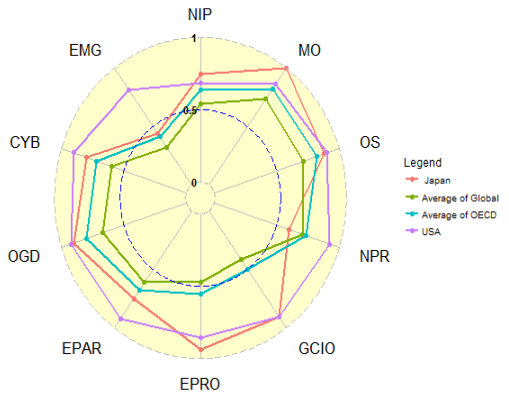


2 Positioning in a global organization and a region

APEC Economies



OECD Countries



Japan has comparatively high performance on most of the indicators than average level of APEC and OECD members, except the indicator of National Portal. Besides, Japan has better scores of Network Preparedness and GCIO.

3 Government Development

D-Government strategies in Japan have gone through several stages along with the technical and social change, the latest D-Government initiative remains the "declaration to be the world's most advanced IT nations" published in 2014. Japan founded a comprehensive system for decision and implement in D-Government plan, the participating sectors include IT strategic headquarters, Government program management office, Government CIO, CIOs Council, etc. It is very compellent of Japan's meticulous D-Government initiatives which cascaded nation's objectives into different plans, such as the promotion of online use of administrative procedures and optimization of work and systems, local D-Governments and so on. Legible and distinguished goals from different initiatives possess their own policy evaluation, in order to confirm the best implement on each phase. Moreover, Japan has established GCIO system in each level of government to ensure the implement of ICT strategies into organizations and societies.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 93.3% of people in Japan have used internet in their daily life. According to ITU's report, about 30.5% are fixed-broadband users and the wireless-broadband users are 126.4%. Internet penetration in Japan has reached a high level compared to other countries.

4.2 Management Optimization [MO]

Japan is one of the earliest countries to push the integrated government systems and has made lots of progress such as the GPKI (Government Public Key Infrastructure) and "Kasumigaseki one" system. As of 2011, most of the 87-optimization target areas are in the implementation phase. IT Headquarter started "The most advanced IT Nation" Strategy to implement D-Government as the priority area productivity and efficiency since 2013.

4.3 Online Service [OS]

Most of the Online application systems such as e-Tax, e-Payment, and social security services provide transactional operations (covering all the service processes including requests, payments, decisions, and delivery). There are many various online services by D-Government, but the D-Government development in local level lack of usage. It may be related to the reality of aging society faced by Japan that most of the residences are aging people in local area who are not familiar to the e-Service systems. Therefore, the online service sites are less designed and regularly updated.

4.4 National Portal [NPR]

National Portal of Japan (http://www.japan.go.jp/index.html) is a new public site for introducing Japan to people, mainly for the non-citizens. It contains proper information about different aspects of Japan, the portal has provided the latest national news, demographic information, political initiatives, cultures, government agencies introduction and so on. It also has presented the official JapanGov APP to deliver users up-to-date information about Japan including photos and videos.

4.5 Government CIO [GCIO]

Each central ministry has a CIO who is appointed among senior staff within the ministry (mainly Director General of administration) and an assistant CIO who is an expert recruited externally. Federal CIO Council composed of Ministry CIOs has the authority to decide many rules on in-house ICT installation and online services. The percentage of CIO appointments at the prefecture level is 90% and 85% is at the city level in 2014.The government established a Government CIO as a core of all Ministry CIOs in November 2012. Mr.Endoh, EVP of Ricoh was appointed to the first government CIO and has worked very efficiently with Federal CIO council.

4.6 D-Government Promotion [EPRO]

There are four organizations behind promotion of D-Government in Japan. Namely: The D-Government Evaluation Committee; the Government Promotion and Management Office of IT Policy Office of Cabinet Secretariat, the Administrative Management Bureau of the Ministry of Internal Affairs and Communications; and the Program Management Offices (PMO). They are responsible for creating a new set of priority policies every year to identify crucial issues that must be solved during short-term time and also analyze its contribution to the long-term benefits. The national IT strategies and the frameworks of action plans are developed by the IT Strategic Headquarters. It has subordinate organs, which include the CIO Council consisting of all the CIOs and their assistants in each Ministry. MIC created the National D-Government promotion council and has made various PR activities.

4.7 E-Participation [EPAR]

2016 is the first year for the Japanese Government adopting the Social Security and Tax number system (My number) This system needs e-participation by all Japanese citizens and companies to develop efficiency in administration and enhance public convenient. However, after a trial practice, the government has announced the system has to delay until July 2017 which is half a year later than the plan. How to encourage citizens to join the system is one of the big problems for government agencies now in Japan.

4.8 Open Government Data [OGD]

In October, 2013, Open data charter action plan was announced, and then the government has released using standard version1.0 for open data in 2014. Open data has become one of Central topics of IT policy in Japan. Until June of 2016, the data site (http://www.data.go.jp/) has over than 15,000s datasets presented. Users can search the information by publishing government agencies, groups, tags and formats.

4.9 Cyber Security [CYB]

Japan boasts the world's highest level of telecommunications infrastructure. The increased use and application of information and communication technology means, the Japanese government successively prepared and revised strategies, annual plans, sector-specific policies and other measures in pursuit of ensuring cyber security, and based on these strategies and measures, forged cooperation among industry, academia and government stakeholders in addressing these challenges. Japan is dedicated to utilize these extensive experience and knowledge in promoting international cooperation. Japan has adopted a range of information security measures with due consideration given to the viewpoints of the nation and users, based on the "Information Security Strategy for Protecting the Nation" (May 2010) and its annual plan, "Information Security 2010" and "Information Security 2011". In June 2013 the Japan Revitalization Strategy and the Cyber security Strategy which were developed, and summarizes Japan's basic policy and its priority areas for international cooperation and mutual assistance in the field of cyber security, so that it

can be presented as a package to the stakeholders both in Japan and overseas. Japan will promote initiatives for international cooperation and mutual assistance in cyber security based on this strategy under the common understanding shared among all domestic stakeholders including those from industries, academia and the government. The just renamed National Centre of Incident Readiness and Strategy for Cyber Security serves as the secretariat for Japanese governments' cyber-security strategy headquarters

4.10 The use of Emerging ICT [EMG]

Japan has moved fast at the emerging ICT application into public sectors. There are already some national plans such as Smart Cloud Strategy, Big Data in Government, etc. Cloud computing in governmental platform is at the ongoing phase. The ministry of Economy, Trade and Industry also has sponsored to public projects which have been selected to facilitate the IOT utilization. The next stage should be making the draft for legal framework on emerging technologies applications.

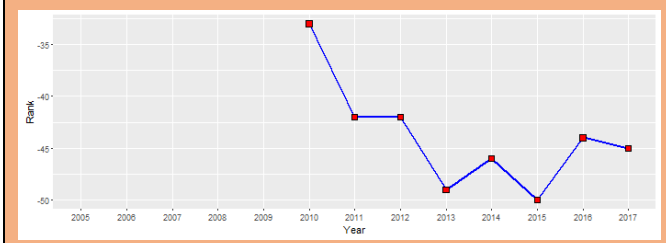
5 Some Highlights

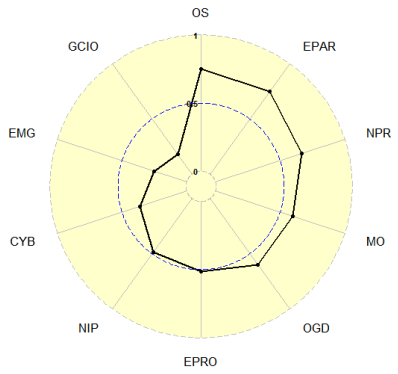
As one of the advanced D-Government nation, Japan keeps its leading impetus at the TOP 10 of ranking. As aforementioned situation, Japan government has built a sophisticated promotion system for D-Government initiatives and precise GCIO regimes into every rank of government (Central and local government; different government agencies) to assure the implementation and evaluation process of D-Government initiatives. It can be reported on high scores on "Government CIO" and "D-Government Promotion". Japan also continues to update its online service system as the objective of initiatives to simplify administrative procedures and working systems. However, National Portal seems to be the only weak point for D-Government in Japan. (http://www.japan.go.jp/) Some basic information including demographic data and introduction to Japan political situation have been provided at the site, but it still needs much more necessary functions to serve visitor's needs rather than providing information only. In consideration of the coming Tokyo Olympic Games that massive visitors would choose national portal as reference, it is a chance and challenge at the same time for Japan government to reconsider that what is the appropriate way to provide information and deliver e-service to Japanese and non-Japanese through internet.

Kazakhstan

1 General Information

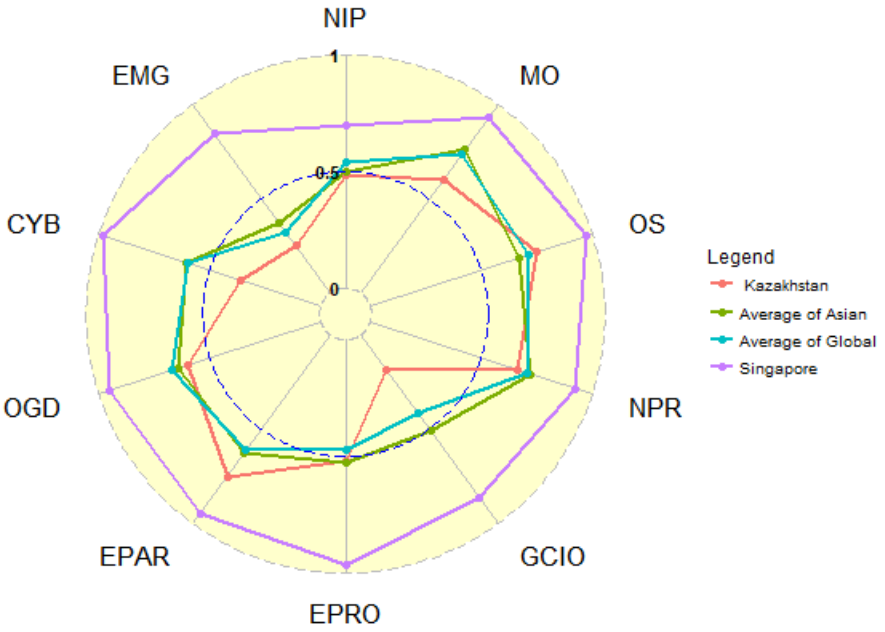
Area: 2,724,900 km^2
Population: 18,157,122
Government Type: Presidential Republic
GDP: $24,700
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

ASIAN Countries



3 D-Government Development

In 1997 the Head of the state has addressed with the Message to the people of the country "Prosperity, safety and welfare improvement of all Kazakhs" which specified strategic priorities of development of Kazakhstan till 2030. In 2009 completed realization of decade of Strategic plan of development of the Republic of Kazakhstan which main objectives are achieved. Key directions and strategic targets of next decade are specified by Strategic plan of development of Kazakhstan till 2020. Efforts of the state will be concentrated on five key directions: preparation for post-crisis development; accelerated diversification of the economy; investing in the future; services for citizens and ensuring international consent, security, stability of international relations. In 2011, the D-Government of Kazakhstan (www.egov.kz) provided 2,000 information services, 219 interactive and transaction service online, granted 917,000 e-digital signatures and 3.500 e-licenses.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In 2017, Kazakhstan Internet users is about 13.3 million users with the penetration is 73%. The Internet in Kazakhstan is growing rapidly. The mobile penetration is 180%; the country was also claiming an impressive figure of 58 Internet users per 100 people. Most importantly, by early 2016 mobile broadband services comprised around one third of the total mobile subscriber base as this service platform continued on a rapid growth path.

4.2 Management Optimization [MO]

The State Program “Information Kazakhstan – 2020” was approved by the President on January 8, 2013.The main purpose of the Program is creation of conditions for transition to the information society. The key objectives of the Program are: (i) Ensuring efficiency of the state administration system; (ii) Ensuring accessibility of information and communication infrastructure; (iii) Establishment of information environment necessary for social, economic and cultural development of society; and (iv) Development of the national information space.

4.3 Online Service [OS]

http://egov.kz/ is one-stop service, it is divided for citizens and businesses, The popular e-Services in Kazakhstan are payment for tax on vehicles, get the certificate of the registered legal entity, Registration of persons driving vehicles on the basis of power of attorney, except for the registration which is carried out by the Ministry of Agriculture and payment of the fee for traffic regulations violations.

www.goszakup.gov.kz is a central facility for all public sector contracting authorities to announce procurement opportunities and award notifications. It provides information about coming, accepted and current tenders and allows online submission of tenders. Some e-Services were introduced with full transaction, but almost of them are at the level of information provision and downloading forms and will be gradually enhanced to reach transactional level in the coming years.

4.4 National Portal [NPR]

The government one-stop-shop portal www.egov.kz was launched in 2006. The portal services are available in 3 languages: Kazakh, Russian and English. D-Government of Kazakhstan (www.egov.kz) provides 2,000 information services, 219 interactive and transaction service online. The portal provides an on-line counseling service, allowing citizens to address any government agency concerning certain issues. Registered users may have access to a wider range of services including “Mail me” functions, common scheduling and e-mail accounts. The portal also provides information on the national D-Government

development program and its projects and allows access to the reports on D-Government implementation results.

The portal also lacks accessibility features: it doesn't allow changing font size of the text and spacing between words, and no text vocalization is provided. More advanced content and functions such as multimedia shows, sharing, tagging, podcasts are still to be introduced but SNS feature are also introduced.

4.5 Government CIO [GCIO]

There is no official designated Government CIO. However, there are a de-facto two government organizations that share the responsibilities of the CIO: National ICT Holding Zerde and JSC National Information Technologies

4.6 D-Government Promotion [EPRO]

Kazakhstan government has put a lot of effort in reducing digital divide among the population and government employees. Public Internet access points were opened all over the country in order to connect citizens to the web. Classrooms for providing computer literacy were opened in several regions to promote capacity development of public sector employees. To facilitate continues development of D-Government in the country the government of Kazakhstan organizes annual international conferences called "D-Government initiatives". In addition special national competitions are announced on an annual basis with nominations for the best web-site in the official language, best public e-Service at the central and regional levels, best public managers promoting D-Government, best mass media coverage of D-Government project etc. Awareness surveys and opinion polls are posted on the one-stop shop portal to capture user feedback and to improve the quality of provided e-Services.

4.7 E-Participation [EPAR]

http://e.gov.kz/ includes features that increase citizen engagement. The site has a formal online consultation section, online web conference between government officials and citizens, where the government receives feedback from its citizens on government policies and services. A schedule of citizen reception by the heads of State Bodies is also available on the website. All of the cabinet members have their own blogs in http://www.blogs.e.gov.kz/, the official government blog platform, where citizens can comment, ask questions, or send suggestions.

4.8 Open Government Data [OGD]

www.data.gov.kz is open data portal and introduced in 2013. It contains 763 types of official information helpful to citizens and businesses are posted. Accessing the government agencies' data sets allows the programmers' developing a variety of applications and directories. Information posted on the portal is classified by such areas as transport, education, statistics, culture, health, second-tier banks, KazPost.

4.9 Cyber Security [CYB]

Cybersecurity in Kazakhstan is overseen by the Committee on National Security and the Ministry of Internal Affairs. Both bodies are responsible for legal, regulatory and enforcement activities in the area of cybersecurity (including prevention and counter-measures). These bodies work closely with telecom infrastructure providers, including fixed and mobile telecoms

4.10 The use of Emerging ICT [EMG]

The Government of Kazakhstan is in the process of creating Government Cloud Infrastructure that will allow providing cloud-based services to Government bodies and citizens. The initiative is called G-cloud. Plans for IoT implementations will be reflected in the new Digital Kazakhstan strategy, especially in the

Smart Cities section. The government is running a pilot Big Data project within NITEC aimed at analysis of social networks.

5 Some Highlights

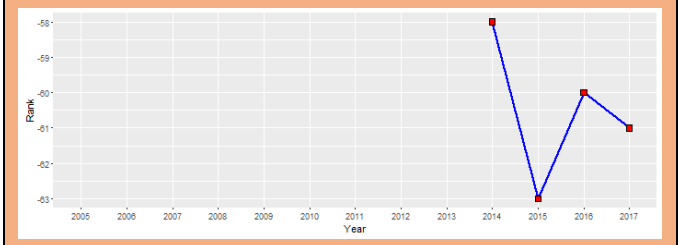
There is no official designated Government CIO. However, there are a de-facto two government organizations that share the responsibilities of the CIO: National ICT Holding Zerde and JSC National Information Technologies.

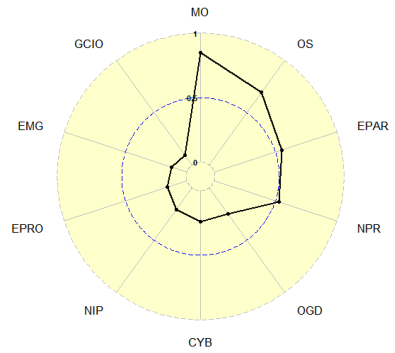
The Presidential Administration and Office of the Prime Minister receive regular reports on implementation and status of D-Government initiatives submitted by the National ICT Holding Zerde and National Information Technologies. However, since these are the agencies responsible for implementation as well, this evaluation can be biased.

Kenya

1 General Information

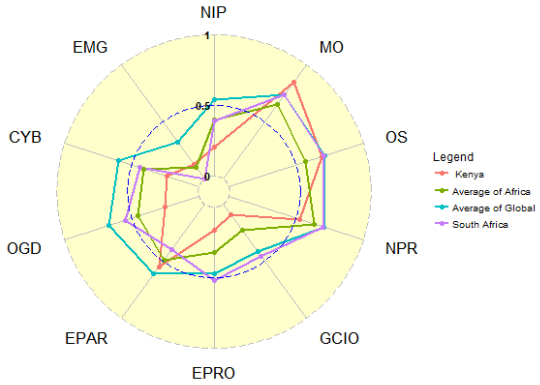
Area: 580,367 km^2
Population: 46,790,758
Government Type: Presidential Republic
GDP: $ 3,400
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

Africa Countries



Among Africa Countries, only Management Optimization (MO), Online Service (OS)and E-Participation (EPAR) indicators are above with the average score of Africa region. However, the Management Optimization (MO),E-Participation (EPAR)and the use of Emerging Technologies for government (EMG)indicators of Kenya is better than those of South Africa, the best country in Africa region.

3 D-Government Development

The Government of Kenya established the D-Government Programme in June 2004. It has since committed itself towards achieving an effective and operational D-Government to facilitate more efficient delivery of information and services to the citizens, promote productivity among public servants, encourage participation of citizens in government, and empower all Kenyans.

National ICT Master Plan 2014 – 2017, Strategic Pillars

The Kenya National ICT Master Plan 2014 - 2017 was launched on April 2014. This Master Plan has three foundations and three pillars. The foundations are the critical things that need to happen in order to lay a basis of Kenya transitioning to a Knowledge Society and positioning the country as a regional ICT hub while the pillars are meant to facilitate the achievement of socio-economic growth and Vision 2030 targets. The master plan will help to create a political, legal and regulatory environment; provide D-Government services that are simple to use and convenient for citizens and businesses; increase the productivity, efficiency and effectiveness of critical economic sectors; stimulate the setup and growth of ICT-related businesses to enhance employment creation; enable and scale up ICT innovation; and develop a dynamic and robust ICT sector that will enhance socio-economic growth.

This Master Plan proposes that Kenya strategically develop and implement public data hubs based on a unique digital ID built on a secure infrastructure for efficient and effective citizen centric services, enhance IT-enabled democratic governance, and create of data markets from the public data and information to spur innovative and commercial services and products. Moreover, On December 2013, the Kenya and South Korean governments have announced a partnership to develop an D-Government master plan in Kenya, looking to develop ICT to stimulate socio-economic development in the country. In addition, the Kenya D-Government master plan was developed by South Korea's National IT Promotional Agency (NIPA) and the Kenya ICT Authority under the Ministry of Information Communication and Technology (MoICT), and is anchored in the constitution of Kenya (2010), Vision 2030 and the Kenya ICT Master plan 2013.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 45.6% of people in Kenya were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 0.3% have fixed-broadband subscriptions, and wired broadband subscription has reached 15.5%.

4.2 Management Optimization [MO]

On April 2014, Kenya has launched the Kenya National ICT Master Plan 2014 - 2017. This Master Plan has three foundations and three pillars. The first pillar of this Master Plan is D-Government services, which aims at ensuring provision of D-Government information and services as key to improving productivity, efficiency, effectiveness and governance in all key sectors. The second pillar is ICT as a Driver of Industry, which aims at transforming key Vision 2030 2nd MTP economic sectors to significantly enhance productivity, global competitiveness and growth; and the third pillar is Developing ICT Businesses that can produce and or provide exportable quality products and services that are comparable to the best in the world.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five e-Tax has the highest score, compare to other online services. The electronic procurement and payment system was launched in August 2014. This e-Procurement system is an automated business process which includes procurement planning, management of suppliers, requisitions, quotations, contracts and receipts will be shifted to a more effective and cost efficient online transaction. In addition, the Kenya Revenue Authority (KRA) provides KRA Online service and iTaxOnline e-Services as an e-tax service.

In terms of complexity level, most of Online Service in Kenya has reached the two ways interaction in which user can download and summit application from through the portal. In addition, only e-Tax and One Stop Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

For measuring the level of convenience, the third party application result has shown that all portals are below the average considerably in terms of speed. The third party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	http://www.ppoa.go.ke/
e-Tax	https://itax.kra.go.ke/KRA-Portal/
e-Customs	http://www.revenue.go.ke/index.php/customs-services/about-customs
e-Health	http://www.health.go.ke/
One-Stop Service	https://www.ecitizen.go.ke/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. The Kenyan government is taking steps to digitize content and provide services online. Although there is still significant work to be done in this area, the Kenyan D-Government portal "http://www.mygov.go.ke/" offers basic government information to citizens. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average both from PC and from Mobile Device. And addition, the portal does not provide the user with some functionalities such as searching, site map, and an inquiry form.

4.5 Government CIO [GCIO]

There are no specific laws or mandates for CIO positions in Kenya. However, the Information and Communication Technology Authority is a State Corporation under MoICT. The Kenya ICT Board, Directorate of D-Government and Government Information Technology Services (GITS) have been merged into this Kenya ICT Authority in August 2013.

4.6 D-Government Promotion [EPRO]

The achievement of D-Government in Kenya has been one of the main priorities of the Government of Kenya towards the realization of national development goals and objectives for Wealth and Employment Creation, as stipulated in the Kenya Vision 2030. The basic framework for D-Government is comprised of a relatively manageable set of Kenya Information and Communications (Amendment 2013) Act and National ICT Master Plan. However, there is no evidence that make clear about D-Government Promotion in Kenya from support aspects.

4.7 E-Participation [EPAR]

According to the United Nations E-Participation Index, Kenya is a leading country in Africa (ranked second after Morocco) and 33th in the world for e-participation. This is a major improvement from 2008, in which they placed 135th. This indicates that the government's ICT initiatives have succeeded in making the population more connected, and providing a platform that appeals to users. For instance, parliament member has their website and provides the citizens with some information. However, President and Deputy President of the Republic of Kenya are using other social media channel to communicate with citizen.

4.8 Open Government Data [OGD]

Kenya launched the Open Data portal "https://opendata.go.ke/" since 2011. Kenya is the first developing country to have an open government data portal, the first in sub-Saharan Africa and second on the continent after Morocco. There are now over a hundred requests from the public for new datasets, and there is a clear demand for more data to be made available.

4.9 Cyber Security [CYB]

The Kenya Information and Communications Act, 1998, mandates the Communications Authority of Kenya (CA) to develop a national cyber security management framework through the establishment of a national Computer Incident Response Team (CIRT). The Communications Authority of Kenya setup the National Kenya Computer Incident Response Team Coordination Center (National KE-CIRT/CC) whose mandate is to coordinate responses and manage cyber security incidents nationally and to collaborate with relevant actors locally, regionally and internationally.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). The government of Kenya start to discuss about the plan to implement Cloud Computing and Big Data for Public However, the evidence shows that it is not officially launched. Other emerging technologies for government agencies are still nullity in Kenya.

5 Some Highlights

Kenya has the impressive point on Management Optimization, Online Service, and E-Participation. The Kenya Vision 2030 is the national long-term development policy that aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment. The Vision comprises of three key pillars: Economic; Social; and Political. Kenya

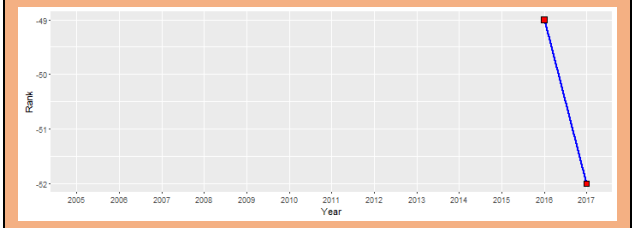
government National ICT Master Plan 2014 - 2017, National Cybersecurity Strategy 2014 and National Broadband Strategy were launched to support Kenya Vision 2030. Huduma Kenya is a program by the Government of Kenya that aims to transform Public Service Delivery by providing citizens access to various public services and information from One Stop Shop citizen service centers called Huduma centers and through integrated technology platforms. Currently "https://www.ecitizen.go.ke/" is a one-stop shop service to citizens. However, there is not much effective information to update though this site. And about E-Participation, this indicates that the government's ICT initiatives have succeeded in making the population more connected, and providing a platform that appeals to users.

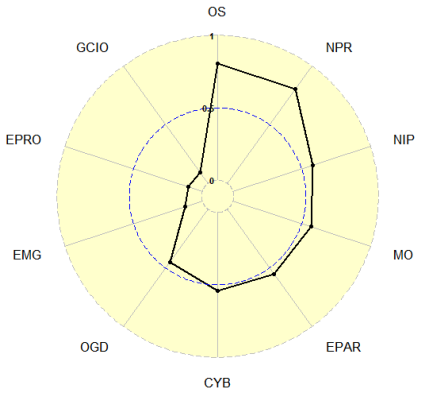
Government CIO, Cyber Security, and the use of emerging technology and D-Government Promotion are the weak point of Kenya. There are no specific laws or mandates for CIO positions in Kenya. Even if the National Cybersecurity Strategy 2014 was launched, there is still lack of legal framework to support this cybersecurity. For Cloud Computing and big data, Kenya government started to corporate with academic and private such as IBM is doing together with the Nairobi City Council is they've asked us for help to manage their fleet of garbage trucks better.

Lithuania

1 General Information

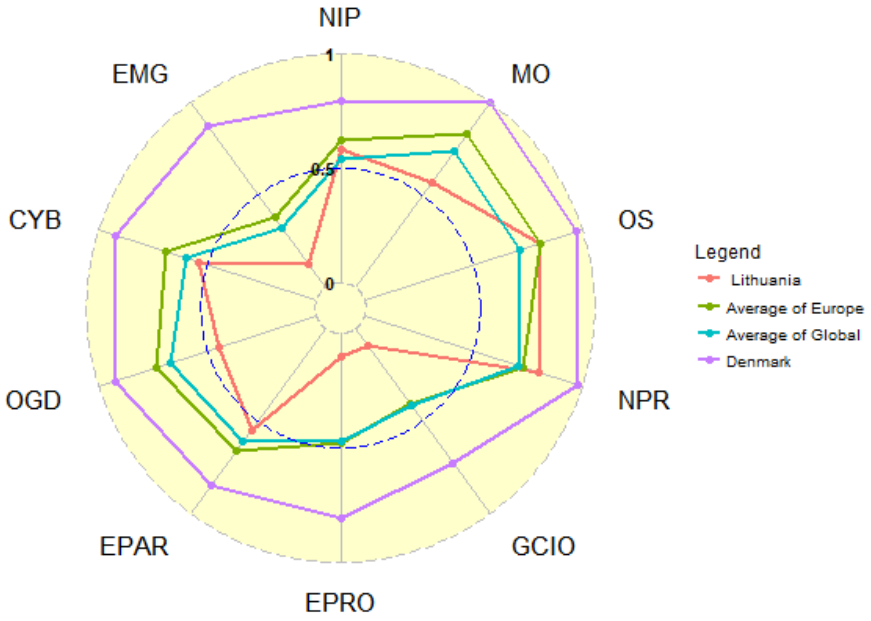
Area: 65,300 km^2
Population: 2,884,433
Government Type: Semi-Presidential Republic
GDP: $28,000
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

Europe



3 D-Government Development

This is only Lithuania's second year in the ranking. The official government web portal can be located at www.lrv.lt, and they also have additional web portals with information and news about the country in English. The country's official web presence is polished and professional, but, as it is a country with a very low population, its online offerings are relatively limited. For example, while Lithuania is a member of the Open Government Partnership, it is difficult to find detailed, downloadable open data sets from an official source. There are ongoing efforts to remedy this situation by promoting open data and a start-up culture, but the extent of these programs are limited, or entwined with cooperation from other countries in the region.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Lithuania, approximately 84.8% of households have access to the Internet. This is about 15% less than the EU average, but the number has been going up, particularly in recent years. Furthermore, nearly 100% of businesses are connected to the Internet, and about 70% of the population uses the Internet once a week or more. Broadband connections lag the EU average at 65%, and only 19% of individuals have ordered a product online within the past three months, less than half of the EU average. These numbers suggest that while NIP is improving in Lithuania, it still has some room to grow relative to other nations in the region.

4.2 Management Optimization [MO]

The Lithuanian government is more than halfway through implementation of the Lithuanian Information Society Development Programme (2011-2019). This is a multi-pronged program, but there are two overarching goals. The first goal is to improve the skills and IT literacy of the Lithuanian people. This is to be accomplished by providing training (online and in-person), and funding IT careers in both rural and urban areas. The second goal is to continue developing and enhancing a robust and user-friendly series of government services available on the World Wide Web.

4.3 Online Service [OS]

Lithuania offers a diverse array of services available to citizens and businesses on the Internet. They offer an online procurement portal for government agencies to make purchases efficiently. They also offer a host of services for citizens, including e-Tax, an online social security and unemployment benefits system, license and certificate applications, notification of change of address, etc. Lithuania is not leading the way forward in terms of innovative online services, but it certainly is not far behind its counterparts in Europe.

4.4 National Portal [NPR]

Lithuania's national portal, the D-Government Gateway, was launched in 2004. It offers a single source of information, services, and communication between citizens and government. The portal offers information to both citizens and foreigners in several languages. There is also a Login feature so that citizens can customize their experience on the portal. The portal contains links to all of the necessary features for citizens with a simple, organized, user-friendly style.

4.5 Government CIO [GCIO]

The closest role to a GCIO in Lithuania is the Advisor of the D-Government Policy Division. This position is currently held by Dr. VytautasKrasauskas. He reports to the Minister of the Interior, which is currently Tomas Žilinskas. They are responsible for all D-Government strategy, implementation, and development.

4.6 D-Government Promotion [EPRO]

The Lithuanian government's newest strategy to promote a connected, information-based society is the Ministry of Transport and Communication's 2014 decision to allocate funds to improve IT services in the nation. These funds will serve to promote the nation's e-Services by enhancing awareness and technical literacy among the population.

4.7 E-Participation [EPAR]

The Lithuanian government promotes online participation largely through its national portal, which provides links to blogs and social media accounts for agencies and individual government officers. These measures are meeting increased success as a larger proportion of the population is now using the Internet regularly and feeling more comfortable interacting with others online..

4.8 Open Government Data [OGD]

As early as 1996, Lithuania had a law requiring the government to disclose information to the public. That law was strengthened in 2000, and is still in force today. Individual agencies within the Lithuanian government do publish datasets to the public. For instance, data sets regarding the federal budget, legislation, census information, election results, and more are available, but they are not presented together in a single portal. This is a significant obstacle to citizens' ability to find the information they need without undue effort, and steps toward a more robust OGD portal should be taken.

4.9 The use of Emerging ICT [EMG]

Recently, Lithuania developed the Secure State Data Communication Network (SSDCN), which allows sensitive data and communication to be transmitted securely. Furthermore, Lithuania aspires to be a regional leader in the Internet of Things, or IoT. The government has made efforts to attract state-of-the-art tech companies that are researching new consumer electronics that rely on IoT technology.

5 Some Highlights

The Lithuania government offers a public procurement site at www.cpo.lt. This site provides users (in this case, mostly governmental institutions) with an easy way to order and receive goods and materials that they need from more than 450 different suppliers. This site eliminates a significant amount of inefficiency and lowers costs for procurement.

There is also an online customs website available in several languages at www.cust.lt. This site mostly provides information regarding the customs process, but it also provides some helpful tools to help businesses and individuals predict the customs process before they import or export goods. The site is well-organized and very user-friendly.

The Lithuanian government continues to place D-Government development as a high priority. Despite the country's relatively small size and population, it has established a useful and user-friendly online presence for itself well within the top tier of countries, and it only shows signs of improving in the days ahead.

Macau

1 General Information

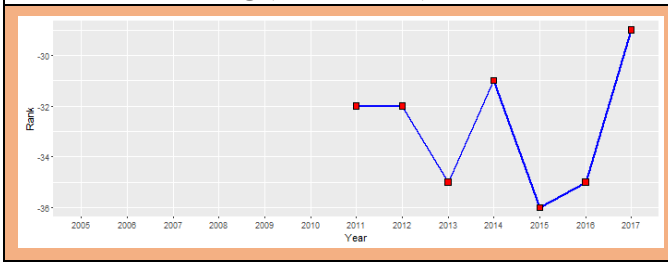
Area: 30.4 km^2

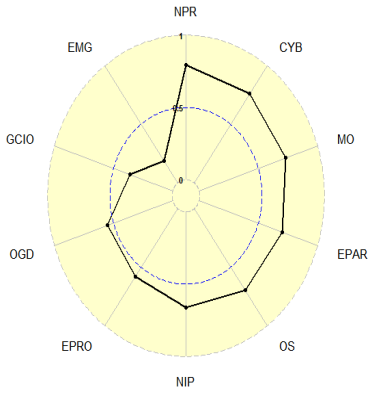
Population: 644,900

Government Type: limited democracy

GDP per capita: $69,300

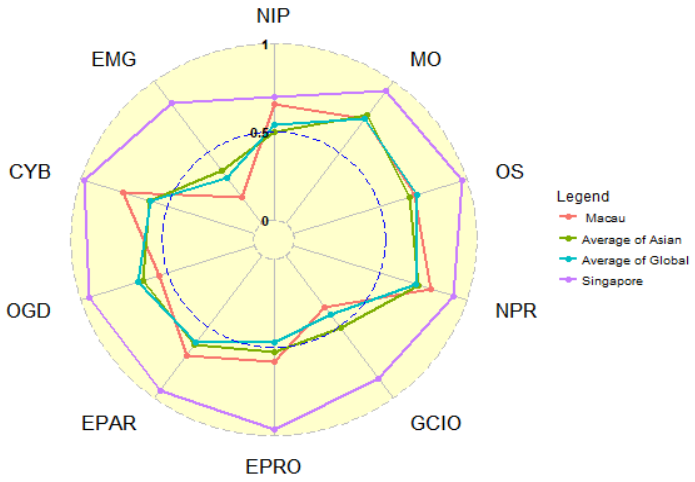
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

Asian countries



Macau has achieved higher performance on the indicators of Network Infrastructure Preparedness, National Portal, D-Government Promotion, E-Participation and cyber security than the average of Asian and global level. Within the significant progress, Macau may pay attention to the development of emerging technologies to advance its e-level in the new digital era.

3 D-Government Development

The development orientation of Macau is clearly defined in China's Thirteenth Five-year Plan. The formulation and execution of the plan will speed up the process of developing Macau into a world tourism and leisure centre, as well as an economic and trade co-operation platform for China and Portuguese-speaking countries ("One Centre" and "One Platform"), realizing moderate diversification of economic development, strengthening competitiveness so as to achieve sustainable growth, and continuously improving people's livelihood. In 2016, the Macau SAR Government announced the Five-year Development Plan of the Macau SAR (2016-2020), with one of the goals being turning Macau into a smart city, and electronic governance is an important tool for achieving that goal.

Macau SAR has published the latest D-Government strategy called "Macau SAR Electronic Governance General Plan 2015-2019" in 2015, drafted by Public Administration and Civil Service Bureau (SAFP). The new strategy is to make response to the overall governance plan of Macau in which the development orientation has been set up as "One Centre" and "One Platform". In support of the Five-year Development Plan of the Macau SAR (2016-2020), strengthened efforts have been made in electronic governance in support of the development of a smart city, especially in the areas of open data and big data. According to the government's information, The EGOV General Plan was approved by the Chief Executive and The Secretariat for Administration and Justice is responsible for the overall coordination of the plan. Representatives from the Chief Executive's and all five secretary offices, SAFP, and other agencies composed the Coordination Committee of Public Administration Reform to supervise the implementation of D-Government plan. SAFP serves as the GCIO of Macau, meanwhile each government agency owns a working team in which the agency leader, IT head and personnel of its IT and related business units have been included to guarantee the internal management and collaboration among agencies. The Coordination Committee of Public Administration Reform and the GCIO, through supervision and coordination, ensure the successful implementation of the EGOV General Plan.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

According to the most recent ITU report, 77.6% of individuals in Macau were Internet users, and 86.3% of households have Internet access. Active mobile phone subscription has reached over 300%. There are four mobile network operators, and there are more than 2,800 WiFi hotspots, covering most of the 30.4 km^2 area. With the liberalization of public telecommunication market since 2013, Macau now has two network operators providing fixed public telecommunication network and broadband services, resulting in a healthy competition and steady growth of the telecommunication market.

4.2 Management Optimization [MO]

The Macau SAR Government realizes the importance of management optimization and it is achieved by the optimization of service procedures and internal management, and the development of various information systems to support the optimization.

To form a basis for the optimization of service procedures, in 2015, 752 public services approved by the Public Service Evaluation Committee were analyzed. It was found out that, first, about one-third of those services contain cross-agency service procedures that require supporting documents/certificates. Second, around one-fourth of those services are of high usage rates and most concerned by the citizens. Based on the result of the analysis, the approach taken by the SAR Government was to first optimize and digitize those services without amendment to laws or regulations.

The SAR Government has formulated a plan to optimize and digitize cross-agency service procedures that require supporting documents/certificates. By 2020, more than 70 of those cross-agency service procedures will be optimized. In 2016, eighteen service procedures relating to the application of administrative permits/licenses have been analyzed and optimized as planned. For those services that are of high usage rates and most concerned by the citizens, at least 110 of them will be fully digitized by 2019. For the optimization of those service procedures that require the amendment of laws or regulations, a plan will be formulated in 2017. The optimization and digitization of the above cross-agency service procedures and services that are of high usage rates and most concerned by the citizens will speed up the provision of e-services of Macau.

The Macau SAR Government, as a whole, has developed common platforms and modules that provide a solid foundation for the optimization of internal management, cross-agency work procedures, and provision of e-services. For example, in 2015, the Macau SAR Government deployed the Civil Servant Management and Service Platform to be used as a standardized tool for internal management. It provides services that are closely tight to the civil servants' needs, simplifies daily work procedures, and increases transparency.

Next, the Civil Servant Management and Service Platform will be enhanced to include more functionalities, including various functions for human resources management, finance management, inventory management, and knowledge management, etc. The aim is to replace the various internal management systems being used by government agencies, thus lowering development and maintenance costs while improving internal administrative efficiency.

4.3 Online Service [OS]

The SAR Government is currently providing a number of diversified two-way interactive online services through the Internet, satisfying the needs of various stakeholders, and covering areas such as education, employment, healthcare, social welfare, transportation, among others.

Based on the solid foundation laid down by the optimization and digitization of work procedures as outlined in the EGOV General Plan, in 2016, the SAR Government has built common platforms and modules that can be used by different government agencies, creating favorable conditions for e-services development. For example, a unified government service account is created to provide safe and legal service. Personal profiles are used as a storage for personal information. Also, a standardized e-service management platform is used by government agencies to manage their services and data exchange. Together, they provide the foundation for developing personalized e-services.

Take the unified government recruitment in 2016 as an example. The whole application process can be done online. With relevant legislative support, the applicant can log in using a legally effective online account from the desktop or using a mobile app, fill in the necessary information and upload the required documents, completing the whole application process online. The applicant can also check the status of the application as well as the result of the application through the website or by a mobile app when it is known.

The whole process for digitizing the government recruitment is common to all other public services. Common platforms and modules already developed such as the unified online account, personal profile, and service management platform, etc., can be used as necessary tools for future e-services development, thus helping facilitate the overall electronic governance development of Macau.

E-services in Macau are delivered through different channels such as websites, mobile apps, kiosks, etc. Macau is a small city and has among the highest population density of the world. Using this as an advantage, the SAR Government has set up a number of multi-function kiosks at various locations, offering to its citizens a wide-range of self-services such as permanent identity card renewal, contact information change, voter registration, tax inquiry, application for various records, etc.

4.4 National Portal [NPR]

The aim of the Macau SAR Government Portal (www.gov.mo) is to provide to the public an easy to use and centralized window for government information and services. Contents are in traditional and simplified Chinese, Portuguese, and English. It has both a desktop as well as a mobile version, and it contains certain accessibility features for disabled users.

The portal offers government news, city information, service formalities, and e-Services and has areas for citizens, tourists and merchants. It is also a useful gateway to the public sector, with links to all government agencies and committees. The government portal is supported by software applications to allow users to enjoy a variety of services. There are catalogues of job matching, social benefits, vehicles, public libraries, which are mainly providing documents and searching, applying and paying. Through the deployment of these software applications, the government expects to streamline its internal processes, ultimately to improve its overall efficiency.

Reconstruction of the Government Portal is underway. The revamped website will be service-oriented, with improved functionalities and an easier to use interface to provide personalized service. The user, with the use of the unified government service account, will be able to view ongoing government applications, receive personalized reminders, etc. In addition, the organization of the contents of the website, including e-services, service formalities, or government information, will be redesigned so that it will be easier for the user to find the services or information they need. User will able to find the services they need without any knowledge of the agency that provides the service.

4.5 Government CIO [GCIO]

To form a regularized and systematic mechanism at the operation level, and to strengthen cross-agency collaboration, a dedicated working team which includes the agency leader, IT head, and personnel of its IT and related business units has been formed in all government agencies. This will ensure there is enough coordinating and execution capability to support the effective operation of the cross-agency collaboration mechanism. The working team is responsible for promoting the optimization and digitization of internal management and external service related works such as work procedures and public services, improving the internal operations while at the same time facilitating cross-agency collaboration.

The GCIO system of Macau is divided into two levels: government and agency. SAFP, with its coordination role in EGOV development of Macau, assumes the role of GCIO for the whole government. The leader of the working team of each government agency is similar in role to the GCIO for the agency. And in order to equip team members with the skills of a GCIO, a GCIO training program is created for the team members. Training for the agency leader and IT heads will be tailored towards the capacity of a modern GCIO. Training for IT personnel will be emphasized on current trends and technologies in EGOV, and those for business personnel, training will be emphasized on the business aspects of EGOV. The goal of the training is to support the effective implementation of the EGOV General Plan.

In addition, the Coordination Committee of Public Administration Reform, chaired by the Secretariat for Administration and Justice and with representatives from the Chief Executive's Office and all secretary offices, will supervise the implementation of the EGOV General Plan, including the GCIO system of Macau, and the optimization and digitization of service procedures.

4.6 D-Government Promotion [EPRO]

The Macau SAR Government is in charge of e-promotion in Macau. Promotion is both within and outside the government. Within the government, training, seminars, and workshops are provided to the directors, chiefs, IT personnel and related business personnel of public organizations, government agencies, and entities to raise the overall awareness of civil servants of various levels on the tasks of the EGOV general

plan. Meanwhile, all government agencies are encouraged to organize internal training on information security and crisis management strategies and related practical operations, raising the knowledge of the related strategies and handling of practical operations of the civil servants of various levels.

Relating to the public, promotion electronic governance is done by using dedicated websites, organizing seminars, exhibitions, and publicity means, etc. and through the use of multimedia (both social and traditional) such as to publicize electronic governance projects. For example, some government agencies use WeChat to announce and promote their new services.

The awareness level as well as participation of the public is also raised by providing them with easy to use and quality e-services and application so that the services become part of their daily lives.

In addition, The Science and Technology Development Fund held by Macau Government, provides financial assistance for education, research and projects that are related to science and technology policy objectives. At the same time, through multiform conferences, forums, trainings, publications, the government tries to improve the D-Government promotion.

4.7 E-Participation [EPAR]

Government agencies use different channels to connect to the public, including websites, mobile apps, social media (WeChat, Facebook, YouTube, etc.), and traditional media in order to reach a broader audience. Different levels of the governments, such as office of the Chief Executive, and offices of the five secretaries are all using dedicated websites to communicate with the public. Also, the SAR Government has a mechanism for the dissemination of news. Using a single platform, government agencies can submit news to be delivered to the public through different channels.

To realize the "sunshine government" policy and to facilitate deeper discussion of public policies, the SAR Government has a guideline that requires public consultation to be done before the formulation of major policies. Some government agencies use the government portal, their own agency website, or a dedicated website for policy consultation. The government portal also has a "Policy Consultation" page for that specific purpose, allowing easy access to policy consultation information for the public.

To further facilitate e-participation, the first stage of the Consultation Service Management Platform has been completed. It will be integrated with the government portal to become a single entry point for public consultation and opinion collection. The platform will be disseminating information about consultations through the government portal, agency websites, mobile applications, social media accounts. It will also provide relevant agencies with a means to manage and monitor consultation activities. And for the organizers of consultation activities, the platform will also provide basic services for consultation such as a standardized survey template and statistical tools.

4.8 Open Government Data [OGD]

Currently, the SAR Government has already opened up its geographical, transportation, and tourism data such as maps, carparks, buses, etc. to the industry in order to enhance public services and to satisfy the needs of the citizens. A study in open government data is being done. The result of the study will help develop an open data policy and a long-term plan. This will not only satisfy the needs of the people but will also drive the development of local IT industry and facilitate the development of talents.

In terms of opening up internal government information, according to the EGOV General Plan, the government portal is being revamped to better organize the information provided. As the first phase of the open government information initiative, a dedicated website that contains information about business trips by government officials has been created so that the public can better monitor the government, thus

improving transparency. Other government information which are currently being provided in the government portal are consultation and government recruitment information.

4.9 Cyber Security [CYB]

The Macau SAR Government has placed heavy emphasis on information security to reduce the risk of data leakage and cyber-attacks. Works have been done in the following three aspects: organization and management, laws and regulations, and promotion and education.

In the organization and management aspect, "Office for Personal Data Protection" was established in 2007 to supervise and coordinate the public implementation of and compliance with the Personal Data Protection Act (Law 8/2005), and devising professional secrecy regulations as well as supervising their implementation. On the other hand, Judiciary Police is responsible for preventing and combating against cybercrime. The Computer Forensic Division was established in 2010 to enforce the criminal investigation and forensic science respectively on cybercrimes.

The Macau SAR Government has put in heavy efforts on the construction of network infrastructure. To ensure information security within the government, InforMac, the government intranet, has been in use since 1996. It is a closed network environment that provides secure and fast data transmission within government agencies. The first Government Data Centre started its operations in 2010 to provide network infrastructure services to government agencies, which aims to manage the security of the network infrastructure and the applications centrally. On the other hand, in order to enforce the effectiveness of cyber security information sharing, a mechanism for the notification of information incidents which involves SAFP, Office of the Government Chief Information Officer (OGCIO) of Hong Kong SAR, Hong Kong Computer Emergency Response Team Coordination Centre (HKCERT), and Macau Computer Emergency Response Team Coordination Centre (MOCERT) has been established, raising the level of information security of both regions.

In the laws and regulations aspect, to reduce risks arising from the rapid development of information technology, the Macau SAR Government has introduced legislations such as Macau's National Security Law, Personal Data Protection Act, Combat Against Computer Crime Law, and Electronic Documents and Signatures Law, etc. These laws play key roles in maintaining secure operations of the Macau SAR. In addition, in 2009, SAFP issued the Information Security Policy Guidelines and Information Security Management Framework documents to regulate the information management of government agencies. Currently, legislation work is currently underway in the area of cyber security.

In the promotion and education aspect, the Judicial Police, Office of Personal Data Protection and SAFP organize conferences, seminars and workshops regularly to raise public awareness and promote ethics on information security. The Training Centre for Public Services, under SAFP, also provides information security-related training courses to civil servants.

In order to measure the information security level of the SAR Government, SAFP together with MOCERT conduct the annual Macau Information Security Survey to examine and analyze the shortcomings in the overall information security of the SAR Government.

A cross-secretariat team chaired by the Chief Executive and coordinated by the Secretariat for Security has been formed in 2015 to facilitate works on cyber security. Representatives from the Chief Executive's Office, all five secretary offices, and related core agencies facilitate cyber security works using a top-down approach. SAFP, as the agency responsible for the promotion of EGOV within the government, has developed the optimization plan for information security and crisis management for 2016-2019.

4.10 The use of Emerging ICT [EMG]

According to the EGOV General Plan, the Macau SAR Government is continuously enhancing its software and hardware infrastructures through Cloud Computing Strategy. In terms of hardware infrastructure, firstly, using cloud computing's features of efficient deployment and stability, together with information security and crisis management, gradually equip the Government Data Centre with cloud computing capabilities offering network infrastructure services with high performance, high scalability, high stability, and high security—Cloud Infrastructure as a Service (IaaS). At the same time, we will make use of the IaaS for the sustained development of various platforms—Cloud Platform as a Service (PaaS), such as Public Services Management Platform, Data Exchange Platform, and Open Information Service Platform, etc. On top of the PaaS, a series of software applications, services, together with the Common Application Module Library—Cloud Software as a Service (SaaS), will be provided to citizens and government agencies. The construction of the second Government Data Centre will be completed in 2019, and using the lessons learned from introducing cloud computing functionalities in the first phase, the two data centers will be complementary to each other. This way, on one hand, cloud infrastructure services can be effectively expanded; and on the other, a high availability mechanism will be developed across the data centers, thus realizing seamless expansion, and providing a solid foundation for the development of cross-agency information systems, resource integration and sharing, and collaboration.

In terms of the above-mentioned data centers and the Cloud Computing Strategy, firstly, the development of internal administrative management will be facilitated and more public e-services will be delivered. Secondly, cross-agency data exchange will be enforced. It also enables an opportunity to open up data from public sectors to encourage innovation on using and reusing the data, which will lead to building sustainable economic diversification and delivering better public e-services.

The SAR Government has also started some big data and Internet of Things (IoT) initiatives. For example, big data technologies are being used at the Macau Customs, and also by the Health Bureau in the form of electronic exchange of medical records. IoT technology is being used in tourism area to improve tourist experience.

5 Some Highlights

Macau has among the top network infrastructures with strong emphasis on cyber security. Progress has been made according to its EGOV General Plan, which emphasizes on services and coordination, especially in the optimization and digitization of service procedures and public services. As a result, with the development of common platforms and modules, and relevant legislation, Macau is performing well on "Management Optimization" and "Online Service".

The Macau SAR Government Portal is being revamped to be service-oriented, and to provide improved personalized e-Services to all kinds of needs of citizens, non-citizens and business. With the role of GCIO clearly defined and also the formation of dedicated working groups in the agencies, Macau's GCIO system is steadily progressing. Promotion of D-Government is done through training, publicity, and provision of quality services such that D-Government is reaching out better to the public. Public participation has increased due to online policy consultation and the use of social media to disseminate information. Macau has already opened up its geographical, transportation, and tourism data to the industry to enhance public services and to satisfy the needs of the citizens. Continuous efforts are being made in opening up more government information. Macau has also started to employ emerging technologies to provide quality services.

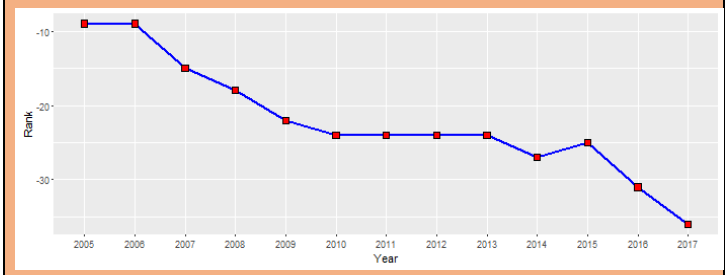
Macau's electronic governance development emphasizes on the optimization and digitization of service procedures and public services, and through the development of common platforms and modules, and

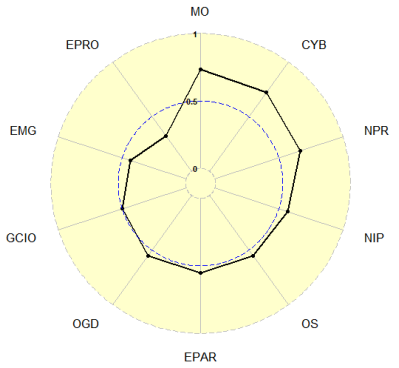
relevant legislation. It is still in development stage; however, it is observed that a concerted effort has been made to implement according to the EGOV General Plan to gradually promote electronic governance development of Macau. In addition, a strengthened coordination mechanism plays an important role as well.

Malaysia

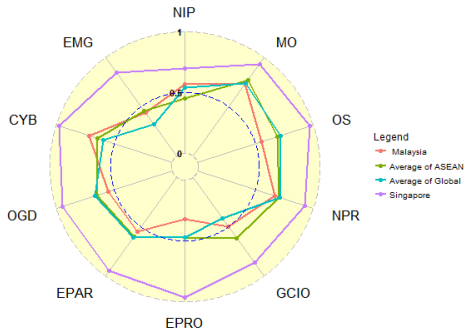
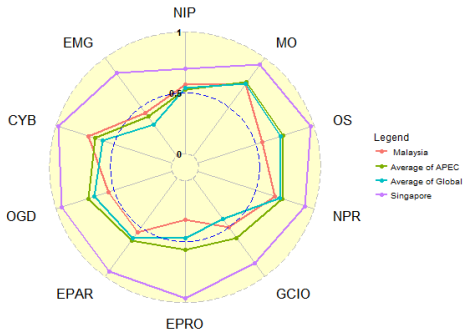
1 General Information

Area: 329,847 km^2
Population: 30,513,848
Government Type: constitutional monarchy
GDP: $26,600
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

ASEAN Countries	APEC Countries
	

Among ASEAN countries, Malaysia has high scores on e-participation, cyber security and management optimization. These scores surpassed the world and ASEAN's average and close to the Singapore's – the D-Government leader in ASEAN region. In APEC countries, Malaysia only exceeds the group average on management optimization and e-participation. Other indicators are below the mean of APEC and global.

3 D-Government Development

D-Government has long been an interest of Malaysia government since 1996 with the establishment of the Multimedia Super Corridor (1996). A transformation vision toward 2020 including 12 national key economic areas (NKEA), of which D-Government is one of essential entry point project was announced aiming to "increasing the accessibility, speed and transparency of government services".

Since D-Government is high on the agenda of Malaysia government, it has received strong financial, institutional and legal supports. Lots of efforts have been carried out by the Government in order to promote for D-Government development.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 21.7 Malaysia's population uses Internet in 2017. The Internet penetration is around 69.6%, according to the Measuring the Information Society Report 2015 from International Telecommunication Union (ITU). Among them, wired broadband subscribers accounted for around 25.8% while more than 100% of total population have a wireless broadband connection.

4.2 Management Optimization [MO]

The Malaysian Public Sector ICT Strategic Plan (2011-2015) is the latest national D-Government strategy which draws strategic direction on the implementation if Information and Communications Technology (ICT) in the Malaysian public sectors.

The strategy emphasizes on delivering innovative, efficient and quality citizen and business-centric services by leveraging on the pervasive use of ICT. The ultimate aim is to achieve a Citizen-Centric and Whole of Government public service. 5 programs and 6 policy targets have been identified in the strategy

A secured, dedicated, centrally managed Government consolidated ICT network infrastructure for Government agencies named "1Gov*Net" has been implemented with the target to transform ICT network infrastructure via consolidation to optimize resources and value for money for strengthening Government service delivery system. To date, 10.600 government premises are linked to 1Gov*Net. Besides, a government cloud called "1GovCloud" has implemented by The Malaysian Administrative Modernisation and Management Planning Unit (Mampu) in order to create a private, secure and dedicated platform for government agencies.

Project Monitoring System creates a collaboration framework for better management and development of D-Government projects across agencies. There is also a Human Resource Management Information System (HRMIS) implemented in Malaysian Federal Government which provides a single interface to perform human resource effectively. In addition, the Malaysian Government also employed the Generic Office Environment (GOE) with the purpose to enable efficient communication, allowing collaboration across government officers. The government also put in place the use of an enterprise architecture framework called "1GovEA" in order to create an effective strategic alignment between backend business and ICT usage in government organizations.

Toward the vison 2020, in May 2015 the Malaysian government introduced the eleventh plan reaffirms the Government's commitment to a vision of growth that is anchored on the prosperity and wellbeing of its rakyat. This vision identified 6 Strategic Thrusts which are innovative approaches (1) enhancing inclusiveness towards an equitable society, (2) improving wellbeing for all, (3) accelerating human capital development for an advanced nation, (4) pursuing green growth for sustainability and resilience, (5) strengthening infrastructure to support economic expansion, and (6) re-engineering economic growth for greater prosperity. Furthermore, to improve the plan the Malaysian government identified 5 areas to transform Public Sector to be more efficient and productive. (1) Capitalizing on local authorities for quality services at the local level, (2) Enhancing project management for better and faster outcomes, (3) Strengthening talent management for the public service of the future, (4) enhancing service delivery with citizens at the center, and (5) Rationalizing public sector institutions for greater productivity and performance.

4.3 Online Service [OS]

The score for Online Service comprises of five sub-dimensions: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

To measure the level of convenience, the third party application Google PageSpeed™ Insight[33] has showed that all services have a good access speed.

List of Online Services

Online Service	URL
e-Procurement	http://www.eperolehan.gov.my/
e-Tax	
e-Customs	http://www.customs.gov.my/en/uc
e-Health	
One-Stop Service	eservices.com.my

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. Government.se is the government portal of Sweden. It presents a wide range of information resources about government structure, government agencies, legal documents and daily news regarding to government's operations. Information are delivered in 16 different languages.

In technical aspect, the result of Google PageSpeed™ Insight showed that the website operates well both from PC and from Mobile Device. The portal also provides several contacting methods via various Social Networks such as Facebook, Twitter, YouTube, Flicker as well as there is a feature allowing user to receive update mail notification.

4.5 Government CIO [GCIO]

The role of government CIO is defined on MAMPU website[34]. A self-assessment competency for CIOs has been developed in CIO Handbook published by MAMPU, in order to provide an opportunity for CIOs to identify any gaps for self-improvement while performing their role as CIO. CIO-equivalent positions are also found in ministerial agencies[35] via the Public Sector CIO Information Systems. The office of the Malaysian Government CIO has always been in the forefront of equipping and acculturating CIOs in the latest technologies and ICT tools for Public Service delivery through workshops and CIO summits.

The Malaysian government is considering to develop and assign CIO position in the government agencies, departments. They had a survey for ICT perceptions, expectations and inspirations for finding and knowing the IT skill for government officers.

4.6 D-Government Promotion [EPRO]

The Malaysia Administrative Modernization and Management Planning Unit (MAMPU) is promoting the use of D-Government.

[33]https://developers.google.com/speed/pagespeed/insights.
[34]http://www.mampu.gov.my/web/en/gcio
[35]

MAMPU also carries out D-Government promotion programs such as conferences, exhibitions, seminars throughout the country. As for assessment mechanisms, the Electronic Government Steering Committee and Government IT and Internet Committee are the two over-sight bodies, evaluating the D-Government implementation at national level. The Electronic Government Activities Act of 2007 provides the legal framework for D-Government implementation in Malaysia. Under the law, Malaysian Public Sector ICT Strategic Plan is still on going.

4.7 D-Government Participation [EPAR]

The national portal www.malaysia.gov.my is beginning to evolve from just merely providing e-information to providing e-consultation services as well. It is also the government one-stop-shop for interacting with citizens. The portal provides information on government such as policies, government procedures, the national budget and legislation. The website has some facility for encouraging citizen feedback and conducts simple online surveys.

As the e Services can support participation in processes involved in government and e-participation is hence closely related to D-Government and by providing e-Services such as MY ID, My SMS, MY Health, My procurement, My Ideas, and increasing the benefits of citizen Malaysian government want increase e-participation. In addition, SMS is utilized as an ultimate channel to provide user access to government services. An electronic touchscreen is installed at every service counter in order to receive user feedback for the service provided.

4.8 Open Government Data [OGD]

The official open data portal of Malaysia government is located at data.gov.my which recently involves 32 organizations in 10 sectors as providers with totally 1121 datasets provided to date. The data were published mostly in XLSX and CSV format. Only in 2 states Freedom of Information is enacted (Selangor and Penang).

4.9 Cyber Security [CYB]

By 2013, total of 10.636 security incidents were detected by MyCERT, involving all kinds of cyber security threats such as fraud, intrusion, spam, malicious code, and so on.

The Malaysian Government has strengthened the role of Cyber Security Malaysia by Order of the Ministers of Federal Government Vol.53, No.13, dated June 22, 2009 by identifying CyberS ecurity Malaysia as national info security coordination center that provides ICT security specialist services and continuously monitors threats to the national security.

In terms of cyber laws, Malaysia has enacted the Digital Signature Act of 1997; Computer Crimes Act of 1997; Telemedicine Act of 1997, e-Commerce Act of 2006, Electronic Government Activities Act of 2007 and the latest Personal Data Protection Act by 2010.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT).

MY E.G. Services Berhad (“MYEG”) is a concessionaire for Malaysian Electronic-Government (“D-Government”) MSC Flagship Application. Over the past 5 years MYEG has invested in and is currently deploying our next generation technologies based on The Internet of Things (“IoT”) solutions. We believe that the deployment of IoT coupled with big data analytics will bring significant improvements to our overall quality of life. Our environment will increasingly anticipate our needs as opposed to responding to our actions. MYEG implements cutting edge IoT solutions that is being deployed on a nationwide scale for the first time anywhere in the world.

A government cloud called "1GovCloud" has implemented by The Malaysian Administrative Modernisation and Management Planning Unit (Mampu) in order to create a private, secure and dedicated platform for government agencies

5 Some Highlights

Management Optimization is always the strong point of Malaysian government with major initiatives have been implemented: the government ICT network "1Gov*Net"; the enterprise architecture framework "1GovEA"; government shared services such as Digital Document Management System, Service Intelligence (SI), Government Risk and Compliance Scorecard (myGRiC); and so on.

Regarding online services, this year, Malaysia government is on its way to restructuring several major services including customs service. An initiative so-called uCustoms was introduced as "a fully integrated, end-to-end, and customs modernization solution that delivers single window for goods clearance", is expecting to complete no sooner than 2017.

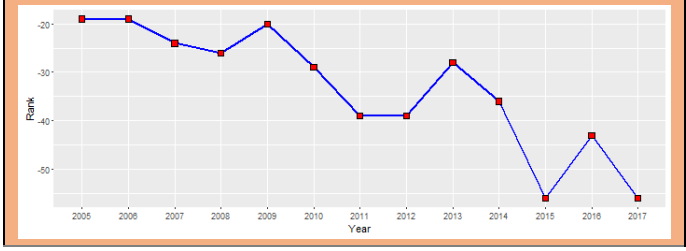
The national portal as well as the one-stop-shop services - malaysia.gov.my - seems to be inaccessible outside of Malaysia, which prevented the evaluation process, resulted in a low score for Malaysia in national portal and online service dimensions.

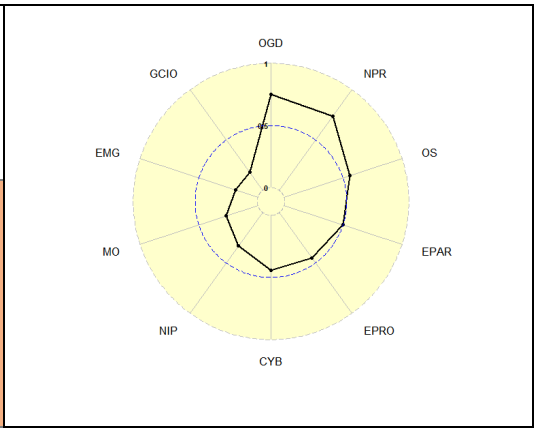
Malaysia government is also putting great efforts to meet minimum points required to join by Open Government Partnership. To meet those requirements, several challenges are recommended to focus on the right to information, asset and conflict interest disclosures and citizen engagement.

Mexico

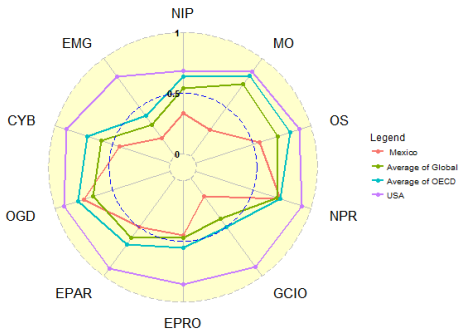
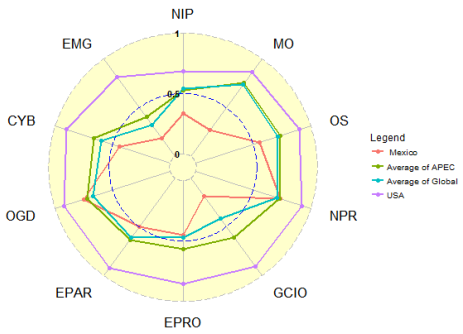
1 General Information

Area: 1,964,375 km^2
Population: 123,166,749
Government Type: Federal Presidential Republic
GDP: $18,900
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	APEC Economies
	

All indicators except the Open Government Data (OGD) indicator are below the average score of OECD and APEC members.

3 D-Government Development

The Mexican government was already making widespread use of ICT by the end of 1990s. There was no overarching D-Government strategy for the federal government until 2001. In Mexico, the Institute for Statistics, Geography, and Informatics (INEGI) was in charge of the federal government's IT policy. In 2001, the President's Office for Government Innovation officially introduced D-Government as an initiative to digitalize and modernize government. E-Mexico was a related initiative focusing on connectivity and electronic access. D-Government became one of the six pillars of the Good Government Agenda in late-2002, thus consolidating it as a central strategy of the Mexican Government.

Mexico has a long-standing commitment to using ICT to support public sector reforms and foster good governance by improving transparency, quality and efficiency of government. The Mexican government also adopted an initiative called e-Mexico National System that aims to increase the connectivity between all levels of government, the IT industry, and academic institutions until 2025. Through this plan they would like to provide contents to the citizens, for instance: e-health, e-learning, e-education and D-Government. In October 2013, Mexico launched its National Digital Strategy to promote the use of Information and Communications Technology. The National Digital Strategy, "Digital Mexico," is the digital action plan the Government will implement over the next few years to encourage the adoption and development of Information and ICT and insert Mexico into the Information and Knowledge Society.

National Digital Strategy

The Strategy sets out the challenges Mexico faces in the digital context and the way it will cope with them through five major objectives: 1) Government Transformation, 2) Digital Economy, 3) Quality Education, 4) Universal, Effective Health, and 5) Public Safety. The primary goal of the strategy was to achieve a "Digital Mexico" in which technology facilitates economic development and improves the quality of citizens' lives. Based on policies for a digital government, Mexico seeks to build a new relationship between the government and citizens.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 57.4% of people in Mexico were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 11.6% have fixed-broadband subscriptions, and wired broadband subscription has reached 50.4%.

4.2 Management Optimization [MO]

The Mexican government also adopted an initiative called e-Mexico National System that aims to increase the connectivity between all levels of government, the IT industry, and academic institutions until 2025. In October 2013, National Digital Strategy, "Digital Mexico", is based on clear definitions, enabling those involved to strive to achieve the objectives set forth therein, which are aligned with the major goals of the National Development Plan 2013-2018 that guide the government's efforts.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and their URL Address. All of those services were investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Cyber security and e-commerce laws were found at national and sub-national level but some of them are pending. Compared with other countries in Central America, Mexico had very good e-Services .e-Tax is the highest score, compare to other online services.

In terms of complexity level, most of Online Service in Mexico has dynamic sites available. It allows downloading of forms and submitting them back to government agencies. In addition to that, only e-Tax has implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

For measuring the level of convenience, the third party application result has shown that e-Service portals expect e-Health are above the average considerably in terms of speed. These mean they are using only the static information. The third party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	http://web.compranet.gob.mx/
e-Tax	https://www.siat.sat.gob.mx/PTSC/
e-Customs	http://www.aduanas.gob.mx/e5cinco/Ingreso.aspx
e-Health	http://www.esalud.gob.mx/
One-Stop Service	http://www.gob.mx/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. The national portal "http://www.gob.mx/" is a part of the Mexican Government Portal and gives citizens a single entry to D-Government services online. The Citizen Portal uses a customer relationship management strategy to better present its content according to users' needs. The portal uses a technological platform that enables interoperability and standardization across different government offices. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and from Mobile Device. However, the portal does not provide the user with some functionality such as other language and it is still beta version.

4.5 Government CIO [GCIO]

Regarding the Government CIO in Mexico, the CIO is appointed only nationally. The Director of the D-Government and IT Policy Unite at the Ministry of Public Administration hold the equivalent post of GCIO. There is no information about any CIO association or organization. There is not a CIO training course found in Mexico.

4.6 D-Government Promotion [EPRO]

In Mexico, the law on D-Government was adopted at the national level but not at the sub-national level. The D-Government master plan and policies exist only at the national level. There are no government activities such as organized conferences or citizen training. There are no think-tanks or funds for developing D-Government in Mexico.

4.7 E-Participation [EPAR]

The national portal "http://www.gob.mx/" is a one-stop-shop service for all citizens. Mexican Government has launched the e-Participation portal "http://www.gob.mx/participa", which is a platform for citizen participation that allows, through diverse mechanisms such as forums, surveys and exercises of co-edition to create better public policy proposals for the development of the country.

4.8 Open Government Data [OGD]

Mexico has recently launched the Open Data portal "http://datos.gob.mx/" that National Open Data Policy creates and implements a national policy for the publication and use of open data that is clear, provides legal certainty, uses open and interoperable standards, and is guided by the principle of maximum publicity. According to the site, there are currently over 16,500 datasets and 221 institutions hosted on the site on in late February 2017.

4.9 Cyber Security [CYB]

In 2001, the Steering Committee of the Forum of Incident Response and Security Teams (FIRST) officially granted (DGSCA-UNAM) the approval to operate as a national CERT. The Coordination of Information Security (CSI) / UNAM-CERT of the Directorate General of Computing and Information Technology and Communication, UNAM is a meeting point which can turn the computing community for information, advice and services security; and to exchange experiences and points of view, thereby establishing appropriate security policies, reducing the number and severity of security problems and spreading the culture of computer security.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Mexico has attempted to implement Cloud Computing for Public Sector such as Mexico's Tax Administration System (SAT). However, the evidence shows that it is not officially launched. Other emerging technologies for government agencies are still nullity in Mexico.

5 Some Highlights

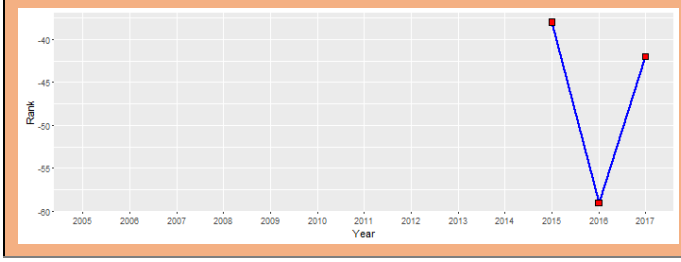
Mexico has the impressive point on e-Participation, Open Government Data, and National Portal. Mexico has high score on e-Participation that is the result of the digital government item in the Good Government Agenda, and is also part of the e-Mexico. The citizen participation portal, "http://www.gob.mx/consulta/" is a proposal by the Government of the Republic to promote citizen participation through digital means, as a way to improve public policies, making them more effective and achieve greater impact on the daily lives of people.

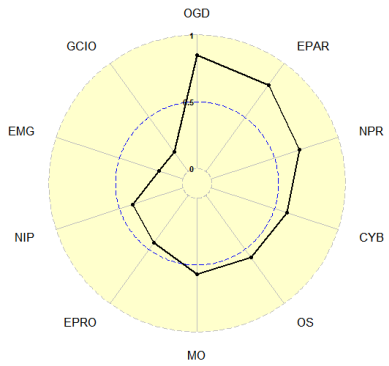
Mexico still has the weakness. The use of emerging technology and Government CIO are the weak point of Mexico. As for the emerging technology, one of Mexico's governmental agencies transitioned to Microsoft's cloud computing services with the aim to improve its services to Mexican taxpayers. There is no evidence that make clear about Government CIO, even if There is a law creating the position of the CIO in the government and a document defining the role and function of the CIO in Mexico. Moreover, Mexico has low score on Cybercrime Countermeasures, and there also is not any evidence about cyber security strategy or action.

Morocco

1 General Information

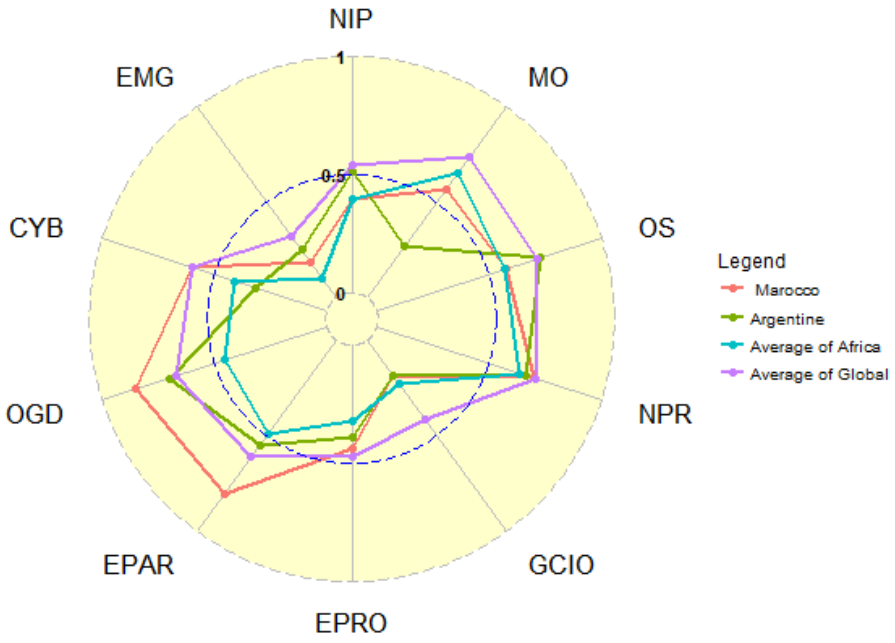
Area: 446,550 km^2
Population: 33,322,699
Government Type: Parliamentary constitutional monarchy
GDP: $8,300
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

AFRICA Countries



3 D-Government Development

In 2008, the Moroccan government introduced the National Strategy for Information Society and Digital Economic 2009-2013, known as "Digital Morocco 2013" or "Morocco Numeric". The strategic plan "Digital Morocco 2013" is meant to make from information technology a cornerstone of the economy, a source of added value for other economic sectors and public administration, and an engine for human development, in view of positioning Morocco as a regional technology hub. The strategy focuses on four main priorities: expanding citizen access to broadband with an emphasis on knowledge; user-oriented D-Government and public service provision; promoting computerization across small and medium enterprises to increase productivity; supporting local actors to develop IT markets and build greater potential for sector exports. These priorities are supported by two measures: the development of human capital and promotion of cyber-confidence.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

As of 2017, Morocco has 20.2 million Internet users with the penetration is about 57.3%. In Morocco, public sector expenditures represent a significant share of the state budget. Also, this area is it expected to achieve significant efficiencies through the implementation of D-Government services through a streamlined and automated processing of information. The aim is to use the D-Government projects to modernize and Local Administration in the service of citizens and businesses. It is the use of information technology and communications to reconfigure processes in depth, making them effective and efficient, completely geared to serve citizens and business.

4.2 Management Optimization [MO]

The latter requires the establishment of a Computer Emergence Response Team (ma-CERT) at a national level, as well as the launch of an Information Systems Security Committee within the National Council of Information Technology and Digital Economy. Digital Morocco 2013 also envisages public awareness campaigns for the general public aimed at increasing confidence in modern technologies.

During processes of evaluation, we found that in Morocco, there is a few number of D-Government services, transactional portals, and e-transformation effect. In 2015, they did not have any strategy for the development on ICT and D-Government.

4.3 Online Service [OS]

http://www.service-public.ma/ is one-stop services for public sectors. This is static website and contains the link to ministries and other government website. It's an institutional web site without online public services integration and contains the same content picked from other government web site. This portal offers the description of procedure for more than 70 public's services and divided to detail catalogs, such as citizens, enterprises, and professionals.

In this portal, there are some e-services which are integrated such as document services, family services, invest, taxation for individuals, professionals, and social services. Most of them have information only, there are no transactions for these services when citizens want to apply online.

4.4 National Portal [NPR]

The national portal (www.egov.ma) includes main information for D-Government programs, projects and operates e-Service information, it has a link to separate e-Service portal (http://www.service-public.ma/)

this is the set of services offered by the Moroccan administration. The national portal aims first and foremost, to improve the relation between the administration and its users.

Beside national portal (egov.ma), portal of public service (service-public.ma). The Moroccan government has a portal for procurement and portal for public employment. The portal of procurement is not available in English. This is a gate for public trading. This portal provides information for calling to invest to government, it shows documents and allow to access for downloading and apply online. The portal of employment is a gateway for everyone who want to find a job. Like most of Moroccan national portal, there is no English version.

4.5 Government CIO [GCIO]

There is no information for government CIO.

4.6 D-Government Promotion [EPRO]

The Steering Department of the D-Government program (DPGOV) is attached to the CIGOV. This structure consists of internal and external expertise that will be responsible of assisting the CIGOV and SPGOV in the implementation of the D-Government program. The activities of the DPGOV are divided into four major functions (1) Strategic management, (2) Steering, (3) Assistance, and (4) Promotion: design of a communication/marketing for the program and also synchronization with the others SPGOV.

4.7 E-Participation [EPAR]

The Moroccan government has launched several e-participation initiatives including: (1) Fikra: The Suggestion Box for the improvement of the Administration. It was launched on February 25, 2011 offers a discussion forum to get more feedback from citizens and enable them to express their views. They can submit ideas, vote for ideas and comment. The Government also created 3 forums for sharing ideas are available (i) Forum “Your ideas for new eGov services”; (ii) Forum “Your ideas for simplifying administrative tasks”; and (iii) Forum “Your ideas for improving the Administration”. (2) Comment drafts of laws and decrees, and (3) Questionnaire and suggestion box on the websites.

4.8 Open Government Data [OGD]

In June, 2014 The Directorate of Digital Economy launched officially online for the new version of the Moroccan portal of Open Government Data (http://data.gov.ma/fr). The new portal, which regrouped around sixty files shared by different departments, it was realized based on the open source software CKAN whose development is coordinated by the Open Knowledge Foundation, which remains a powerful data management system with its tools that simplify editing, sharing, research and use of data.

4.9 Cyber Security [CYB]

Morocco is currently in the process of implementing a National Cybersecurity Management System (NCSecMS), which consists of four components: (1) The National Cybersecurity Framework; (2) Maturity Model; (3) Roles & Responsibilities, and (3) The Implementation Guide.

4.10 The use of Emerging ICT [EMG]

No evidence found that Moroccan government is use of emerging ICT to promote D-Government activities, such as applying IoT, Big data and Cloud computing in government activities.

5 Some Highlights

Compared to last year of ranking, due to there is no new D-Government strategy therefore, Morocco's rank this year is low in most of sub-indicators. In 2014, Moroccan government issued a portal of Open

government data, the new portal, which regrouped around sixty files shared by different departments, it was realized based on the open source software CKAN whose development is coordinated by the Open Knowledge Foundation, which remains a powerful data management system with its tools that simplify editing, sharing, research and use of data.

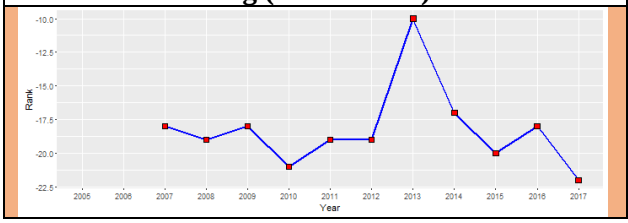
Morocco is currently in the process of implementing a National Cybersecurity Management System (NCSecMS), which consists of four components; The National Cybersecurity Framework, Maturity Model, Roles & Responsibilities, and The Implementation Guide.

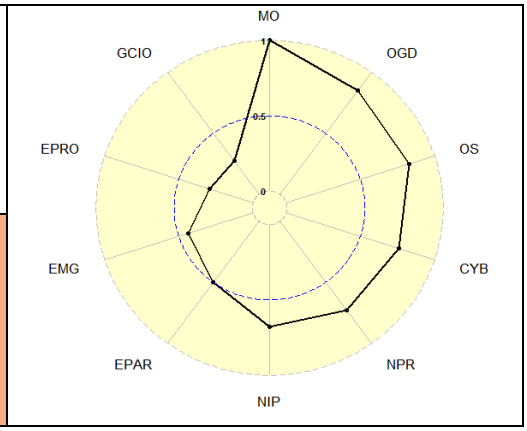
Same last year, Moroccan government has neither CIO positions in center government nor local government. They have some services for citizens and businesses, but still lack of information and there is no online transaction. Morocco is still struggling to improve their D-Government using the existing technology. New technology is still far the implementation in Morocco.

Netherlands

1 General Information

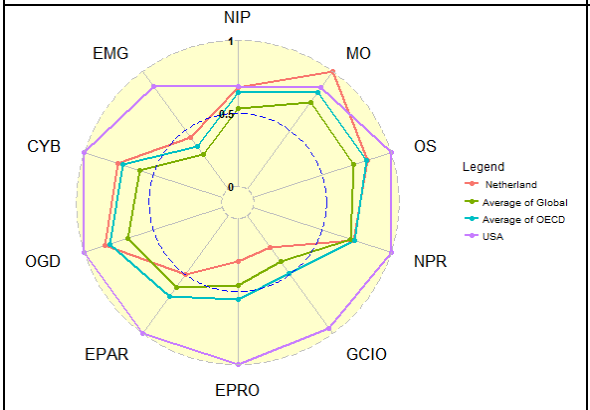
Area: 41,543 km^2 [36]
Population: 17,016,967 [37]
Government Type: Parliamentary Constitutional Monarchy [38]
GDP: $ 50,800[39]
Historical Ranking (2005 – 2017):



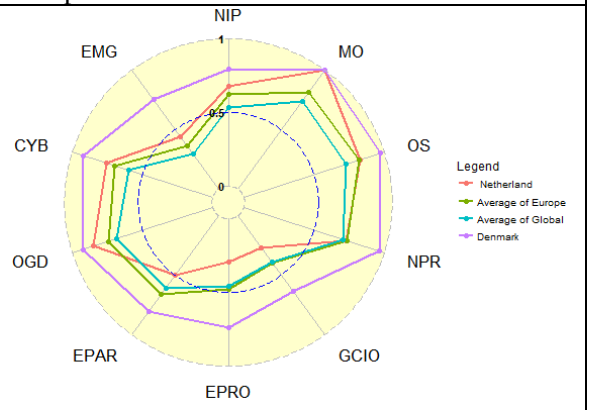


2 Positioning in a global organization and a region

OECD Countries



European Countries



Among OECD Countries, Netherlands has a better score than the average score of OECD in Management Optimization, Online Service, and National Portal. However, as shown on the above picture, Netherlands is very low on the D-Government Promotion. A contradictive situation between D-Government Promotion and the Online Service including Management Optimization, has indicated that most citizens know how to use D-Government service. As a consequence, Netherland decided to reduce D-Government Promotion program. These achievements also reflect the position in European region in which Netherlands is approaching Singapore, the best country in the region, in the Management Optimization.

[36] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html
[37] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[38] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[39] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

3 D-Government Development

In 2014, the Dutch government announced the Digital 2017,the new D-Government strategy that will bring D-Government to the next horizon. In the so-called Vision Letter on Digital Government 2017 Mr Plasterk, minister of the Interior and Kingdom Relations, sets out how the government intends to improve the services available to the public. The Digital 2017 is a part of Compact Central Government Implementation Program.

Source: Netherland OverheidReferentieArchitectuur at https://www.digitaleoverheid.nl/onderwerpen/nora/afspraken

To strengthen the integration and collaboration among government intitutions, Netherlands designed the government enterprise architecture namely "Netherland Overheid Referentie Architectuur (NORA). NORA is the standard for integrating the information system among government agencies.

Using Digital 2017, Netherland is shifting its D-Government to the digital government. This movement is similar to other countries which has reached the mature D-Government. Using the different metaphor, the substance of such wave is to achieve a condition of "the government service is digital by default".

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 93% of people in Netherlands were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 41% have fixed-broadband subscriptions, and wireless broadband subscription has reach 70.1%.

4.2 Management Optimization [MO]

In early 2010, Netherlands has established government-wide service vision in which the target should be met in 2020. As part of it, Netherlands issued The Digital 2017 to ensure that all parties - government, citizens and business - work together to achieve the ultimate objective for 2017. Government equipped The Digital 2017 with a more detailed information that covers the schedule, responsibilities of all parties, and measurable targets.

To streamline the data exchange among government agencies, Netherlands has appointed Digi Network. Using DigiNetwork, government and private company have connectivity to all the connected government agencies through a single link. In addition to DigiNetwork, Netherlands has an interoperability framework for data exchange among government agencies. The name of the framework is NORA. In all, Netherlands has fully achieving the maximum score in Management Optimization domain. Contribution from operationalization of DigiNetwork and NORA is very significant in this area.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of

Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service and e-Health have the lowest score, compare to other three online services.

In term of complexity level, except the e-Customs, all of Online Service in Netherlands have reached a transactional in which user can start the transaction from applying to receiving the service through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services. Since the e-Customs is still in a one-way interaction, such security measures are not found in it.

To measure the level of convenience, the third party application result has showed that three portals are above the average considerably in term of speed. E-Health is the only portal that scored below average, thus, considerably slow to access. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	http://www.tenderned.nl/
e-Tax	http://www.belastingdienst.nl
e-Customs	http://www.belastingdienst.nl/
e-Health	https://www.nictiz.nl/over-nictiz/english
One-Stop Service	https://overheid.nl

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Netherlands (www.government.nl) contains proper information for local citizens and foreigners. Information about Netherlands is available on the portal. User can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and from Mobile Device. However, the portal does not provide the user with demography information, link to the e-Services, and an inquiry form.

4.5 Government CIO [GCIO]

Netherlands has clearly defined the appointment of GCIO in all level of department. However, there is no formal document that clearly stated the mandate, role, and responsibility of GCIO. There is no evidence that GCIO in Netherlands has a regular forum to share experiences.

4.6 D-Government Promotion [EPRO]

There is no significant evidence to indicate that Netherlands government conduct any initiatives to promote the use of D-Government Service. This situation is similar to the one in any developed countries where the IT Culture has been embraced in the society.

4.7 E-Participation [EPAR]

Culture and society in Netherlands has been created as a high tech society. These factors have driven Netherlands to the next horizon of D-Government. Citizens and government can take the benefit of ICT in their daily life. However, there is no application where the citizen can directly communicate to the government. The absence of e-participation portal significantly impacts the score of this indicator.

4.8 Open Government Data [OGD]

In 1991, Netherlands has launched Government Information (Public Access) Act to participate in the Freedom of Information Act movement around the world. To strengthen the implementation of these act, Netherlands has established Open Data Portal (https://data.overheid.nl/) to provide public with accessible government information. To keep the information update, Netherlands government uses Data Catalog Vocabulary (DCAT) Standard. This standard is also supported by European Union (EU).

4.9 Cyber Security [CYB]

Netherlands has ratified several laws related to cybersecurity. Some of them are as follow:

- Telecommunications Act (2004)
- Personal Data Protection Act (2000)
- Electronic Signature Act (2003)
- E-Commerce Act (2004)
- Cyber Security Strategy
- Guideline for Information Disclosure
- Cyber Security Assessment

In addition to these laws, Netherlands has strengthened organization capacity for cybercrime countermeasure by setting up Dutch Cyber Security Council (CSR). CSR consists if government representative, business enterprises, and scientific institutions.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Netherlands has attempted to implemented Cloud Computing for Public Sector. However, the evidence show that it is not officially launched. Other emerging technologies for government agencies are still nullity in Netherlands.

5 Some Highlights

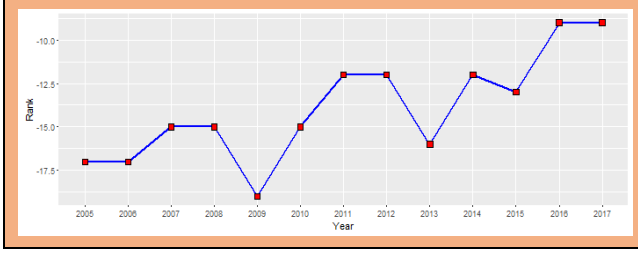
Among ten indicators in the current ranking, the Management Optimization is the best among other indicators in D-Government Netherlands. This achievement signifies the importance of NORA for improving the quality of government business process. Similar to other European countries, Netherlands is shifting its D-Government to the next level in which they try to make all public service will be digital by default. As has been noted, the better the Management Optimization, the less complex for completing the ultimate goal of Digital 2017.

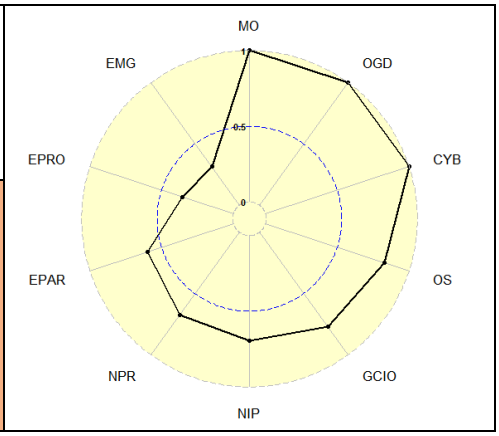
The weak point in Netherlands is about D-Government Promotion and the use of emerging ICT. One argument is that the lack of D-Government promotion activities occurred because Netherlands does not need such programs anymore. Their citizen is aware already of D-Government service and knows how to use it. However, by the increasing use of emerging ICT, Netherlands still has a chance to get the higher score in D-Government Promotion. The promotion activities will follow the progress of developing the Digital Services by default since it needs some introductions to the citizens about this matter.

New Zealand

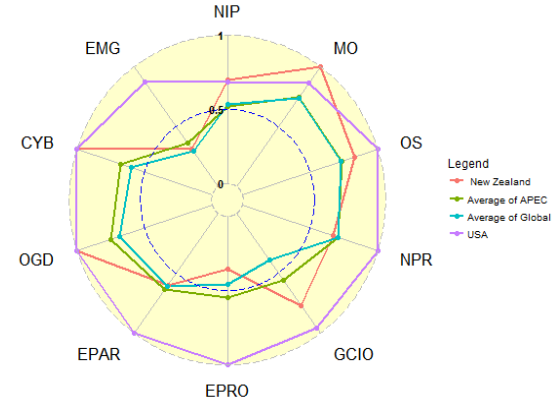
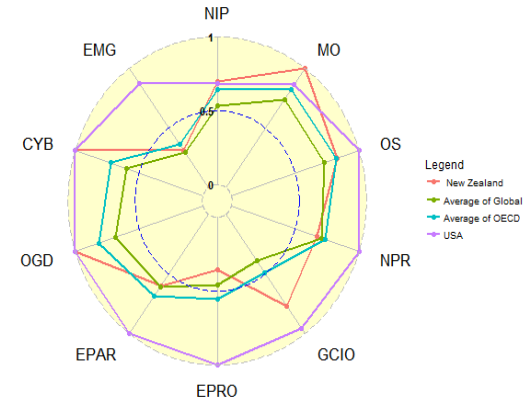
1 General Information

Area: 268,000 km^2 [40]
Population: 4,474,549 [41]
Government Type: Parliamentary Democracy[42]
GDP: $37,100 [43]
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

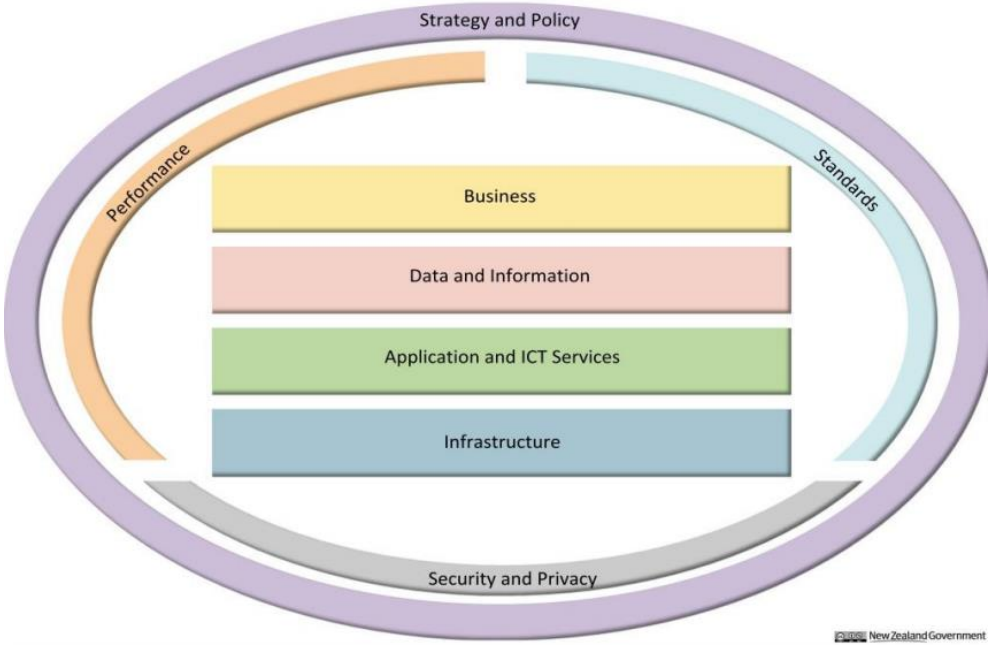
APEC Countries	OECD Economies
	

Among APEC Countries, except on the D-Government Promotion, New Zealand is excellent on all indicators. As shown on the above picture, New Zealand is exceptional in the basic infrastructure, Cybersecurity, Open Government, and GCIO. For Management Optimization, New Zealand is considered more advance than United States, the number one country in the current ranking. However, despite the high performance on these indicators, New Zealand has the low score on D-Government Promotion. The situation is even lower than the average of APEC countries and global average. These achievements also reflect the position in OECD region in which New Zealand is considerably approaching United States in the Open Data and the Cybersecurity.

[40] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html#nz
[41] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html#nz
[42] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html#nz
[43] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html#nz

3 D-Government Development

New Zealand has continued the D-Government to the next level in which the public services will be available in digital by default. In 2013, the new D-Government strategic plan has been launched with the title "Government ICT Strategy and Action Plan to 2017". The strategy comprises four integrated domains which are covered by system assurance component. The action plan contains many programme and projects. Since the interoperability among government agencies is very important as the engine for "Services are Digital by Default", the projects are shared across agencies. The agencies work together using "assembly and integrate" norm in which the build the system and preserve for integration with other.



In D-Government development, GCIO is the central role. GCIO holds the highest authority to lead the action and the collaboration with chief in other agency for delivering the optimum result. GCIO in New Zealand comprises several teams that represent specific expertise and functions covering managerial and technical aspects.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 88.2% of people in New Zealand were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 31.5% have fixed-broadband subscriptions, and wireless broadband subscription has reach 114.2%.

4.2 Management Optimization [MO]

In June 2013, Cabinet of New Zealand has approved Government ICT Strategy and Action Plan to 2017. It is the revised version of Government ICT Strategy 2015 due to the dynamic ICT environment. The new plan is aimed to achieve the government's aim of an ICT-enabled transformation of public services to New Zealanders.

The new Government ICT Strategy is led by a partnership framework which involved key stakeholders across government agencies. Current D-Government Strategy New Zealand covers almost all aspects for optimizing back-end process such as the necessity of Governance and Leadership, Assurance Framework,

Programs and Initiatives, and ICT System Assurance. In all, New Zealand has fully achieving the maximum score in Management Optimization domain.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-One-Stop Service and e-Health have the lowest score, compare to other three online services.

In term of complexity level, most of Online Service in New Zealand has reach a transactional in which user can start the transaction from applying to receiving the service through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

To measure the level of convenience, the third-party application result has showed that three portals are above the average considerably in term of speed. E-Procurement is the only portal that scored below average in term of page speed. The third-party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://www.gets.govt.nz
e-Tax	http://www.ird.govt.nz/
e-Customs	http://www.customs.govt.nz http://www.ird.govt.nz/forms-guides/keyword/
e-Health	http://healthitboard.health.govt.nz/about-us/ehealth-vision
One-Stop Service	http://newzealand.govt.nz/ https://www.realme.govt.nz/what-it-is/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of New Zealand (https://www.govt.nz/) contains proper information for local citizens and foreigners. Information about New Zealand is available on the portal. User can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and from Mobile Device. However, the portal does not provide the user with some functionalities such as news and social network integration.

4.5 Government CIO [GCIO]

New Zealand government has clearly defined the need of ICT leadership on D-Government. The D-Government Strategy stated the role, the mandate, and the position of CIO in central and local authority. The D-Government Action Plan was arranged by CIO from across agencies under a partnership framework. The Partnership Framework is initiated by GCIO. Despite the strong role of CIO in New Zealand, there is no GCIO development program found in New Zealand during the period of this research.

4.6 D-Government Promotion [EPRO]

The Government ICT Action Plan covers all aspects of developing ICT in government. In addition to technical aspect, managerial and awareness are mentioned on the document. The programs, initiatives, and funding for increasing the awareness on Digital Government have taken place. However, none of the activities related to D-Government Promotion has been found during this research.

4.7 E-Participation [EPAR]

Culture and society in New Zealand has been created as a high-tech society. These factors have driven New Zealand to the next horizon of D-Government. Citizens and government can take the benefit of ICT in their daily life. For instance, parliament member has their own website and provide the citizens with the channel to communicate.

Despite of all aforementioned achievements, the absence of e-participation portal reduces the achievement of New Zealand in this indicator.

4.8 Open Government Data [OGD]

In 1982, New Zealand has launched Official Information Act to participate in the Freedom of Information Act movement around the world. To strengthen the implementation of these act, New Zealand has established Open Data Portal (https://data.govt.nz) to provide public with government information. To keep the information update, New Zealand government uses Data one.govt (Open Network Environment) as a platform for data submission.

4.9 Cyber Security [CYB]

New Zealand has ratified several laws and regulation related to cybersecurity. Some of them are as follow:

- Crimes Act 1961, Section 249
- Unsolicited Electronic Messages Act 2007
- Privacy Act 1993
- Electronic Transaction Act 2002
- Trust and Security Guidelines
- Privacy Maturity Assessment Framework
- Cyber Security Strategy

In addition to these laws, New Zealand has established Government Communication Security Bureau (GCSB) for providing information assurance and cyber security to the New Zealand Government and critical infrastructure organizations, foreign intelligence to government decision-makers, and cooperation and assistance to other New Zealand government agencies. Besides that, an IT Community New Zealand initiated the foundation of New Zealand Internet Task Force to improve cyber security posture of New Zealand.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). New Zealand has attempted to implemented Cloud Computing for Public Sector. New Zealand Government has released the guidance and requirement for applying cloud computing technology in government agency. Other emerging technologies such as IoT and Big Data for government agencies are still in an initial stage in New Zealand.

5 Some Highlights

New Zealand has the impressive point on Management Optimization, Open Government Data, and Cyber Security. With the centralized style, New Zealand has reached the high level of D-Government development. The high score in Management Optimization reflects the high degree of connectivity and interoperability of government information system. In this area, New Zealand is attempting to the pursue the next step of public service under the theme "Services are digital by default". The effort to achieve the digital by default is equipped with the proper equipment on Open Government Data which ensures all stakeholder can take the benefit of government data. To increase the trust level on D-Government service, New Zealand also has a remarkable Cyber Security infrastructures.

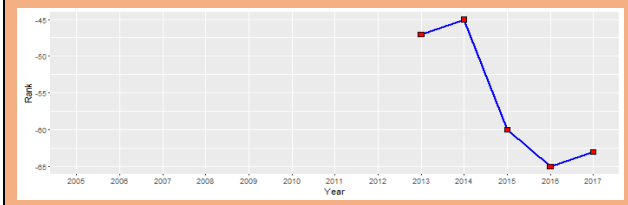
In contrast to those three indicators. New Zealand still has the weakness. The use of emerging technology and D-Government Promotion are the weak point of New Zealand. As for the emerging technology, it is the new indicator for this year survey. New Zealand is commencing the use of Cloud Computing for delivering public services. Many countries are still in the initial stage on the use emerging ICT. Furthermore, another weakness point of New Zealand is on the D-Government Promotion. It is hard to find any pieces of evidence related to D-Government promotion strategy and activities. One argument is that the lack of D-Government promotion activities occurred because the New Zealand does not need such programs anymore. Their citizen is aware already of D-Government service and knows how to use it.

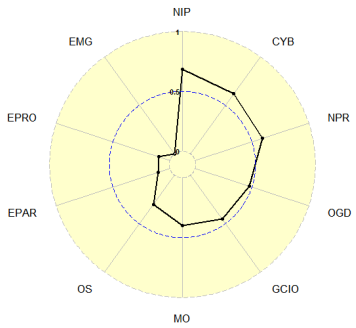
By the increasing use of emerging ICT, New Zealand still has a chance to get the higher score in D-Government Promotion. The promotion activities will follow the progress of developing the Digital Services by default since it needs some introductions to the citizens about this matter.

Nigeria

1 General Information

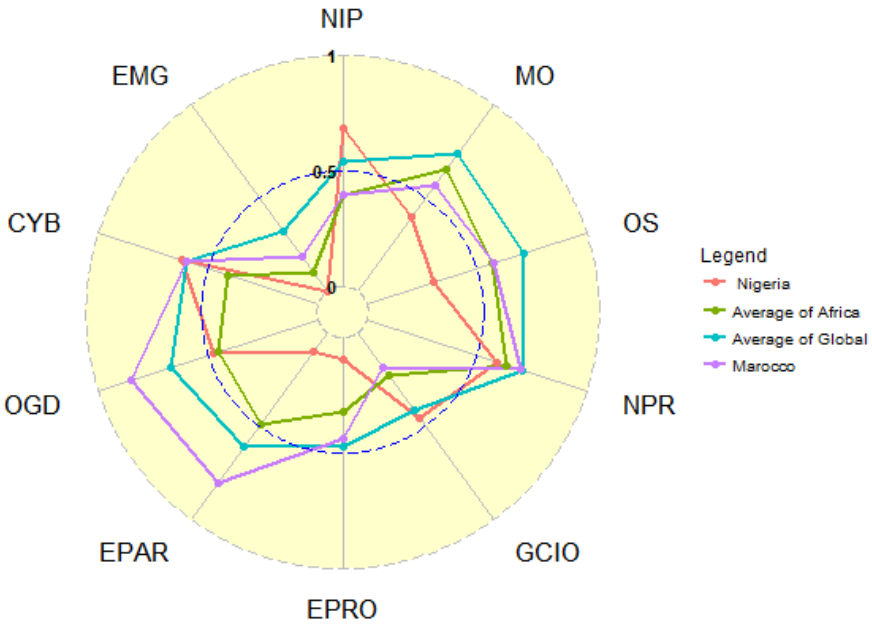
Area: 923,768 km^2
Population: 181,562,056
Government Type: Federal Presidential Republic
GDP: $6,400
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Africa



3 D-Government Development

The national portal, http://www.nigeria.gov.ng is no longer functional as of early 2017, and the official website of the executive branch (www.statehouse.gov.ng) is filled with broken links. Services.gov.ng, the government one-stop-shop for interacting with citizens, runs slowly but is semi- functional. Some Web 2.0 tools are being used to allow more interaction between government and citizen. For instance, citizen can contact with government officials through feedback forms or email addresses available at some government websites, plus the government has added some social media integration (Twitter and Facebook) to the main portal.

The government established NCC (Nigeria Communication Commission) under guideline of ministry of Communication and Technology to help reach out, and protect the consumer and Internet user can access it at http://consumer.ncc.gov.ng/. It is more of a citizen advocacy site compared with the national portal. Here, consumers and businesses are encouraged to send their complaints. They have access to podcasts, opinion polls, and Facebook pages as well.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The International Telecommunication Union (ITU) estimates that in 2017, 48.8% of Nigerians used the Internet. About 10% of the population has access to wireless broadband, but the ITU claims that virtually nobody in the country (0.0%) had wired broadband access in 2017.

4.2 Management Optimization [MO]

The Nigeria government has various initiatives of government strategy that include: the National/State Economic Empowerment Strategies (NEEDS/SEEDS), the Vision 2020, the National D-Government Strategy (NeGST) and a well-formulated National IT policy. The National Information Technology Development Agency (NITDA) was charged with the responsibility of co-ordination the Nigeria project in collaboration with National D-Government Strategies Limited (NeGSt). The Government of President Olusegun Obasanjo approved this policy in March 2001. The Nigerian Federal Ministry of Information and Communications says that its priority is to provide citizens with credible and timely information on government activities and programs and initiatives to create a technological environment for Nigeria's social and economic development, but little has been done in terms of management optimization although various initiatives have been rolled out.

4.3 Online Service [OS]

In Nigeria there are legislative initiatives, already, aimed towards providing a favorable environment for the development of e-commerce in Nigeria witnessed principally, for example, by the draft Nigerian Electronic Transactions Bill which is still making its way slowly through the legislative process. On the other hand, the Nigerian Cyber-crimes Act was recently voted into law. The draft Electronic Transactions bill addresses matters such as the formation and validity of electronic contracts as well as the form and validity of electronic signatures while the draft Cyber-crimes Act tackles some types of criminal activity by or through computers and information systems.

4.4 National Portal [NPR]

The Nigerian D-Government portal is http://www.nigeria.gov.ng but the portal has some limitations. The interface is not user-friendly for all consumers and the portal provides mostly static information about news, the government, army and police activities and only link to government departments. There are no e-Services integrated into portal as well as no information about the social media in portal to encourage the

Nigerian citizens to interact with their government. These limitations are understandable, though, in light of the limited availability of fixed broadband connections in the country.

4.5 Government CIO [GCIO]

There are no specific laws or mandates for CIO positions in Nigeria. The head of the National D-Government Strategies (NeGST) may be the closest position in the Nigerian government. However, the NeGST website does not provide details on its leadership or organizational structure. There are no CIO associations in Nigeria and not CIO training course are offered by any university or training center.

4.6 D-Government Promotion [EPRO]

The Nigerian Government has many plans and strategies for developing D-Government as well as providing e-Services to citizen. In 2007, the central government, as part of its public service reforms, announced the intended use of electronic payments for all public sector transactions. This electronic payment system is now currently in use, and continues to improve. These include salaries of employees and payment for procurements and contracts. Also in 2007, the government of Nigeria established a public corporation known as Galaxy Backbone to provide its technological platform for D-Government, and is working on a comprehensive broadband policy and vision document which will provide broadband definition, performance indicators, incentives for investment, macroeconomic targets, deployment guidelines and citizens charter. The Government has articulated a clear vision for D-Government, driven by the Ministers of Information and Communications and Science and technology. However, D-Government is more fragmented and allocated through many different government organizations so it is not accessible on the same portal like many other countries.

4.7 E-Participation [EPAR]

The national portal, http://www.nigeria.gov.ng is beginning to evolve from just merely providing e-information to providing e-consultation services as well. It is also the government one-stop-shop for interacting with citizens. Some Web 2.0 tools are being used to allow more interaction between government and citizen. For instance, citizen can contact with government officials through feedback forms or email addresses available at some government websites, plus the government has added some social media integration (Twitter and Facebook) to the main portal.

Furthermore, the government established NCC (Nigeria Communication Commission) under guideline of ministry of Communication and Technology to help reach out, and protect the consumer and Internet user can access it at http://consumer.ncc.gov.ng/. It is more of a citizen advocacy site compared with the national portal. Here, consumers and businesses are encouraged to send their complaints. They have access to Podcasts, opinion polls, and Facebook pages as well.

4.8 Open Government Data [OGD]

On September 12, 2013, the first open data portal was launched in Edo State. Edo State is also the first sub-national government body in Nigeria and Africa to launch an Open Data Portal. Currently, the most up-to-date and effective open data portal for Nigeria is operated by the African Development Bank Group, and this only provides limited and narrowly-focused amounts of data. There is much room for improvement in this area.

4.9 The use of Emerging ICT [EMG]

There is no doubt that e-crime is an image problem for Nigeria. The recent passage of the new Cyber Crimes bill in the Nigerian Senate may be a step in the right direction. The bill is still awaiting passage in the Nigerian House of Representatives. There continues to be serious controversy over the bill, including

whether it contains loopholes that will actually increase domestic corruption. However, it is clear that a tougher and more effective approach on cyber-crime and cyber security is necessary in Nigeria.

5 Some Highlights

While the recent political transition in Nigeria appears to be causing some issues, the recent passage of the new Cyber Crimes bill in the Nigerian Senate may be a step in the right direction. The bill is still awaiting passage in the Nigerian House of Representatives. There continues to be serious controversy over the bill, including whether it contains loopholes that will actually increase domestic corruption. However, it is clear that a tougher and more effective approach on cyber-crime and cyber security is necessary in Nigeria

Nigeria still needs to improve further on its ICT services and telecommunication systems. Mobile Internet holds some promise for increasing access to marginalized sectors of the population and there has been exponential growth in mobile subscriptions. All Nigerian states now have some form of mobile coverage, however, there are still millions of Nigerians with limited or no access to ICT services due to lack of network infrastructure.

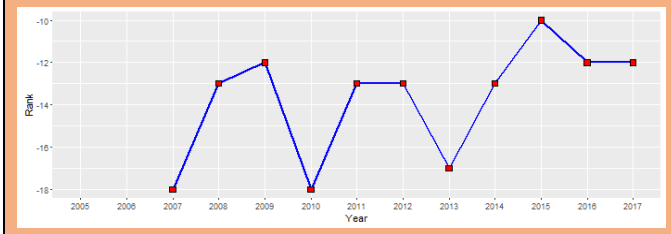
Moreover, there some new tech trends in the ICT field that Nigeria is trying to emulate to improve its telecommunication services. The Ministry of Communications Technology is collaborating with its agencies NCC and NITDA to create and strengthen software and improve broadband infrastructure development.

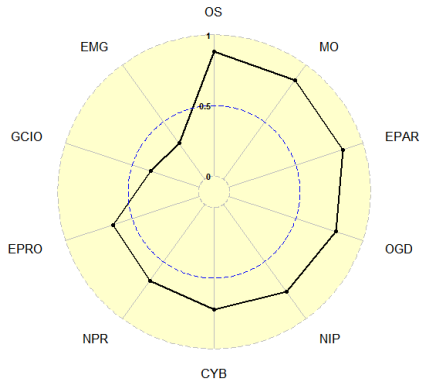
Also worthy of mention is the continuing trend of mobile banking, where subscribers can send and receive money using their mobile phones. This has been successful due to private sector initiatives to reach out to citizens in rural areas who did not have access to banks.

Norway

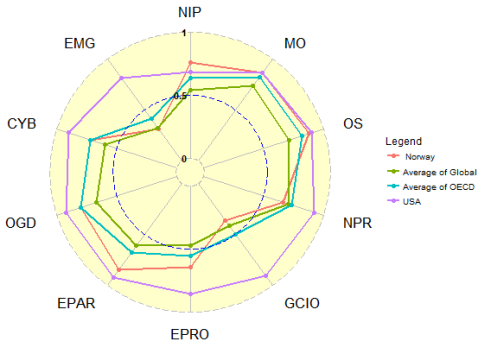
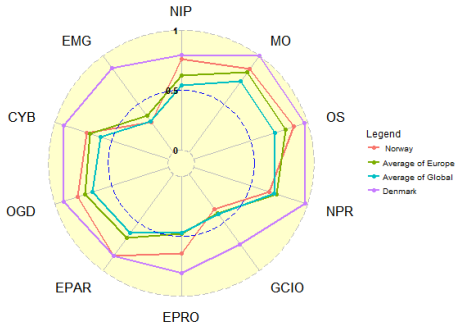
1 General Information

Area: 323,802 km²
Population: 5,265,158
Government Type: Parliamentary Constitutional Monarchy
GDP: $69,300
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	European Countries
	

Among OECD countries, Norway shows a great performance in D-Government progress, indicated by almost indicators have surpassed the OECD average, except Government CIO (GCIO), National Portal (NPR) and the use of Emerging Technologies for government (EMG). This phenomenon was also witnessed when comparing Norway with European Countries. In the comparison with the USA, Norway had similar scores in Management Optimization (MO).

3 D-Government Development

Being one of the countries with advanced ICT infrastructure, digitalization will continue being the top priority in Norwegian Government's agenda for many years to come.

Norway has a huge advantage in online service development when in 2015 Q4, 97 per cent of the population aged over 12 had Internet access at home, at school or work, or elsewhere. More than 90 percent of citizens use the Internet daily (Eurostat 2014), ranks highest in Euro and the rest of the world. Norwegians also have high expectation regarding public sectors and many of them are ready for electronic interaction with government.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

The total of Internet users in Norway accounts for more than 96% of the population in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). Among them, about 93% people has a wireless broadband connection, while the figure for fixed-broadband subscriptions is only 38.1%.

4.2 Management Optimization [MO]

Norwegian Government has published the latest digital agenda for Norway in 2015, in which prioritized five areas: focusing on user centric; efficient use of ICT for strengthen innovation and productivity; strengthening digital competence and inclusion; effective digitization of the public sector; and data protection and information security. Difi and Ministry of Local Government &Modernisation continues being strengthened as coordinating bodies in the public sector and the Norwegian Association of Local and Regional Authorities will be in charge for facilitating D-Government development at local government level. The government also established the Digitization Council in 2016 to help government agencies succeed with their digitization projects.

There is a national enterprise architecture (NEA) developed by Norway International Experience Norwegian Government which consists of technical, conceptual, organizational and procedural standards. The architecture was translated into domain and organizational architectures at the local level.

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In terms of complexity level, most of Online Service in Norway has reach a transactional level in which user can totally conduct their businesses online. In November 2015, a new authorization initiative called the ID Gateway (ID-porten) for “Mobile BankID” was launched, supporting Norwegian citizens to access over 600 public digital services via “https://www.norge.no/” one-stop-service portal. Doffin “https://www.doffin.no/” is a new national procurement portal launched in 2014, enables public institutions in Norway to publish tender information. However, in prior to register as member, users are required to send all necessary papers and application documents to Doffin for manually approval. Regarding e-Health, “https://helsenorge.no/” is the Health and Care Services’ portal providing guidance to the health services and self-service solutions available in the health sector. All online services had security measures such as SSL, Site Authentication, and Password Protection fully implemented.

To measure the level of convenience, the third-party application result has showed that all portal is above the average in terms of speed. The third-party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	https://www.doffin.no/en
e-Tax	http://www.skatteetaten.no
e-Customs	http://www.toll.no/en/
e-Health	https://helsenorge.no/
One-Stop Service	https://www.norge.no/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information, Technical, and Functionality. National Portal of Norway "http://www.norge.no/" contains proper information for local citizens and foreigners. Information about the country and latest events is also available by linking to another portal for visitors. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is above average both from PC and Mobile devices. The portal is also equipped with several basic functionalities search capability, site map, and Social Network integration.

4.5 Government CIO [GCIO]

The Norway public administration at national and local levels does not appoint CIOs or equivalent positions within the legal framework. The director, Agency for Public Management and eGovernment can be considered the CIO at the national level.

4.6 D-Government Promotion [EPRO]

There are numbers of strategies and documents related to D-Government and ICT development found within national and local government level, for examples, the Norway Digital Agenda (published annually), Difi' strategy 2012-2015, and so on.

Regarding to ICT budget, from the data of the Norwegian Government Agency for Financial Management, an estimate of ICT procurements in the public sector in 2014 is put at NOK 16.6 billion. Thanks to the consistent and substantial funding on ICT, the use of digital services in government agencies and municipalities is increasing dramatically: use of public services online increased by 235 per cent between 2010 and 2015 (based on number of logins through the e-ID Gateway). Hundreds of services can be accessible via e-ID login solution and this number is still growing.

In order to reduce the size and complexity of digitalization projects, the Government has issued the Principles of digitization projects which consists of five fundamental rules: start with needs, think big – start small, choose the right partner, ensure appropriate skilled leader, and iterate outcomes.

4.7 D-Government Participation [EPAR]

Since its launch in 2003, Altinn portal has played a significant role in the growth of the awareness of citizens about electronic forms and services. Over 200 million digital forms and messages have been transmitted via Altinn so far.

In the efforts to increase the interaction with citizens, Norwegian Government has put into place the use of Digital Mailbox, an initiative allows government agencies to send messages directly to citizens. Public administration bodies are mandated to implement the digital mailbox by the first quarter of 2016.

Digidel "http://digidel.no/" is another initiative launched in 2016 where courses and training programs in computer literacy are provided. Some example courses are Tax Administration's tax return online service course or Difi's "Learn to login to public utilities with BankID" course.

4.8 Open Government Data [OGD]

Austria has recently launched the Open Data portal "http://data.norge.no/". And Norway has been ranked as the 3rd most advances country in Open Government according to the World Justice Project Open Government Index 2015.

4.9 Cyber Security [CYB]

The Norwegian National Security Authority (NSM) is considered as a cross-sectoral professional and supervisory authority within the protective security services in Norway, is also responsible for matters of cybersecurity. NorCERT (Norwegian Computer Emergency Response Team), a department operates under NSM, is responsible for detects cyber incidents in Norway. To promote research, training and education on cyber security, Norway established the Center for Cyber and Information Security in 2014, with the major mission is to increase the national capacity to cope with security challenges in digital space.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Brunei has started to implemented Cloud Computing for running One Government Private Cloud (OGPC). OGPC offers Infrastructure-as-a-Service (IaaS) for government agencies. D-Government National Center maintains this Cloud Computing Services. Other emerging technologies are still immature and no evidence to prove that Brunei implemented Big Data and IoT.

5 Some Highlights

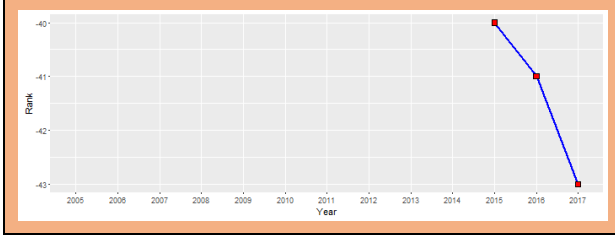
Being aware of the high demand of citizen in communicating with public sectors via online way, Norwegian Government has put many efforts into building a strong and efficient public sector for better public services delivery. Major initiatives such as Altinn portal, Standard Portal "http://www.standard.difi.no/", Public e-ID solution – MinID, and the latest one - Mobile BankID, launched on November 2015 - help the country securing its position in top 5 of Online Service delivery.

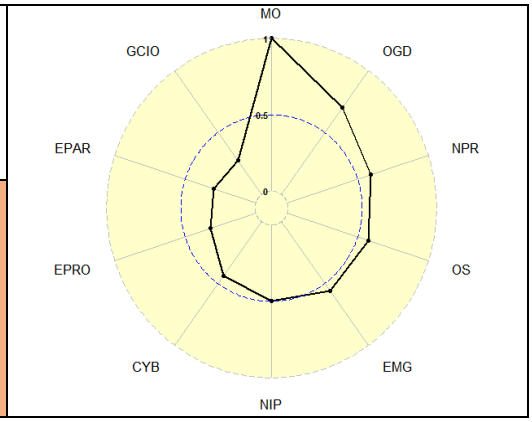
In June 2015, Nordic countries including Demark, Finland, Norway and Sweden have decided to cooperate on their open government strategy and implementation by sharing their national OGP working and together promote open data. This cooperation and other efforts of the government in promoting for open government help Norway to score 9 out of 10 in Open Government dimension.

Oman

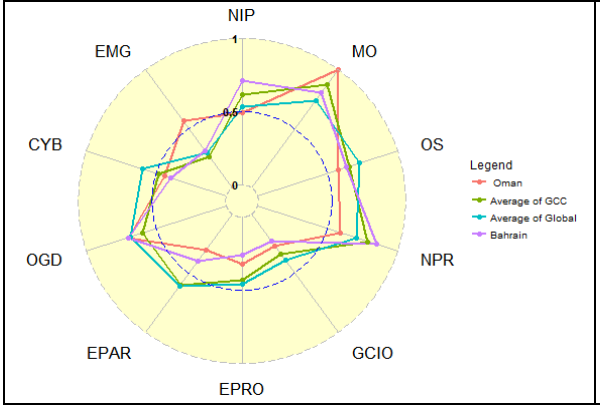
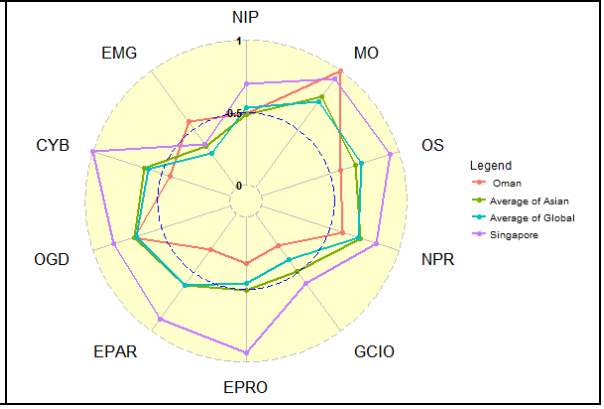
1 General Information

Area: 309,500 km^2 [44]
Population: 3,355,262 [45]
Government Type: Monarchy [46]
GDP: $43,700 [47]
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

GCC Countries	Asian Countries
	

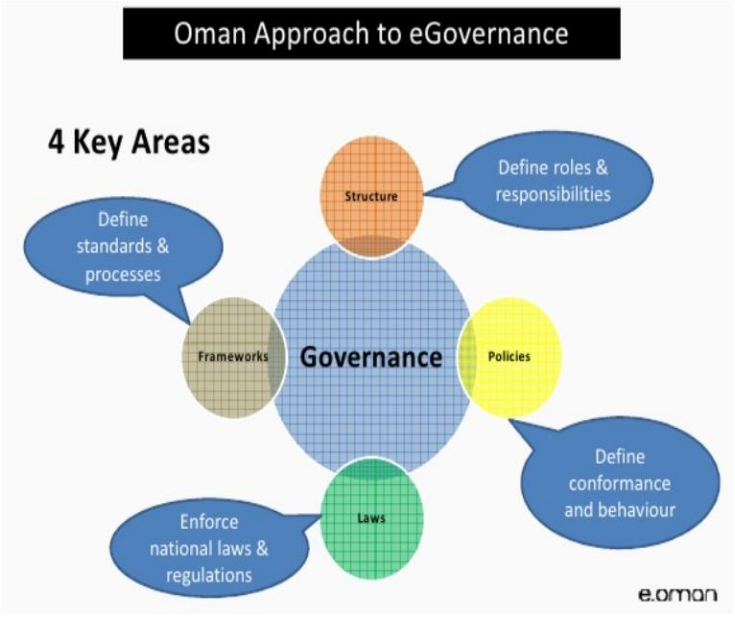
Among GCC Countries, Oman has a better score than the average score of GCC in Open Management Optimization. As shown on the above picture, Oman is considerably low compare to the average of GCC on basic infrastructure, National Portal and GCIO. However, despite the lack basic infrastructure, Oman has been trying to take the benefit of emerging ICT such as Cloud Computing, Big Data, and IoT. Some progress in the area of emerging ICT has led Oman to get a better position than the average of GCC Countries.

These achievements also reflect the position in Asian region in which Oman is considerably approaching Singapore in the Management Optimization and the use of emerging ICT.

[44] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html#nz
[45] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html#nz
[46] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html#nz
[47] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html#nz

3 D-Government Development

Oman has started the D-Government development since 2003 by endorsing the Digital Oman Strategy. As a monarchy, Sultanate Oman centralize the D-Government development. The role of Sultan is very dominant. By His Majesty's order, Sultanate Oman established the Information Technology Agency (ITA) in 2006. ITA is considered as a single organization that responsible for the execution of Digital Oman Strategy. In order to speed up D-Government development and its adoption to the whole government offices and citizens, Sultan Oman launched annual Excellent D-Government Award.



Information Technology Authority

This year is the second year of Oman as a participating country in the ranking. As a result, there is no appropriate information of the progress of D-Government development in Oman. However, based on United Nation D-Government Index 2014, Oman places the 48th position, which is improved from rank 127th [48] in a decade earlier.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 74.2% of people in Netherlands were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 5.5% have fixed-broadband subscriptions, and wireless broadband subscription has reach 78.7%.

4.2 Management Optimization [MO]

As an effort to bring the government to the next level, Oman has launched the Digital Oman Strategy. Referring to this strategy, each government agency has to specify its own D-Government target. The target should be aligned with National Targets. The Digital Oman Strategy is broken down into several initiatives and roadmap for completion. Measurable objectives are in place.

[48] http://unpan3.un.org/egovkb/en-us/Data/Country-Information/id/127

Centralizing the ICT solution is the choice of Oman Government in which they decided to build Oman Government Network. Oman government adopted enterprises architecture practices by introducing Oman D-Government Architecture Framework (OeGAF). As a result of centralization initiatives, Oman has developed National Payment Gateway where all governments are able to proceed efficient electronic transactions and simplify the processing of payment transactions for electronic services within the country.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, only e-Health has reach a high level of complexity while the others are still one-way interaction.

In term of complexity level, except the e-Health, all of Online Service in Oman still in a one-way interaction in which user can only get information about government service and download some documents required for the services. In this scenario, visiting the government office physically is necessity. Given that, all Online Service have not implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

To measure the level of convenience, the third party application result has showed that three portals are below the average considerably in term of speed. Except e-Procurement and e-Tax, all online service in Oman got scored below average significantly, thus, considerably fast to access. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://etendering.tenderboard.gov.om
e-Tax	http://www.taxoman.gov.om
e-Customs	https://www.customs.gov.om/portal/ar/esw/
e-Health	https://www.moh.gov.om
One-Stop Service	https://www.oman.om

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Oman (http://www.oman.bh) contains proper information for local citizens and foreigners. Information about Oman is available on the portal. User can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the portal has severe issues on performance since the score is significantly below average both from PC and from Mobile Device.

4.5 Government CIO [GCIO]

Oman has established Information Technology Authority as a GCIO Office. Head of this authority take the responsibility similar to the GCIO. GCIO is important to deliver a strong sponsorship through strong leadership. In contrary to the presence of GCIO at national level, the presence of any formal document that clearly stated the mandate, the responsibility, and the position of GCIO in local government is hardly found.

4.6 D-Government Promotion [EPRO]

Digital Oman Strategy has put several initiatives including raising citizen awareness on D-Government services. However, there is no significant evidence to indicate that Oman government conduct any initiatives to promote the use of D-Government Service. This situation is similar to the one in any developed countries where the IT Culture has been embraced in the society. Moreover, Oman is not considered as a developed country. Without any efforts to increase the citizen awareness on D-Government, the huge investment in developing D-Government in Oman could become meaningless where citizens do not use the e-Services simply because they do not know how to use it and they do not know that the e-service does exist.

4.7 E-Participation [EPAR]

Low score in this indicator is a kind of stereotype in a monarchy system; Sultanate is considered as a type of Monarchy. In Oman, it is rather difficult to find government officer's websites. Parliament member does not have official website to gather opinions from citizens. Despite the lack of aforementioned items, Oman has developed e-Participation Portal that can be accessed through www.oman.om. The presence of this program help Oman to get the score for this indicator.

4.8 Open Government Data [OGD]

Despite the absence of Freedom of Information Act, Kingdom of Oman considers that public has right to obtain information from government side. As part of Digital Oman Strategy, Sultanate of Oman has appointed Information Technology Authority (ITA) to manage Oman Open Data Portal at http://www.oman.om/wps/portal/index/opendata. Considering the risk of irrelevant and not-up-to-date, regular submission of government information for the Open Data Portal is conducted through a single point of entry system as required by ITA.

4.9 Cyber Security [CYB]

Oman has ratified several laws related to cybersecurity. Some of them are as follow:

- Royal Decree No 12/2011 on Cyber Law
- Royal Decree No 12/2011 on Cyber Law Chapter Seven
- Royal Decree No 12/2011 on Cyber Law Chapter Two
- Authentication Procedure
- Royal Decree 69/2008 on eTransaction Law; Article (14)

In addition to these laws, Oman has established Center of Information Security. It is the agency whose responsibility is to implement a national cybersecurity strategy, policy and roadmap of e-Oman. In addition to that, Oman has created Oman CERT for monitoring and solving Internet Security problems.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Oman has attempted to implemented Cloud Computing for Public Sector under Oman Government Cloud. The Cloud service is proved by ITA. Infrastructure-as-a-Service is offered to minimize the investment spent by government agency. In addition to that, Oman has initiated the development of Big Data technology. The Big Data is still at initial stage; Introduction Stage.

5 Some Highlights

Oman has the impressive point on Management Optimization. They have a comprehensive strategy and framework for strengthening the back-office. By adopting the best Enterprise Architecture Practices, Oman

has established the Oman D-Government Architecture Framework (OeGAF). OeGAF consists of four main architectures[49]; Business Architecture, Solution Architecture, Information Architecture, and Technology

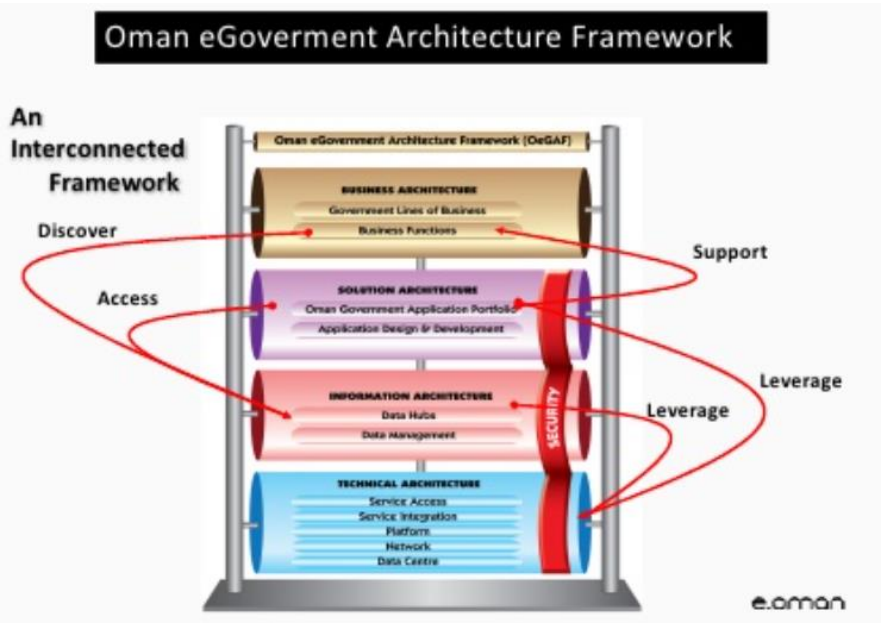


Figure 1: Information Technology Authority

Architecture. OeGAF ensure the interoperability among government information system.

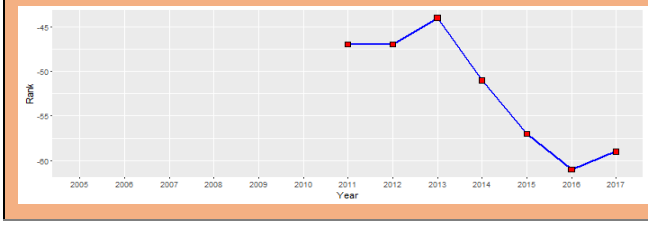
There is still a plenty of room for improvement D-Government development. Online service, e-Participation, and the Emerging ICT are among the low score of Oman D-Government ranking. However, by the strong foundation of Back Office Infrastructure, Sultanate Oman has an advantage to speed up the D-Government Development. In addition to that, Oman is one of the high GDP country that is believed as a factor for successful D-Government Development.

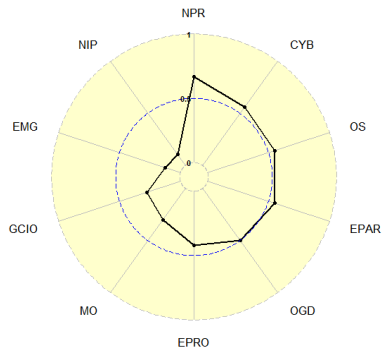
[49] http://www.slideshare.net/egovernment/tutorial-2-omar-salim

Pakistan

1 General Information

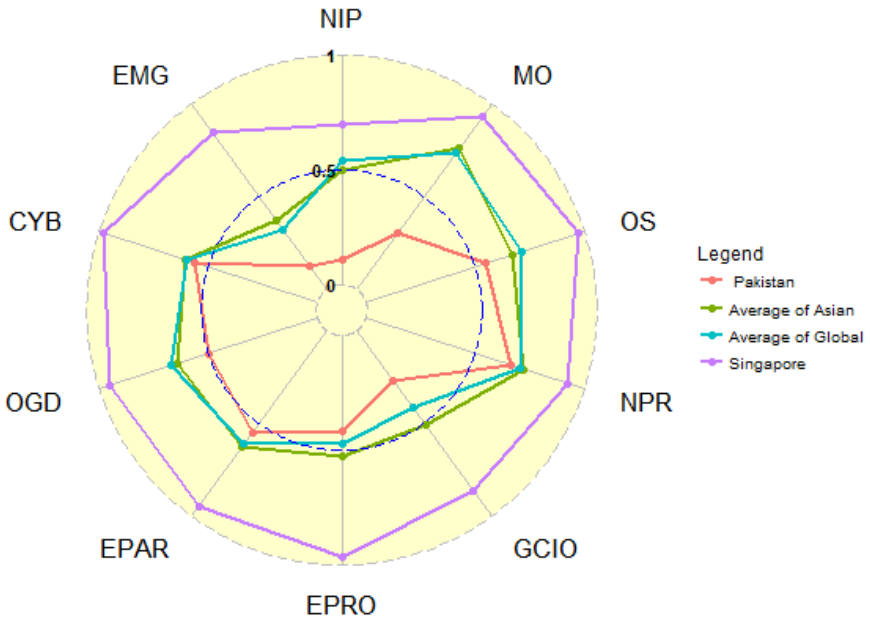
Area: 796,095 km^2
Population: 199,085,847
Government Type: Federal Parliamentary Republic
GDP: $4,900
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Asia



3 D-Government Development

With over 120 million mobile subscribers in 2017, Pakistan has the highest mobile penetration rate in the South Asian region, up from only about 300,000 in 2000; more than 90 percent of Pakistanis live within areas that have cell phone coverage and more than half of all Pakistanis have access to a cell phone; fiber systems are being constructed throughout the country to aid in network growth; fixed line availability has risen only marginally over the same period and there are still difficulties getting fixed-line service to rural areas.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Pakistan's most popular sites are major international ones, such as Google.pk, Yahoo, YouTube and Facebook and as of March, Pakistan's broadband users crossed 2 million. Pakistan has close to 50,590,000 personal computer users. Over the years the percentage of households using personal computers in Pakistan has grown substantially and around 350,000 new computer users are added every year in Pakistan. There is still a good deal of room for growth, but Pakistan is making steady annual progress.

4.2 Management Optimization [MO]

Pakistan is one of the emerging countries in the world which is trying to make a difference in his way and implementing D-Government in at an enormous rate as well as Pakistani government believe that Information technology is a vital tool in order to accelerated economic growth, efficient governance and human resource development.

Pakistan D-Government objectives are focused on high priority areas for improving the internal operations and management. Most objectives are intended to help Interior better execute administrative and supporting functions that exist across the entities. These functions, while in many cases part of the "back office", play critical roles in accomplishing the missions for which Interior is responsible. They are also crosscutting and have impacts across the Department and all mission-- - related activities. The usage of ICT in Pakistan is improving day by day in internal processes and the government's computerization efforts and the level of ICT integration is very good since last couple of years. Standardization of service procedures and information systems in order to achieve internal effectiveness and efficiency of governmental operations can be constrained by many reasons.

4.3 Online Service [OS]

The Proactive Data Publishing Service initiative would inventory high-value information currently available for download; fosters the public's use of this information to increase public knowledge; promote public scrutiny of agency services by citizens, journalists, the media and relevant stakeholders; identify high value information not yet available and establish a reasonable timeline for online publication in open formats.

Data.org.pk offers an open data platform that proactively publishes government data online in multiple easy to use formats, creating and institutionalizing a culture of greater transparency, improving the quality of government information and creating a policy framework for open government.

4.4 National Portal [NPR]

The national portal of Pakistan (pakistan.gov.pk) is a gateway to improve the communication experience between the government and the public as well as provides a 'single window access' to information and government services which can be accessed by citizens and organizations/ business sector. The national portal of Pakistan has the basic interface for all government website and to contact government

electronically. The Pakistani Government's Web portal presents a wide range of information resources and online services from various government sources, accessible from a single point. Pakistan Government's Web portal is a gateway to improve the communication experience between the government and the public. Moreover, it provides information that helps the public to better understand government structure. The well-organized portal serves as a platform that assists the public to find desired information. Moreover, it provides information that helps the public to better understand government ministerial structure, parliament and Senate. The well-organized portal serves as a platform that assists the public to find desired information. To improve users' browsing easy access facility, the portal also allows user link with sub-government portal (provincial government such as khyberpakhtunkhwa.gov.pk, punjab.gov.pk (that allow each individual user to visit the each portal as they desire. The portal is available in official language (English).

4.5 Government CIO [GCIO]

The D-Government Program in Pakistan is an initiative of Ministry of Information Technology (Ministry of Science & Technology) under the National IT Policy 2000 approved by the Federal Cabinet in August 2000. Extensive research has been undertaken in preparation of this program. This included covering all ministries of the Federal Government with regard to their requirements over a period. Recently office of government CIO issue Information Security Policy under the authority of the Government Chief Information Officer on October 2012.

The Pakistan C National directorate of D-Government was established within the Ministry of Information Technology to provide leadership and oversight for IT spending throughout the Federal Government. In addition, each Federal agency has its own directorate of D-Government.

4.6 D-Government Promotion [EPRO]

The Government of Pakistan has promulgated the Electronic Transaction Ordinance (ETO) and working towards developing D-Government services. Many organization and website offer services such as D-Government.gov.pk and. e-gov.pk.

The digital interactions between a Pakistan's government departments, citizens, businesses, employees and other governments improved from couple of years And this clearly appear from the efforts to develop and promote electronic Government services. The promotion of the use of the Internet and other information technologies to increase opportunities for citizen to participate with the Pakistan Government and promoting interagency collaboration providing electronic Government services, where these collaborations would improve the service provided to its citizens by integrating related functions and the use of internal electronic Government processes.

4.7 E-Participation [EPAR]

Electronic Democracy is one of important area that Pakistan government is working now and this is the solution Pakistanis are waiting for to solve inherent civil problems of Pakistan. There are many projects for improvement e-participation and e-democracy. One of them is E-Democracy in Pakistan project. In the description of the project it is emphasized that "the aim is to offer the citizens an opportunity to get electronic access to relevant information related to administrative decisions concerning the open land in the district.

These initiatives by government agencies to allow stakeholders to contribute their opinion, either privately or publicly, on specific issues as well as it enable ICT to support individuals come together to form communities, to progress shared agendas and to shape and empower such communities. The website http://www.ecp.gov.pk/ provides the information on election in Pakistan.

4.8 Open Government Data [OGD]

This dimension measures the extent of the access of the general population to information and knowledge. This includes the presence of policies relating to freedom of information, access to publicly funded research (open content), availability of government data in a reusable format (open data) and the ability of citizens to access information relevant to their needs.

The Government of Punjab, Pakistan, has recently approved the Right to Information Act 2010 that enables public sharing of government data. As the act approaches the final stages of enactment, it has become imperative to develop an online platform that enables public sharing of government data with citizens and relevant stakeholders. Given the upcoming 2013 elections, soaring foreign and domestic investments in development projects, demands for increased accountability for public expenditure and transparent budgets, the Pakistani citizens' interest in accessing open government data has skyrocketed.

4.9 The use of Emerging ICT [EMG]

The D-Government strategy plan now provides e-Services for almost all field and departments within the Pakistani government such as Pakistan Police: E-services, Supreme Court of Pakistan: Check Your Case Status online, Pakistan Research Repository: Digital Archives of PhD, Pakistan Railways: E-Services, Pakistan Post: E-service, Pakistan Medical and Dental Council: Check Registration of Doctors, Pakistan International Airlines: E-Air, Pakistan Electric Power Company: Electricity Bill SMS alerts and E-billing, Higher Education Commission: E-Services and High Court: E-services, So through all these E-services citizens can get on time and time and money efficient data anytime anywhere.

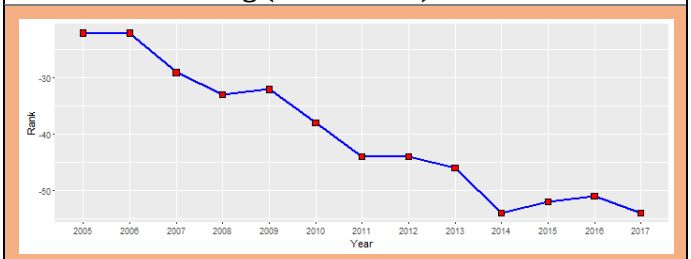
5 Some Highlights

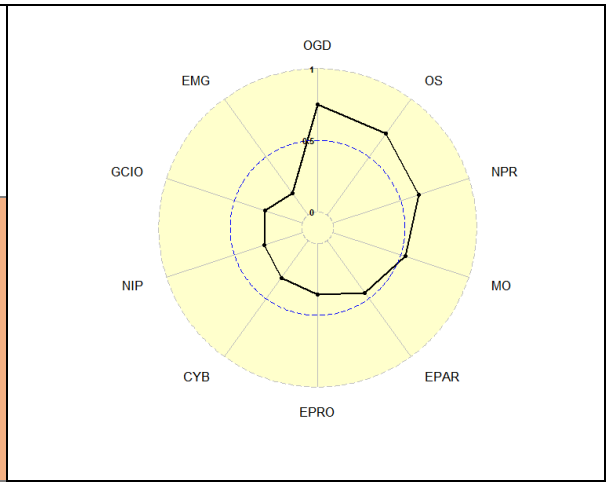
Today's cyber threats are becoming increasingly more targeted and sophisticated with criminal networks operating across the world, coordinating complex attacks against targets in a matter of minutes. Due to the complexity of the cyber-threat landscape, cybercrime investigations are profoundly different in nature to traditional crime, requiring high-level technical expertise and large-scale cross-jurisdictional investigations. It is essential that law enforcement prioritize resources, build cross-jurisdictional and cross sectorial collaboration in addition to developing the technical expertise, tools and infrastructure required to effectively combat threats and eventually enhance digital security. In response, Pakistan Information Security Association (PISA) has been working for the last many years to highlight this much needed topic of Multi-Stakeholder coordination for combating Cyber Crimes. PISA will seek to implement an alliance with multi-stakeholders, including government organizations, academia, law enforcement agencies and Internet security specialists from the private and public sector, to leverage their respective expertise and resources for fighting cybercrimes.

Peru

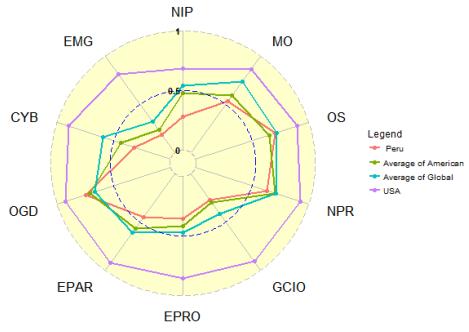
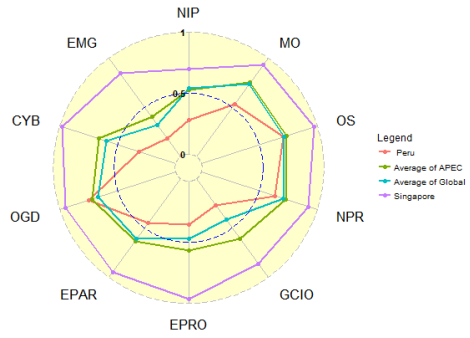
1 General Information

Area: 1,285,216 km^2
Population: 30,444,999
Government Type: presidential republic
GDP: $12,300
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

AMERICA Countries	APEC Countries
	

Among American countries, Peru shows slow progress on D-Government performance. Of the 10 indicators, only National Portal has higher score than the world and regional average point.

Similar thing happens in APEC where Peru surpasses the group average only on the national portal. Other scores are under the group's mean.

3 D-Government Development

D-Government in South America is considered a high priority for improving the internal operations and management. However, levels are still low and developments are at the initial phase. Most objectives are intended to help the Interior better executing administrative and supporting functions that exist across the

government bodies. The D-Government strategy is drafted by the Center for Public Service Innovation (CPSI) in associate with the Department of Public Service and Administration and the State Information Technology Agency.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Peru, 58.6% of the population uses the Internet in 2017, only a very small increase compared to the previous year. The number of fixed-broadband subscriptions is 6.4 per 100 inhabitants, while the number of active mobile broadband subscriptions is 36.7 per 100 inhabitants, the latter showing a considerable increase over the previous year.

4.2 Management Optimization [MO]

The Peruvian government released its D-Government strategy in 2006 in a document entitled "Estrategia Nacional de Gobierno Electrónico" (D-Government National Strategy), through the National Office for D-Government and Informatics (ONGEI). In it, the government defines five strategic objectives and a number of initiatives for each. With this document, the government aims to promote the utilization of ICT in public administration and the improvement of public services. The Peruvian government also established a special committee, the CODESI, to enable and promote the establishment of the information society in the country.

4.3 Online Service [OS]

The score for online services is comprised of five criteria: e-Procurement, e-Tax, e-Customs, e-Health, and one-stop service website. The Peruvian government maintains websites for all five types of e-services assessed in this survey. The website for e-tax and e-customs (http://www.sunat.gob.pe) offers a high level of complexity and interaction, while providing relevant information to citizens. The one-stop service website (http://www.tramites.gob.pe) is clear and simple, and shows the most consulted procedures on its main page. The e-procurement website (http://www.perucompras.gob.pe) and the e-health website (http://www.essalud.gob.pe/essalud-en-linea-2) are limited to providing information to the citizens and offer only simple services with low complexity.

4.4 National Portal [NPR]

The Peruvian national portal offers basic information about the country, as well as government information and links to other government agencies. It also offers limited information on events and news, and greatly focuses on tourism. The website is simple and lacks many features like social network integration and feedback forms. Legislation is also available on the national portal. The website is only available in Spanish.

4.5 Government CIO [GCIO]

The legal framework related to D-Government does not consider the CIO position. However, the ONGEI is responsible for many of the GCIO functions, such as the promotion of ICT utilization in public administration and the implementation of the strategy. Information regarding CIO training programs was found in at least one educational institution. No additional information on CIO regulations was found.

4.6 D-Government Promotion [EPRO]

Through the ONGEI, the Peruvian government is working to promote the use of ICT and the development of D-Government. There exists a legal framework for promoting D-Government, although the strategy fails to include local governments. There is an annual fund for IT adoption of Peruvian businesses called Technology Science and Innovation Fund. No information on publications, training programs, or events related to D-Government was found.

According to data from Dominio Consultores 2013, the government consumption on IT is still limited, accounting for only 19% of the total market.

4.7 D-Government Participation [EPAR]

The National Digital Agenda states that D-Government initiatives aim to increase citizen participation and transparency, although there is still not enough evidence to assess this objective. Users have access to information and contact details of elected officials, legislation, and national budget on government websites. The president also has an official website, which includes a feedback form.

With the growing of mobile Internet connections, the Peruvian Government focused on providing services via mobile applications. A portal for mobile government was established to serve this purpose (http://www.movil.softwarepublico.gob.pe/). This is the place where various mobile applications are provided to citizens.

4.8 Open Government Data [OGD]

The government is committed to provide open information to its citizens, for which it offers an open data portal (http://www.datosabiertos.gob.pe). This site is still in its beta version; there are currently 142 datasets available from 1,243 institutions, grouped in 10 categories. The government also offers a transparency portal, where it is possible to view information related to different government agencies.

4.9 Cyber Security [CYB]

Peru has specific legislation on cyber security, and penalizes cybercrimes through a special section in its penal code. It also has laws on access to information, privacy and data protection, and digital signatures and certificates. There is an official government agency in charge of handling incidents related to cyber security, the PeCERT. The ONGEI has published a national strategy for cyber security.

4.10 The use of Emerging ICT [EMG]

No evidence of usage or regulations by the government of emerging technologies such as Cloud Computing, the Internet of Things, or Big Data was found.

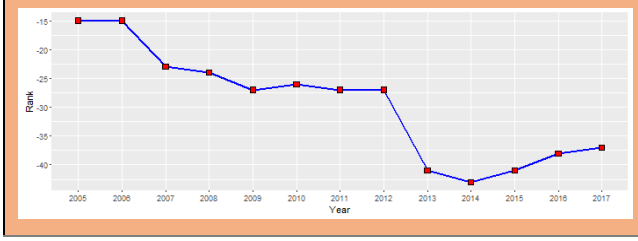
5 Some Highlights

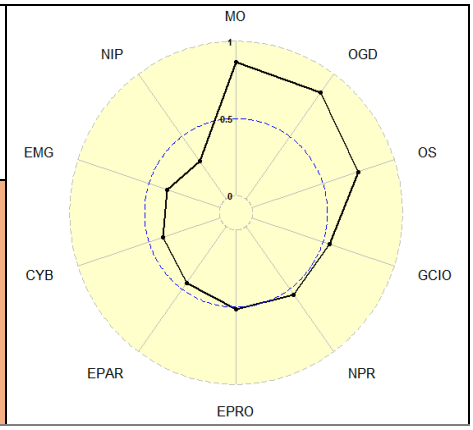
The Peruvian government started its D-Government program many years ago, but it has seen little development in recent years. Although several efforts have been done, it still stays behind in comparison to other Latin American countries. Its strategy also needs to be updated and revised, and more effort needs to be put on the enabling framework. From the range of e-services offered and the state of its agencies websites, it can be said that Peru is still lacking of a holistic approach to D-Government development.

Philippines

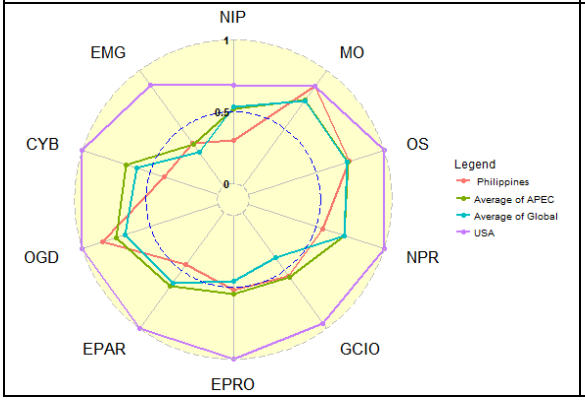
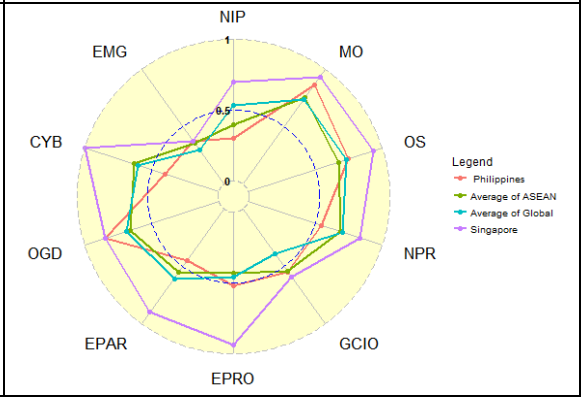
1 General Information

Area: 300,000 km^2 [50]
Population: 102,624,209 [51]
Government Type: Republic [52]
GDP: $7,700 [53]
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

APEC Countries	ASEAN Economies
	

Among APEC Countries, Philippines has a better score than the average score of APEC in Open Government Data and Management Optimization. As shown on the above picture, Philippines is very low on the basic infrastructure and the use of emerging ICT. However, despite the lack basic infrastructure, Philippines has been trying to take the benefit of modernized government process through Management Optimization and Open Government Data.

These achievements also reflect the position of Philippines in ASEAN region in which Philippines considerably approached Singapore in the Open Data and the Management Optimization.

[50] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html#nz
[51] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html#nz
[52] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html#nz
[53] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html#nz

3 D-Government Development

Philippines has a comprehensive D-Government Master Plan that covers year 2013 – 2016. The Master Plan emphasizes on the creation of transparency, collaborative, and integrated government. Department of Science and Technology hold the strong role in D-Government through the establishment of ICT Office (ICTO). Philippines adopts centralization for their D-Government development. The development is centrally led by ICTO.

The Philippines' D-Government Master Plan (EGMP) adopts a whole-of-government approach that supports the Philippine Development Plan (2011-2016). The EGMP highlights the importance of collaboration, interoperability, shared services, and openness. It includes a list of proposed policies and mechanisms for creating and ensuring an environment that institutionalizes open government. Government interoperability frameworks (GIFs) and similar mechanisms toward this end will be crucial to the e-Governance agenda.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 40.2% of people in Philippines were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 3.4% have fixed-broadband subscriptions, and 41.6% of the population has a wireless broadband connection.

4.2 Management Optimization [MO]

In 2010, Philippines has launched the Philippines' D-Government Master Plan (EGMP). It replaces the Philippine Digital Strategy 2011-2015 This master plan adopts a whole-of-government approach that supports the Philippine Development Plan (2011-2016). The EGMP highlights the importance of collaboration, interoperability, shared services, and openness. It includes a list of proposed policies and mechanisms for creating and ensuring an environment that institutionalizes open government. EGMP also contains a measurable target and clear responsibilities of government agencies. For supporting such priorities, Philippines has developed Government interoperability frameworks (GIFs) and similar mechanisms.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In term of complexity level, most of investigating Online Service in Philippines has reach a transactional in which user can start the transaction from applying to receiving the service through the portal. All Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

To measure the level of convenience, the third party application result has showed that, except the e-Customs, all portal is above the average in term of speed. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://philgeps.gov.ph/
e-Tax	http://www.bir.gov.ph/
e-Customs	https://www.nsw.gov.ph/
e-Health	http://www.philhealth.gov.ph
One-Stop Service	http://www.gov.ph/services/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Philippines (http://www.gov.ph) contains proper information for local citizens and foreigners. Information about Philippines is available on the portal. User can find information about demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average both from PC and from Mobile Device. Moreover, the portal does not provide the user with some functionalities such as inquiry form, and Social Network integration.

4.5 Government CIO [GCIO]

Referring to the Philippines Digital Strategy, due to the absence of formal GCIO, there is an organization called The Chief Information Officers Forum, Inc. (CIOF). This is a non-profit organization incorporated by CIOs of different government departments and agencies with the Securities and Exchange Commission (SEC). The heads of government offices have the discretion to designate the heads of their IT departments as Chief Information Officers of their respective agencies.

4.6 D-Government Promotion [EPRO]

Raising public awareness of ICT is one of the Action Plan in Philippines Digital Strategy. D-Government Projects, the deliverables and the impacts, are evaluated through the Medium-Term Information and Communications Technology Harmonization Initiative (MITHI) and through the agency's Information Systems Strategic Plan. MITHI is an D-Government and ICT support mechanism that aims to harmonize and ensure interoperability among ICT-related resources, programs, and projects across the government. It is a government body composed of representatives from different government agencies (Department of

Budget and Management, Department of Science and Technology, National Economic and Development Authority).

4.7 E-Participation [EPAR]

Culture and society in Philippines governmental sector has been created with an IT savvy. Government officers can take the benefit of ICT for supporting their role. For instance, parliament member has their own website and provide the citizens with the channel to communicate. The presence of e-participation portal (Crisis Response) contributes to the achievement of Philippines in this indicator so far.

4.8 Open Government Data [OGD]

Up to this year, The Congress still arrange the process of ratification of Philippines Public Information Bill. This Bill is an integral element of the Aquino Good Governance and Anti-Corruption Plan of 2012-2016. To strengthen the implementation of these act, Philippines has established Open Data Portal (http://data.gov.ph) to provide public with accessible government information. Three agencies are involved in the Open Data Project; Department of Budget and Management, Office of Presidential Spokesperson, and The Presidential Communications Development and Strategic Planning Office.

4.9 Cyber Security [CYB]

Philippines has ratified several laws and regulations related to cybersecurity. Some of them are as follow:

- Cybercrime Prevention Act 2012
- Data Privacy Act
- Electronic Commerce Act in 2000
- Executive Order No. 810, series of 2009

In addition to these laws, Philippines has set two institutional structures for strengthening Philippines in Cybersecurity; Cybercrime Investigation and Coordinating Center (CICC) and Department of Justice (DOJ)- Office of the Cybercrime (OOC).

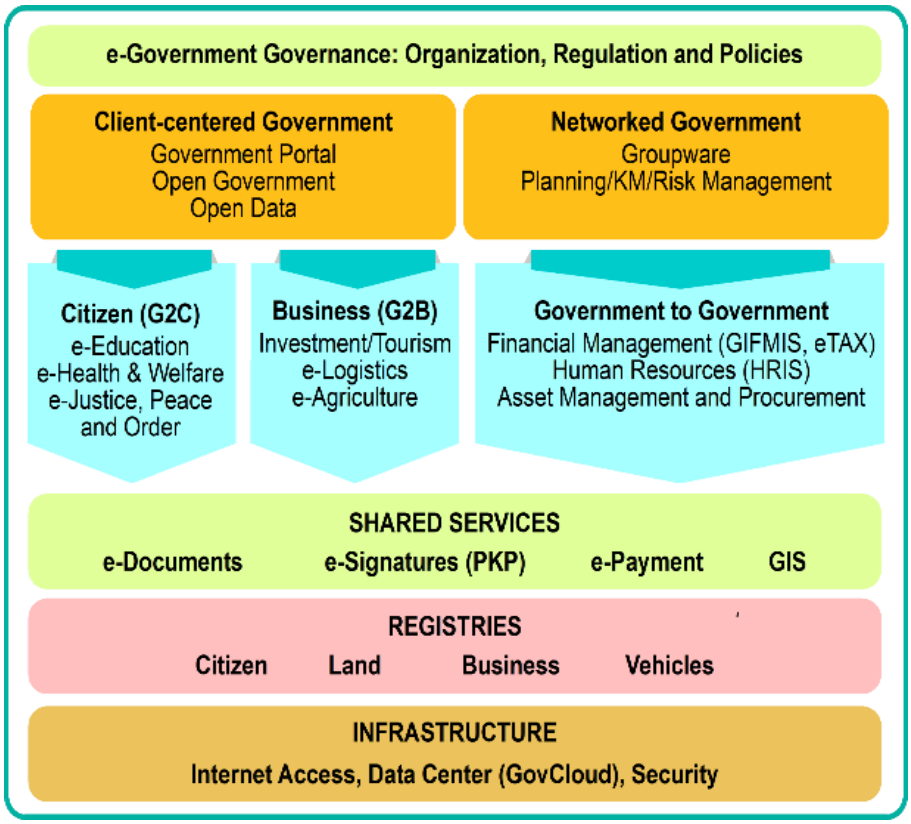
4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Philippines has implemented Cloud Computing Services for government agencies under iGovPhil Projects. The Government Cloud Computing is run on top of National Government Data Center (NGDC) and is a joint program between Information and Communications Technology Office - Department of Science and Technology (DOST-ICTO) and Advanced Science and Technology Institute (DOST-ASTI). It offers Infrastructure-as-a-Service (Iaas) to other government agencies. Other emerging technologies are still not common and there is no evidence to prove that Philippines implemented such technologies.

5 Some Highlights

Philippines has the impressive point on Management Optimization, Open Government Data, and Online Service. With the comprehensive D-Government Master Plan, Philippines is able to improve those three indicators. The high score in Management Optimization reflects the high degree of connectivity and interoperability of government information system as required by the Master Plan. In this area, Philippines is attempting to the pursue the connected yet integrated government under the theme “iGovPhil” Initiative. The effort to achieve the connectivity and interoperability among government agencies is equipped with the proper equipment on Open Government Data which ensures all stakeholder can take the benefit of government data. To engage the citizen and business enterprise for using D-Government system, Philippines is continuously enhancing the Online Service.

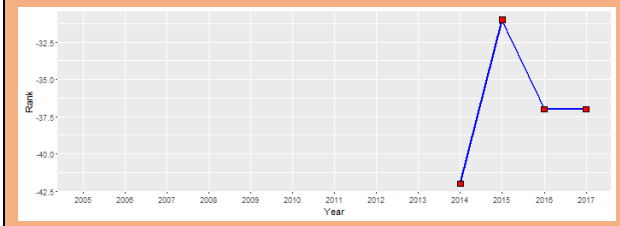
In contrast to those three indicators. New Zealand still has the weakness. The use of emerging technology and Network Infrastructure are the weak point of Philippines. As for the emerging technology, it is the new indicator for this year survey. Philippines is commencing the use of Cloud Computing for government interoperability and integration. Many countries are still in the initial stage on the use emerging ICT. Furthermore, another weakness point of Philippines is on the classical issue for developing country, i.e., Network Infrastructure Preparedness (NIP). Most developing countries have problem with the telecommunication infrastructure either on the penetration or the quality of it. Furthermore, there is small chance for developing countries like Philippines to significantly increase the NIP since it needs a big investment and involves the "business-friendly" calculation.

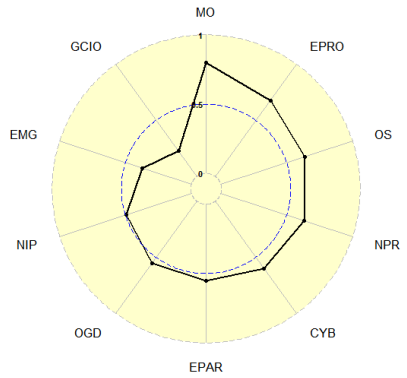


Poland

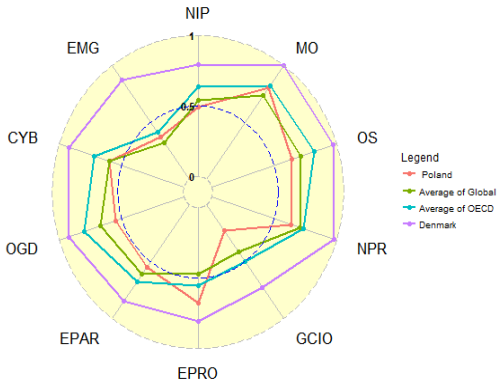
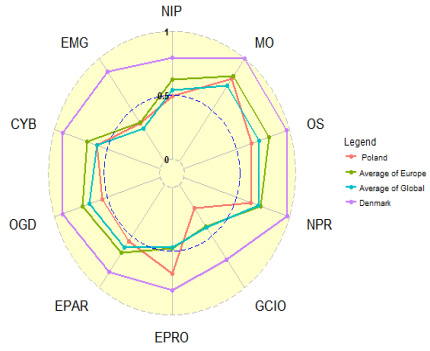
1 General Information

Area: 312,685 km^2
Population: 38,562,189
Government Type: Parliamentary Republic
GDP: $26,400
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

OECD Countries	Europe
	

3 D-Government Development

The cyberspace of the Republic of Poland includes systems, networks and data communication services of particular relevance for the internal security of the country, operated, among others, by state and local government institutions, the banking system as well as systems to ensure the functioning of the country's transport, communications, energy, water and gas infrastructure and health care IT systems, where their destruction or damage may pose a considerable threat to human life or health, national heritage and environment or cause serious damage.

The Prime Minister is responsible for the protection of the Polish cyberspace. The leading role in the area of cyber protection is played by: the Ministry of Interior, the Internal Security Agency, the Ministry of Defense and the Military Counter-intelligence Service. While the Government Centre for Security is responsible for coordinating the protection of critical data communications infrastructure. The system also includes other government entities and private individuals – owners of resources which are critical for the state's ICT infrastructure.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The first D-Government strategy in Poland, Gateway to Poland (2002-2006), was published in December 2002 and later updated with a concept of e-PUAP (explained below). From 2004-2006, Poland issued e-Poland: The Strategy on the development of the Information Society, with objective were to contribute to a knowledge-based economy development and to improve citizens' quality of life. To reach these objectives, four priorities were set: provision of broadband Internet for all schools; development of the 'Gateway to Poland' - an integrated platform for D-Government services; development of Polish content on the Internet; and universal access to ICT training

4.2 Management Optimization [MO]

The first action plan was introduced in 2005 – 2006, this action plan derived from ePoland and known as ePolska. The first plan for computerization introduced for the period 2007 – 2010, which describes in a systematic manner concrete tasks to be carried out by public bodies in the field of information society development and for the provision of e-Services. The aim of this plan is to introduce a new range of e-Services between 2007 and 2013. New e-Services are meant to be set up, covering, among other services: the processing of IDs and passports; the change of residence details; the booking of doctors' appointments; eTax declarations sending; and the reception of information from registry offices.

The newest strategy on D-Government is the National Development Strategy 2020. This strategy's objective is to digitize public administration to the extent possible, to make government accountable and transparent to the public, and creating a central IT infrastructure for the entire government.

4.3 Online Service [OS]

In the Europe, Poland standing at 19th out of the 32 measured countries, online service accounted 79% and lower than EU average of 82%. Poland has not a centralized e-Procurement infrastructure but a Public Procurement Office's (PPO) portal, which plays a central role in the development of e-Procurement. The portal operates in parallel to the website of the Public Procurement Office and it contains information and tools aimed at electronic procurement. Like other EU countries, e-Service in Poland is divided to citizens and businesses, Poland issued services for citizens. For example, the e-Tax system was introduced in the late 2000s at http://www.e-deklaracje.gov.pl.It allows anyone with an electronic signature, who has registered as an online client with the Taxation Office, to submit his/her tax declaration electronically.

4.4 National Portal [NPR]

In December 2014, Poland launched the third version of its official promotional website, accessible at www.polska.pl. The new site is currently in beta testing. It is available in English and Polish. This portal gives information about Polish history and culture, tourism, science and industry. It is easy to use and find information with its search engine and menu system. This portal does

Besides the promotional portal, Poland has another portal called e-PUAP to provide citizens and businesses with e-Services. It is located at www.epuap.gov.pl. It was intended to electronically integrate all public

registers and provide an integrated platform supporting a number of interactive services for citizens and businesses, with user identification/authentication, electronic case handling and e-Payments, when needed. The latest version was updated in 2011 with two-fold purpose to enhance the portal's convenience for citizens and to facilitate the provision of D-Government services for public entities.

4.5 Government CIO [GCIO]

There is no evidence on Government CIO found in Poland, but they do have a similar position in the Minister of Digital Affairs (formerly the Minister of Administration and Digitization). Anna Streżyńska currently serves in this role. The Ministry is in charge of developing broadband infrastructure and creating web content, among other responsibilities.

4.6 D-Government Promotion [EPRO]

Regarding D-Government legislation, Poland has a long-standing act regarding the computerization of the operation of the Entities Performance Public Tasks. It grants both citizens and businesses the right to contact public authorities electronically. This Act furthermore sets up horizontal/infrastructure programs for all sectors of Public Administration and establishes a common interoperability framework for IT systems in the Polish public sector

The act on access to Public Information allows anyone to demand access to public information held by public and private bodies exercising public tasks, as well as trade unions and political parties. The bodies must officially respond within 14 days.

4.7 E-Participation [EPAR]

The information society strategy is multidimensional and covers different aspects of information society development, included e-participation. It defines the vision and mission for the development of the information society in Poland. Within each of the three priority areas (Human, Economy and State), it maps out strategic directions and determines the objectives that should be accomplished in order to achieve the desired outcome as efficiently as possible.

4.8 Open Government Data [OGD]

MamZdanie.org.pl was the first nationwide service dedicated to open public consultation. It was created in response to the need for greater transparency in the creation of legislation and other documents defining public policies (at both national and local).

4.9 The use of Emerging ICT [EMG]

Social security benefits are also issued by Poland Government, it includes Unemployment benefits, Child allowances, Medical costs, passport and driver’s license, Car registration, Certificates (birth, marriage) but some of them had information only without transactions.

Regarding the e-Health system, The National Health Fund has implemented a public information system of waiting list length and waiting times for health services at healthcare providers – available in all regional branches of the National Health Fund. Some healthcare providers have implemented appointment systems (mostly semi-interactive: the hospital has to call back the person who has filled in the form)

5 Some Highlights

Poland has taken significant steps towards the development of an D-Government framework that aims to define the rights and obligations of both citizens and businesses. The new trends for D-Government development regarding the D-Government strategy and focus on:

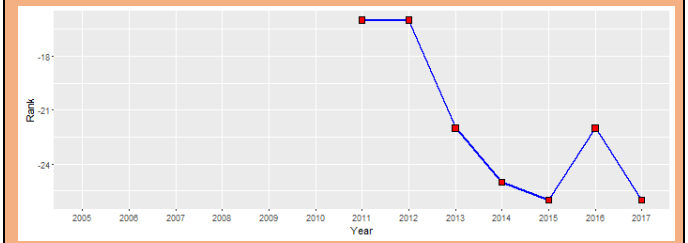
- The Strategy for the Development of the Information Society in Poland until 2013
- The Computerization Development Strategy of Poland until 2013 and Perspectives for the Information Society Transformation by 2020 sets out the framework for the development of Poland's Information Society

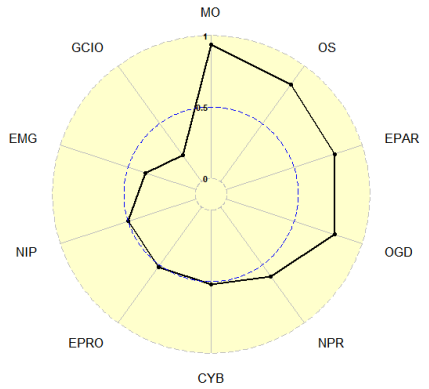
Poland was ranked 42nd in the United Nations' D-Government Development Index in 2014, which is relatively consistent with previous rankings. Poland will remain focused on providing user-friendly and reliable e-Services in the coming years.

Portugal

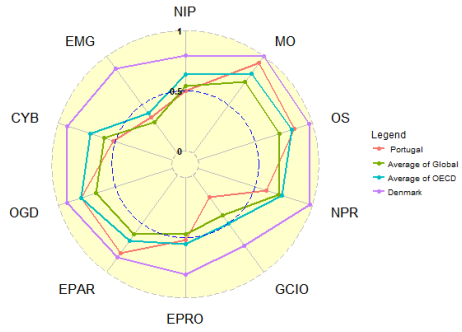
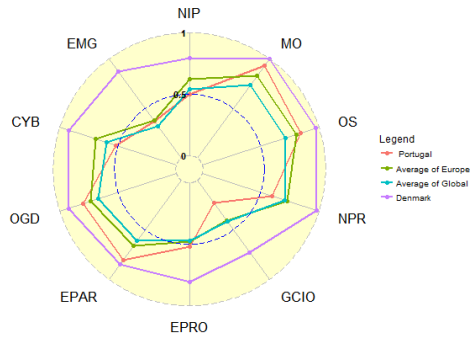
1 General Information

Area: 92,090 km^2
Population: 10,825,309
Government Type: Republic; Parliamentary Democracy
GDP: $27,800
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	European Countries
	

Among OECD Countries, all indicators except National Portal (NPR), GCIO and the use of Emerging Technologies for government (EMG) indicators are above or same with the average score of OECD members. Amongst European countries, Portugal is placed below Denmark. However, as other European countries, the e-Participation (EPAR) indicator of Portugal is same level with those of Denmark, the best country in Europe region.

3 D-Government Development

The Portuguese D-Government Development Strategy is coordinated at the level of the Presidency of Council of Ministers, by the Minister of the Presidency and the Administrative Modernization, and undertaken by a series of key public institutions led by the Agency for the Administrative Modernization (AMA). This strategy will be carried out by the new Simplex Program, under the motto A STRONG,

INTELIGENT and MODERN STATE. In addition, AMA is a public institution that took over the responsibilities in the areas of modernization and administrative simplification as well as D-Government (formerly under the Agency for Knowledge) in 2007.

The Portugal Digital Agenda, along with the "Strategic Plan of ICT Rationalization and Cost Reduction - PGETIC", approved by the Council of Ministers Resolution No. 12/2012, will make an important contribution to the achievement of the national objectives in the fields of administrative modernization. Therefore, the Portugal Digital Agenda no longer focused only on Government action and public administration, and also have a strong involvement and participation of civil society and the private sector, in particular, of the entities related to the ICT sector.

Vision of strategic comprehensive, PGETIC

In March 2014, Portugal launched the National Administrative Modernization Strategy (PGETIC). It is based on the digital by default principle in order to reduce the bureaucratic burden on citizens and economic operators, by introducing transparency and efficiency and reducing the constraints generated by the slowness of different procedural acts. In addition to this effort, as means to improve the efficiency of the public sector and deploy better electronic services that simplify and enhance the competitiveness to the citizens and business, it's being renewed the strategic plan for PGETIC in the public sector started in 2012. The creation of PGETIC meant great achievements in ICT management in the Portuguese Public Administration. It provided the public sector with an extra set of tools to enhance its operation, and represents the beginning of a global plan towards a rational use of ICT resources, with a flexible and resilient structure that allows addressing future challenges in a very fruitful way. The ICT rationalization measures, detailed in this plan, were targeted with a view to ensuring, through the provision of services quality ICT, better public services at a lower cost

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Portugal, 67.6% of the population uses the Internet in 2017. The number of fixed-broadband subscriptions is 29.6 per 100 inhabitants, while the number of active mobile broadband subscriptions is 52 per 100 inhabitants.

4.2 Management Optimization [MO]

D-Government in Portugal is strongly connected to Administrative Modernization and Public Service Delivery initiatives, focusing on promoting a less bureaucratic Public Administration, cost-effective solutions and innovative public services using unique counters, digital services or interoperability solutions. The national D-Government strategy is available as a website, in which the framework, objectives, measures, and evaluation, among other aspects, are clearly mentioned. The implementation and execution of the strategy is under the responsibility of the Administrative Modernization Agency (AMA), whose objective is to promote the modernization of the public administration in the country.

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service website. The Portuguese government maintains websites for all five types of e-services assessed in this survey, and all of them obtained relatively high scores. The e-tax website integrates e-customs as well, is clear and easy to use, and offers a high level of interaction with the user. Similar are the cases of the e-procurement and e-health websites. The one-stop service website presents a search option on its main page, and lists the most consulted procedures. It also provides contact information of various government agencies for users seeking support. All websites have a clean design and offer a high level of security. For authentication, it utilizes the Citizen Card service.

4.4 National Portal [NPR]

Portugal's national portal provides news and links to other government agencies on its main page, and has a simple design. Basic information about the country, and information about the government and its structure is available on this website. The site also offers integration with SNS, the possibility to subscribe to a newsletter, and an option to send a message to various officials. The site is also available in English.

4.5 Government CIO [GCIO]

The legal framework related to D-Government does not consider the CIO position officially. However, the government is aware of the need of a GCIO. The AMA is responsible for many of the GCIO functions, such as the promotion of ICT utilization in public administration and the implementation of the strategy. Information regarding CIO training programs was found in at least one educational institution. No additional information on CIO regulations was found.

4.6 D-Government Promotion [EPRO]

The national D-Government strategy shows that the government is making great efforts to promote D-Government and optimize the procedures related to services and public administration, which includes initiatives at the national and local level. The AMA is the main agency in charge of D-Government promotion in the country. Some evidence showing that events on D-Government are being held by academic institutions was found. No information on publications or training programs was found.

4.7 E-Participation [EPAR]

In general, government websites demonstrate interactive functionality and good design. These factors have driven Portugal to the next horizon of D-Government. Citizens have access to information related to government agencies and officials, legislation, and national budget. They can also send messages to officials or the president, who has an official website. The newly redesigned SIMPLEX program seeks to increase citizen participation and improve the relationship between citizens and the government. The government also lets citizens participate in the distribution of budget through the "Portugal Participatory Budget" (OPP) program.

4.8 Open Government Data [OGD]

In April 2011, the Parliament approves legislation establishing the use of open standards in the information systems of Public Administration institutions. It is considered a fundamental step for the sovereignty of and the control over documents that public institutions own. AMA is committed to the development of a wide and open platform containing all kinds of data from public bodies. The government has an open data site (http://www.dados.gov.pt/), in which an extensive range of information from very diverse areas, like demographic and health datasets, is available to citizens. And it is published and aggregated information produced by the public authorities so that it can be read and reused by any citizen.

4.9 Cyber Security [CYB]

Portugal finds itself in an initial phase of defining a National Information Security Policy. Currently no framework for cyber security has been defined. A strategy for cyber security has not yet been approved, but a draft exists and is being discussed. Portugal has specific legislation to penalize cyber crimes through its penal code. It also has laws on data protection, e-commerce, and e-payment. There is an official government agency in charge of handling incidents related to cyber security, the CERT-PT, and an information security agency, the National Center for Cyber Security (CNCS).

4.10 The use of Emerging ICT [EMG]

No evidence of usage or regulations by the government of emerging technologies such as Cloud Computing, the Internet of Things, or Big Data was found.

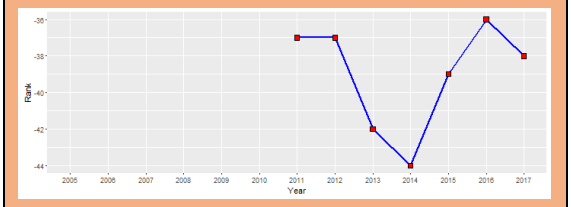
5 Some Highlights

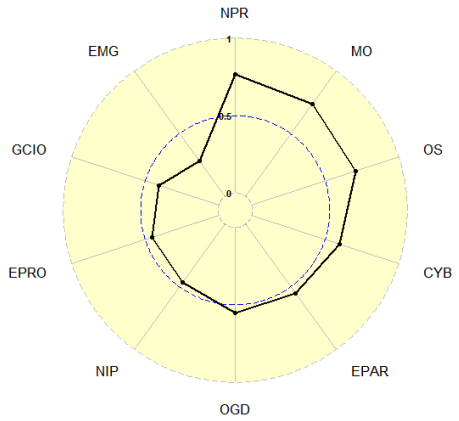
In recent years various efforts have been made by the Portuguese government to promote D-Government, simplify public administration procedures, and increase citizen participation. Examples of this are the SIMPLEX project and the OPP program. Also, the government maintains well-designed e-services websites, which are properly linked and managed by the AMA, the main agency in charge of D-Government initiatives in the country. Portugal still needs to officially approve a cyber security strategy and framework to be at the same level as other European countries on this subject. The weak point in Portugal's D-Government development is the absence of an official GCIO and the use of emerging ICT. The Portuguese public administration at the national and local levels does not appoint clear CIOs or equally influential positions within its legal framework. And the usage of technologies such as cloud computing, big data, and the Internet of Things by government requires further promotion.

Romania

1 General Information

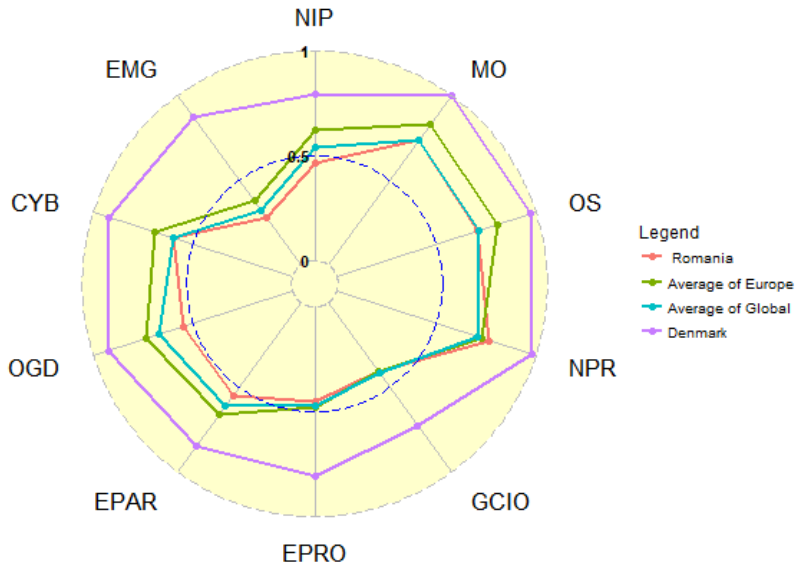
Area: 238,391 km²
Population: 21,666,350
Government Type: Semi-presidential republic
GDP: $22,100
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Europe Countries



3 D-Government Development

The D-Government development in Romania is slower than other Europe countries. The application of ICT in local government and center government are only been concerned since 2008 by introducing the Agency for Information Society Services (ASSI) published its strategy which provided an overview of D-Government strategy in Romania.

In 2009, Romanian government issued the policy paper called "eRomania". The objective of this paper was to lead the entire public sector to the information and knowledge-based society. The D-Government system is to be the main tool for building a national integrated system for online public services. The aims of this paper was to create the large scale use of IT in business environment, promote economic, high quality of services.

In 2010, Romanian government adopted a key strategic for promoting D-Government strategy called "National Program for Supercomputing" with aiming is to modernize the services and the information systems of the public administration. The newest program for D-Government development is National Strategy on Digital Agenda for 2014-2020. The objective is to aims to contribute to the economic growth and increase competitiveness in Romania.

In 2016, the government introduces a national reform program. This is the framework platform for defining structural reforms and development priorities to 2020. The program focuses on three main pillars (1) civil service reform, (2) center public administration reform, and (3) local public administration reform.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Romania's Internet and broadband market is experiencing strong growth, despite the country's low fixed-line penetration rate. Broadband services are widely available from the cable operators as well as the fixed-line incumbent. As of December 2017, Romania has more than 19.86 million Internet users with the penetration is about 56.3%. Romania has a good ICT platform. eIdentification/ eAuthentication is Integrated National System Introduction and Update of Information Relating to Personal. Furthermore, to prepare for transactional processes, Romania developed the "Virtual Payment Office". The aim of this project is to facilitate citizens' interaction with the Public Administration by allowing for electronic payment records.

4.2 Management Optimization [MO]

The National Strategy on Digital Agenda focuses on four fields of action: (i) D-Government, Interoperability, Cyber Security, Cloud Computing, Open Data, Big Data and Social Media; (ii) ICT in Education, Health, Culture and eInclusion; (iii) eCommerce, Research & Development and Innovation in ICT, and (iv) Broadband and Digital Services Infrastructure.

In 2014, Romanian government adopted a program based on the Digital Agenda for Europe. They defined 4 major fields of action that will be pursued as Romania's vision of the ambitious program that will drive the economic growth and increased competitiveness, for covering the underpinning principle stated above in pursuit of sustainable long-term economic growth: (1) D-Government, Interoperability, Cyber Security, Cloud Computing, Open Data, Big Data and Social Media; (2) ICT in Education, Health, Culture and e-Inclusion; (3) e-Commerce, Research & Development and Innovation in ICT, and (4) Broadband and Digital Services Infrastructure.

To improve D-Government solutions, MCSI aims to initiate the projects from the National Strategy on Digital Agenda for Romania 2020 (NSDAR) by launching the first phase of the project establishing the

framework for the development of D-Government tools (2016-2019 multiannual project). The project aims to create the horizontal framework for development of e-governance and administrative and legislative capacity to define common standards and promotion of open access for citizens and business environment to quality electronic services.

To reduce and prevent corruption at all levels of public administration, the elaboration and approval of the National Anticorruption Strategy (NAS) 2016-2020 are among MJ priorities this year. One of the main prerequisites of the new NAS is to ensure the institutional and legal stability in the fight against corruption. The document proposes, inter alia, to enhance the already established good practices, such as the implementation of the integrity sectoral plans, the bi-annual self-evaluation mechanism on preventive measures against corruption, the thematic evaluation missions.

4.3 Online Service [OS]

Romania has a central e-Procurement platform ('eLicitatie.ro) that is under the responsibility of the Agency for Digital Agenda. All Romanian contracting authorities are required to publish their notices within the framework of public procurement procedures, and all businesses aiming at supplying products or services to a public authority have to access the platform.

E-Tax system is used in center government and covered around 50% of Romanian municipalities. The health care service has portal at URL: www.ms.ro but this portal has information only, there are no online services. Customs online services are available at https://www.customs.ro/ro/e-customs.aspx it allows declarations to be filled in online for all types of businesses and agents that perform activities in this sector. This service ensures authentication of users through digital certificates.

4.4 National Portal [NPR]

www.e-guvernare.ro is a one-stop service, it providing a single point to provide services at national and local services and incorporates a transactional platform. Most of e-Services are at level 2. Individuals can download the form online then doing processes for application. The national portal is not so good in design. It is covered by all texts and it is really monotonic. It does not appeal to users and does not transmit information that the government wants to introduce, and deliver to citizens.

4.5 Government CIO [GCIO]

The role of CIO is not played by an individual but rather is held by the Ministry of Communications and Information Society, through the National Center for Management of Information Society (CNMSI). There is a relatively new, private organization called The CIO Council, whose members are management staff of large national and international companies. operating in Romania.

4.6 D-Government Promotion [EPRO]

In Romania, the Ministry of Communication and Information society (MCIS) has executive control over D-Government. This dedicated ministry is the main policy and strategy provider for the domain. The Ministry for Internal Affairs (MAI) has political responsibility for D-Government lies within the MAI which contributes to D-Government policy and drafts strategic documents on Public Administration. The MCIS also is responsible for the implementation of policies and strategies, together with the subordinate agencies and departments in the D-Government domain. They establish the activities and promotion for D-Government development. Even Romania is divided into center and local government, but almost D-Government promotions are implemented in center level.

4.7 E-Participation [EPAR]

The national portal www.e-guvernare.ro of Romania has improved over time. The portal is a one stop service site for citizens. In terms of e-Inclusion, Even though an e-Inclusion dedicated strategy was never in place, it can be found in some strategies and political documents related to Information Society such as e-Romania and the National Government Plan.

4.8 Open Government Data [OGD]

The Romanian government introduced a beta version of data national portal in 2013. This is unique national platform open data loaded by public institutions in Romania. Till date, the government has 439 datasets with a multiple format and several fields.

4.9 Cyber Security [CYB]

In Romania, CERT-RO is the national contact point for cyber security and responsible for elaborating and distributing public politics for prevention and counteracting the incidents that occur within cyber infrastructures. CERT-RO processes two types of cyber-security alerts (1) Alerts collected and sent through automatic systems, and (2) The manually processed alerts.

National Center for IT incidents has been adopted in Romania and currently authorities are making efforts to operationalize this unit. The purpose Romania cyber security strategy is to define and maintain an environment virtually certain, with a high degree of resilience and confidence, based cyber infrastructure national, which is an important support for national security and good government, to maximize the benefits to citizens, businesses and society Romanian. Cyber Security Strategy of Romania presents the objectives, principles and major Action awareness, prevention and countering threats, vulnerabilities and cyber security risks to Romania and to promote the interests, values and national objectives in cyberspace.

4.10 The use of Emerging ICT [EMG]

In Romania, the Local Communities Electronic Networks (LCENs) connect local communities (schools, public offices and libraries) to the Internet. Public Access Points have been set up in each area covered by the networks. The objectives are to reduce the rural-urban digital divide, stimulate the use of ICTs in schools, and facilitate the interaction between citizens and administration.

5 Some Highlights

Romania is added for evaluation since 2007 for the first time in Waseda D-Government ranking. Through 10 years of evaluation, we show that the development of D-Government in Romania is not stable in general strategy. The D-Government system is to be the main tool for building a national integrated system (NES) which would be designed to be the unitary interface that connects all public administration and the citizens as well as the business sector. The role of CIO is not played by an individual but rather is held by the Ministry of Communications and Information Society, through the National Center for Management of Information Society. CIO council organized the first National Conference of IT managers in Romania about the future of IT. Cyber and e-commerce legislation have been enacted. Regarding the e-Services, through the Unique Form System there are six services online available at present, some of them are online with two-way interaction and security.

Since the beginning of the decade, Romania has passed fundamental ICT-related laws, planned and implemented the first steps towards an Informational Society but there is still much that needs improvement. Romania has the advantage of good ICT infrastructure in place and of the great availability of IT professionals. The e-Romania project has yet to be implemented. Local D-Government initiatives are

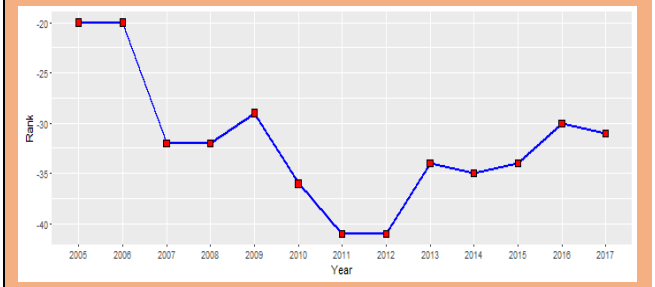
underway in several regions but there are big differences among regions. A government oversight board would be necessary. E-participation also needs to be enhanced.

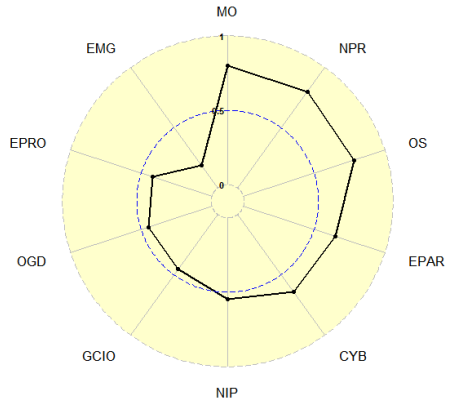
As for a new program on administration reform, the Romanian government focuses on (1) Continuing the decentralization process, Prioritizing Government policies and strategic planning, (2) Ensuring free access to information of public interest and increasing transparency in the decision-making process. (3) Civil service management and skills development of the public administration personnel, (4) Better regulation, (5) Territorial development, (6) Improving the housing conditions, (7) Strengthening the absorption capacity of the European funds, (8) Improvement of D-Government solutions, and (9) Continuing the reform of the public procurement system.

Russia

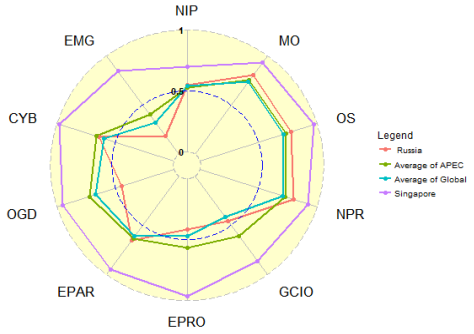
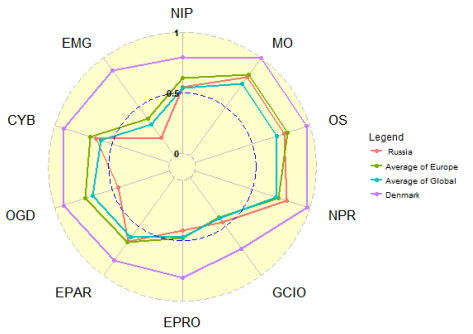
1 General Information

Area: 17,098,242km^2
Population: 146,267,288
Government Type: federation
GDP: $23,700
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

APEC Economies	EUROPE Countries
	

Russia has exceeded on indicators of E-Participation and D-Government Promotion over than not only the average of APEC economies but also than average scores of Europe countries. But performance on indicator on GCIO was below the average in both groups.

3 D-Government Development

The latest ICT strategy called "The state programme Information Society 2011-2020" was published by the Ministry of Communications and Mass Media and the Ministry of Economic Development in Russia. D-Government and "effective stage governance" has been mentioned as one of the six objectives, including data management system, local D-Government (e-regions and e-municipalities), and so on. Other related goals contain bridging the digital gap or improving e-Service quality. In addition, the Ministry of Telecom and Mass Communications has developed the systematic approach of D-Government in 2016 to foster more

e-participation content, in which user orientation has been established. To lead nation's ICT development, the Ministry of Telecom and Mass Communications has played roles of policy-making and implementation of national policy and regulations, even there is no official GCIO position at the federal level. Some regional administrations own GCIO office but it is not a mandatory, and functions of GCIO have not been formally ascertained by the government.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

According to ITU, about 70.5% of people in Russia have used the Internet in their daily life. And about 17.5% are fixed-broadband users and the wireless broadband users are 86,2% in 2017

4.2 Management Optimization [MO]

The latest state program called "Information Society (2011-2020)" to stress the IT development in Russia. In the document, it contains the plan for D-Government. Also, the Ministry of Telecom and Mass Communication of the Russia Federation has presented a document to guide D-Government path.

At present government, efforts are focused on modernization of integrated enterprise network, installation of interagency electronic request system and integration of regional D-Government portals to the Unified System of Identification and Authentication. Currently, 62 out of 85 provinces in Russia are connected to Unified System of Identification and Authentication for accessing regional and municipal public services. That system is expected to be used by all 85 provinces for identification and authentication purposes. The government puts forward the objective of making the system accessible to 35% of the population by the end of 2014 and for 70% by 2018.

4.3 Online Service [OS]

The e-Services in Russia are currently available through integrated e-Service portal and accessible via password protected personal accounts requiring two-stage identity confirmation. A personal account is accessible via e-signature and universal ID card. The maturity of provided services is not uniform among the regions. Payment services such as paying utility fees, driver civil penalties are made available through a personal account on the portal in some regions. E-Tax service is not fully transactional. To use e-tax service a user is required to install special software and fill a tax form using that software. The form is then to be sent to tax authorities through the portal. Upon the confirmation of the receipt, a taxpayer is required to submit a paper-based declaration to the local tax authority.

4.4 National Portal [NPR]

The Government of the Russian Federation appointed the Ministry of Communications and Mass Media of the Russian Federation service provider of the State Services Integrated Portal of the Russian Federation. The national e-service portal of the Russian Federation has been modified and redesigned. The portal has a private password protected area which allows access to services that need personal identification. Currently, online users can access the portal to find out about the service procedures, and required documents; download forms and online applications, send requests, pay utilities and civil penalties. The portal has feedback features allowing people to inquire about the functionality of the portal and offered services. The portal has a separate version for people with vision difficulties providing a limited number of services. The portal doesn't allow changing font size of the text and spacing between words, and no text vocalization is provided. There is no policy statement of how the portal caters to disable users. More advanced features such as multimedia shows; sharing tagging, podcasts plus others are not available yet.

The main functionality of the national portal is available only in Russian. Opting for English, German or French languages limits the availability of services to very basic insufficient information on receiving or extending temporal and permanent residents permits. Priorities for further portal development include the increase of its usability and expansion of transactional services.

4.5 Government CIO [GCIO]

Minister of info-communications and mass media is in charge of general management of the department, while deputy minister is responsible for coordination and control. The head of the department, in turn, is personally responsible for the execution of department's functions and is appointed by the Minister of info-communications and mass media.

№ 238-p government decree adopted on February 22, 2012, stipulates that 'Rostelecom', an incumbent telecom company, is the only contactor (executor) of D-Government program, responsible for further development and implementation of info-communication infrastructure and D-Government systems in Russia for the period from 2012 till 2014. In particular, Rostelecom is responsible for the development of e-service portal; ensuring D-Government services are accessible through mobile devices; network integration, employment of e-signature system, implementation of regional D-Government initiatives etc.

4.6 D-Government Promotion [EPRO]

According to the available estimates, as many as 65% of Russian citizens receive public services by paying a visit to respective governmental bodies, 25% receive services through multi-functional service centers and only 5% of citizens use e-service portal. To increase the uptake of the services the government plans to expand available services, their functionalities and ease of use, and to ensure their accessibility from mobile devices. Though the importance of creating awareness and providing training for citizens on the use of e-services is shared by various parties involved in D-Government implementation, no concrete measures in this regard have yet been announced by the government.

4.7 E-Participation [EPAR]

Although some improvements have been done most of public authorities' information is not available online especially in English. The President and the Prime Minister both have their official websites. Citizens can contact their leaders, ask questions or send suggestions through feedback forms on these websites. http://blog.kremlin.ru is the official weblog of the Russian President, where citizens can discuss, comment about political strategies. Web 2.0 features such as RSS, sharing, mailing list, newsletters and social media networks like twitter, Facebook, and blog are also available at the portal.

4.8 Open Government Data [OGD]

Up to date, the Russian government has opened around 13000 datasets, including the government data in economic, education, health, ecology, culture, transport, trade, construction, sport, tourism, entertainment, security, electronic, cartography, and weather. Open Data portal of the Russian Federation - is one of the key instruments of state policy in the field of open data, which plays the role of a backbone element, the core of open data ecosystem of the Russian Federation. The most relevant information focused on open government data, links and published datasets as well as metadata, information created on the basis of open data software products and information services. Here are published normative legal acts determining the legal basis for the disclosure of information, methodical and journalistic resources. It also implemented communication interfaces for interaction with public authorities, in their capacity as owners of socially important information. Current status of open data portal of the Russian Federation - beta version, which implies the willingness of developers to respond quickly to constructive comments ,.

4.9 Cyber Security [CYB]

On Dec. 5, 2016, Russian President Vladimir Putin approved a new Information Security Doctrine for the nation. It addresses new challenges to the country's national security that have emerged only recently, primarily due to the increasing penetration of information technologies into nearly all areas of life.

4.10 The use of Emerging ICT [EMG]

There is a few information found on the usage of emerging ICT in Russia.

5 Some Highlights

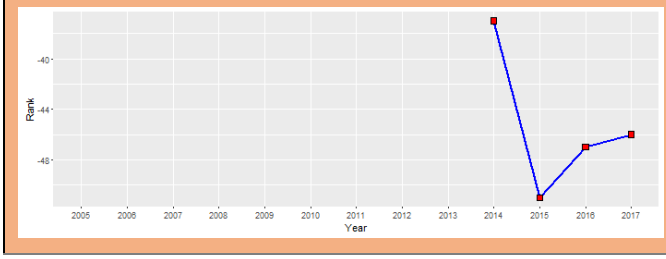
The maturity of services provided through the one-stop portal is not yet uniform among the country regions and is expected to be steadily enhanced. The government aims at least 70% of services to be available through the portal by 2018. Other plans include ensuring the services are available irrespective of geographical location, provision of several channels for service access including mobile access, the internet, call centers and on-site service machines.

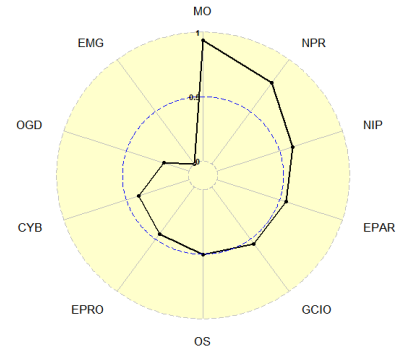
E-Health systems are expected to be optimized and integrated expanding the services available through one-stop D-Government portal to include requests for sick-leave certificates, electronic prescriptions, and electronic inquiries.

Saudi Arabia

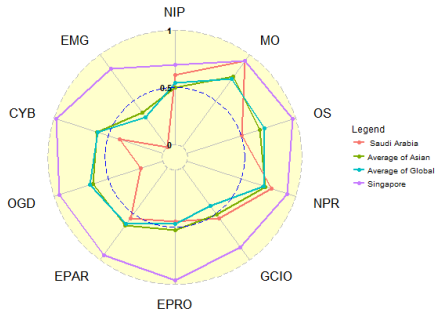
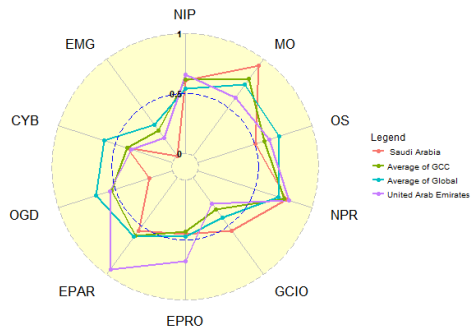
1 General Information

Area: 2,149,690 km^2
Population: 27,752,316
Government Type: Absolute Monarchy
GDP: $54,600
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

Asian countries	Gulf Cooperation Council
	

3 D-Government Development

Based on the second action plan, it provides for using IT & communication tools to support citizen participation in government processes including administration, service delivery and decision making. The United Nations' E-Participation Index ranked Saudi Arabia 39th in 2014. This is a increase compared to 2014, when they placed 22nd, and it a significant improvement over 2010, in which they placed 102nd. These unusually volatile numbers seem to be context-dependent, and suggest that Saudi Arabia has the capacity to be a leader in D-Government participation.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The D-Government in Saudi Arabia was established as per Royal Decree No. 7/B/33181 dated September 7, 2003. The D-Government was created by the Ministry of Communications and Information Technology. In 2005, the Ministry of Communications and Information Technology created the D-Government Program Yesser (www.yesser.gov.sa), with the Ministry of Finance and the Communications and Information Technology Commission.

4.2 Management Optimization [MO]

D-Government strategy in Saudi Arabia has been divided into two ambitious plans. The D-Government Program has been assigned the task of developing and implementing these plans and strategies in cooperation with government agencies. The First Action Plan, from 2006 to 2010, has been completed. Now, Saudi Organizations are in the midst of the Second Action Plan, from 2012 to 2016.

4.3 Online Service [OS]

The national portal is one-stop-service that provides e-Service to citizens, business and also government agencies. All e-Service focus on user or citizen centricity, in total, Saudi Arabia government suggested 150 government services e-enabled and implemented through the Internet. Beside e-Services, government also introduced mobile services to all citizens.

4.4 National Portal [NPR]

The Saudi D-Government Portal "Saudi" www.saudi.gov.sa is the central Saudi Arabian government portal through which not only citizens, residents, businesses and visitors but also other government organizations and businesses can access e-Services online. This approach has been chosen as the best way to enable government services in an efficient manner.

4.5 Government CIO [GCIO]

As the role of a CIO is becoming less technology focused and more strategy oriented, CIOs in Saudi Arabia are becoming more engaged in setting strategy, enabling enterprise change, and solving business problems, as well as IT problems. The Director General of the D-Government Program (Yesser) has a role very similar to that of a national government CIO. This position is currently held by Abdul Aziz bin Abdul Rahman Al-Shuaibi.

The Saudi Arabian Government combined with IDC announced the organization of Saudi Arabia CIO Summit for the first time in Saudi Arabia in 2011. The Saudi Arabia CIO Summit aims to shed light on the challenges facing the Information technology sector in the Kingdom and discuss problems and strategies of government and private organizations, in addition to sharing experiences between decision makers and elite officials in the kingdom's IT sector.

4.6 D-Government Promotion [EPRO]

The Government of Saudi Arabia has attached high interest to the D-Government Concept and the transformation process that leads to implementation of such a concept. It strongly believes in the huge benefits such concept of D-Government entails for the National Economy. Accordingly, the Supreme Royal Decree number 7/B/33181 included a directive to the Ministry of Communications and Information Technology to formulate a plan for offering government services and transactions electronically. Transformation to an Information Society cannot be achieved without comprehensive collaboration and concerted efforts to realize the specified objectives. Therefore, the Ministry of Communications and

Information Technology (MCIT) established the D-Government Program "Yesser" in conjunction with the Ministry of Finance and the Communication and Information Technology Commission (CITC).

4.7 E-Participation [EPAR]

Based on the second action plan, it provides for using IT & communication tools to support citizen participation in government processes including administration, service delivery and decision making. The United Nations' E-Participation Index ranked Saudi Arabia 51st in 2014. This is a large drop from 2012, when they placed 22nd, but it a significant improvement over 2010, in which they placed 102nd. These unusually volatile numbers seem to be context-dependent, and suggest that Saudi Arabia has the ability to be a leader in D-Government participation, if not the political will.

4.8 Open Government Data [OGD]

Saudi Arabia has open government/data in some fields, such as social insurance, trade, education and training, social services, population and health care. Users can download or share all the data that government provided in the website.

4.9 The use of Emerging ICT [EMG]

The Council of Ministers, headed by the King Abdullah bin Abdulaziz, approved the Anti-Cyber Crime Law. The law provides for a jail sentence no more than a year and a fine no more than SR500,000, or any of the two punishments, for any person committing the crimes described in the law. The above law strikes an important balance between the right of the society to benefit from new technology and the right of the consumer for protection of his/her privacy. It also paves the way for establishment of IT legal system that safeguards the rights resulting from the legal use of computers and information networks. Its stated objective is to protect public interest, morals, public ethics, and the national economy.

5 Some Highlights

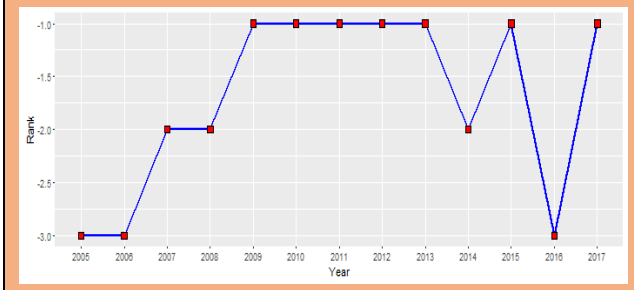
Saudi Arabian D-Government development is in the second phase of its action plan, and there is still great opportunity for further improvement to increase the speed of implementation, and to build on the momentum that has been established. The major strategic benefits from the D-Government program to the Kingdom of Saudi Arabia remain the same as those identified in the first action plan: a) Better services for citizens and businesses, b) Increased efficiency and effectiveness c) Support the move to an information society

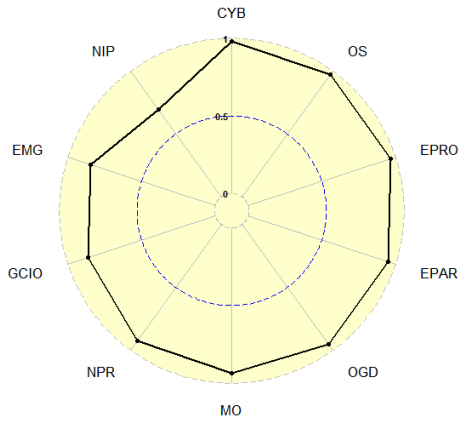
In order to successfully implement the Second National D-Government Action Plan, this national Vision must be used by each government agency to develop an individual D-Government Vision and strategic action plan for individual agencies and sectors.

Singapore

1 General Information

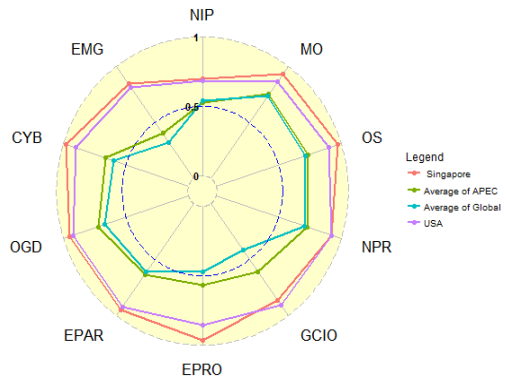
Area: 697 km2
Population: 5,674,472
Government Type: Parliamentary Republic
GDP: $85,700
Historical Ranking (2005 – 2017):



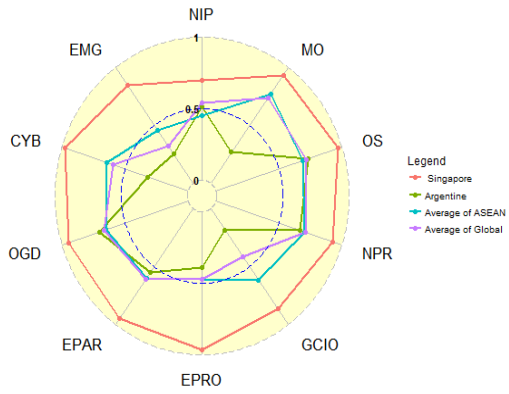


2 Positioning in a global organization and a region

APEC Economies



ASEAN Countries



Among APEC Countries, all indicators of D-Government in Singapore are above the average score of APEC members. The Government CIO (GCIO) indicator of Singapore was exceeded by the United States although Singapore is the best country in the global ranking as well in APEC. Amongst ASEAN countries, Singapore is very outstanding. There is a big gap between Singapore and other ASEAN Countries in all aspects.

3 D-Government Development

Since 1980 it had the first CSCP (Civil Service Computerization Programme), D-Government plans have advanced to the 4th version of eGov masterplans called eGov 2015 (2011-2015) in Singapore which aims

to be a Collaborative Government which facilitates greater interaction between Government, people and private sector to co-create greater value for the nation. Government shifts from a "Government-to-You" approach to a "Government-with-You" approach in the delivery of government e-services (initiated by James Kang, the former GCIO).

The Infocomm Development Authority of Singapore (IDA) has recently reorganized to become GovTech. It is now taking a lead in developing Singapore to become a Smart Nation through tech-enabled solutions. It aims to rally the collective efforts of people, businesses and government to work together to support better living, create more opportunities and support stronger communities by harnessing infocomm technologies, networks and big data. A Smart Nation Platform (or SNP) is being developed by GovTech with common infrastructure and services such as a data sharing gateway, video and data analytics capabilities. This helps public agencies optimize their sensor deployment needs, the sharing of data collected and data analytics to support needs like urban planning and incident response.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 82.1% of people in Singapore have used Internet in their daily life. According to ITU's report, about 26.5% are fixed-broadband users and the wireless-broadband users are 142.2%. Internet penetration in Singapore has reached a high level compared to other countries. At the meantime, data published by the Singapore government have shown that mobile population penetration rate is 148.2% and Wireless Broadband population penetration rate is 192.8%. Residential Wired broadband household penetration rate is 98.4% (Singaporeans do not use wired connections as much as wireless nowadays).

4.2 Management Optimization [MO]

Singapore is one of the earliest countries who started computerization and telecommunication infrastructure construction. With the development of information society, government in Singapore has launched continuous strategies in different aspects of D-Government. Also, Singapore has made effort to integrate the internal government network architecture. For instance, the latest cube program is designed as the new intranet platform for public agencies to communicate, connect and collaborate with each other.

4.3 Online Service [OS]

The score for Online Service of Singapore is also comparatively high, ranked 4th among the evaluated countries. Five online services have been examined and investigated, through the Level of Complexity, Level of Security and Level of Convenience. E-Procurement and One Stop Service have gained the better scores than e-Customs and e-Tax, and e-Health. Most of the services in Singapore have come to transactional stage, allowing citizens having two-way transaction with public agencies.

GovTech has deployed platform computing technology to create API Exchange (APEX) which is a government-wide API platform for data sharing across the government. APIs or application programming interfaces will allow agencies to share their data and infrastructure with other agencies, enabling them to reuse these resources to rapidly build new services. APEX will centrally manage and monitor the security of all the APIs used across agencies.

Another innovation was the creation of a government-wide Platform-as-a-Service (NECTAR) which is an Open Cloud Native Application Infrastructure initiated and managed by GovTech. NECTAR allows government agencies to design, build, deploy and operate a platform-as-a-service(PaaS) for hosting government e-services (from front-end to back-end development, enabling APIs, web, mobile and data science apps). It enables government agencies to meet stringent government quality and security

requirements while maintaining usability, reliability and agility leveraging on open cloud technology. It also enables agencies to develop, host and scale applications at a faster speed.

4.4 National Portal [NPR]

National Portal of Singapore (http://www.gov.sg/) contains timely and useful information for local citizens and foreigners. The portal has also provided latest national news, useful guidelines in every aspect of Singapore life (classified into topics such as Finance, Education, Immigration, Taxes, Health, etc.) In addition, the portal has provided useful Singapore economic statistics and digital public services, visions of the nation, linking the country closer to the citizens, business community and visitors with in depth useful data and information. There are also contact information of government agencies, ministers speeches, public policies and latest announcements timely. Though online translation, it supports users to obtain government information in Chinese, Malay, and Tamil. Although it appears to be better if the portal equips multiple language versions of all the information, government is encouraging English as the common language to unite the people.

The portal is very well-organized to serve its citizens, without having citizens to know which government agency is responsible for a particular service, policy or program. It has successfully implemented the OND-GOVERNMENT concept.

4.5 Government CIO [GCIO]

The Government Technology Agency of Singapore (GovTech) is a new statutory board established on 1 October 2016 after the restructuring of the Infocomm Development Authority, to empower a nation of possibilities through the harnessing of info-communications technology and related engineering.

Within the establishment of GovTech, the Government Chief Information Office led by a Government Chief Information Officer (GCIO) which plays a central role in driving and overseeing ICT initiatives to maintain Singapore Government's leadership position as an innovative user of infocomm technologies to delight customers and connect citizens.

Each individual agency also maintains its own CIO office to serve the ICT needs of the agency. GovTech manages a pool of ICT officers that are seconded to more than 50 government agencies' CIO offices. This enables GCIO to work cohesively with the government agencies to effectively roll out ICT initiatives that would be seamless across the government.

Government Technology Agency and Deputy Chief Executive Office oversees Cluster Development and Government Chief Information Office (GCIO) functions. Cluster Development Group oversees the innovative adoption of infocomm technologies to transform government agencies, business and economic sectors in the respective clusters for greater competitive advantage; and the development of a robust and comprehensive service delivery framework and operating model for CIO services at government agencies. GCIO champions the whole-of-government ICT initiatives to maintain Singapore Government's leadership position as an innovative user of infocomm technologies to delight customers and connect citizens.

4.6 D-Government Promotion [EPRO]

High-tech and informational society is one of the vital national strategies in Singapore, therefore government never has stopped the evolution of D-Government. Not only the continuous plans but also relevant legal framework has renewal in the past years. Academic support including seminars and research centers on D-Government and ICT utilization are active in Singapore. It ranked second in this indicator among all evaluated countries.

4.7 E-Participation [EPAR]

Citizens in Singapore have adapted to the culture of connecting government using online service systems, and participating in the public affairs through different channels which are provided by government. Reach (www.reach.gov.sg) is a platform built for citizens' voice spread and heard on public policies, public affairs within various forms such as online discussion, events and public consultation. Deliberative democracy has been reflected through ICT utilization in public sectors.

In addition, a portal, eCitizen Ideas! (www.ideas.ecitizen.sg) allows the Government to gather feedback and ideas, and at the same time Government encourages and promotes citizen engagement.

4.8 Open Government Data [OGD]

Singapore launched Open Data Portal (https://data.gov.sg/) in 2011 as the portal site to provide publicly available datasets from 70 public agencies. There are principles governing the data sharing, such as data shall be made easily accessible, data shall be released in a timely manner, etc. Singapore legal system is well recognized in the developed world. In April 2016, a developers' portal was also introduced to provide developers easier access to real-time data from different government agencies via APIs (Application Programming Interfaces). As of September 2016, the one-stop portal provides access to more than 600 quality datasets from 70 public agencies. Pulse of the Economy is an initiative by GovTech's Data Science team to merge real-time big data sources to develop new economic indicators to help government agencies better monitor the economy and identify opportunities for growth and employment.

4.9 Cyber Security [CYB]

Singapore has released different acts and regulations on Cyber Security issues, such as Computer Misuse Bill, The Electronic Transactions Act and Personal Data Protection Act (PDPA), and the later Computer Misuse and Cybersecurity Act (CMCA). A government body called Personal Data Protection Commission has been established to administer and enforce the PDPA. Recently, an organization called Cyber Security Agency of Singapore (CSA) has been found to oversee the national cyber security strategy and outreach. It is expected that new Cyber Security Act will be published in the coming year.

4.10 The use of Emerging ICT [EMG]

As leading country in D-Government area, Singapore would not pass up the chance to introduce and apply emerging technologies in public sectors. Public projects deploying cloud-computing, big data and IOT are common, ongoing or entering into sophisticated phases.

Organizational preparedness such as National Cloud Computing Advisory Council (NCCAC) is also paying attention to the adoption of technologies, industrial standard construction and fostering collaboration between different sectors. Development and deployment of emerging technologies in D-Government are already advancing in the Singapore Smart Nation initiatives and the related Tech Startup movement under the government leadership of GovTech and Info-communications Media Development Authority of Singapore (IMDA – a split from the former IDA). Its positive impact is already felt in leading industries and various societies.

Internet of Things (IoT)

The Government has been experimenting with many use-cases that involve IoT with the intent of leveraging on emerging technology that could help the government carry out its roles in a more productive manner.

Drones are already deployed in many government agencies to enhance efficiency and boost productivity as well as for workplace safety and health. Singapore has also embarked on trials using unmanned trucks to transport containers from one port terminal to another. The GovTech Emerging Technology Team had used Block chain and IoT for automatic procurement.

Machine Learning

The Singapore Land Authority uses drones and machine learning in land inspection with thousands of images of the property being analyzed to detect issues that require attention, ranging from illegal dumping and water ponding to cracks in buildings, under the leadership of

Analytics and Artificial Intelligence Lab

In general, Singapore various government agencies have successfully deployed data analytics in their daily operations and decision makings. Notably the Land Transport Authority of Singapore has bagged numerous international awards for such innovative deployment.

Further to the existing achievement, Singapore will be setting up a new lab which is as part of the Defence Science and Technology Agency. With a SGD$45 million funding annually, the lab will be used to experiment, build prototypes and develop tools using cross-disciplinary approaches.

https://govinsider.asia/digital-gov/singapore-sets-up-defence-ai-lab/

5 Some Highlights

As leading nation of D-Government in Asia, Singapore continues to maintain the momentum through transformation. The performance on indicators of Management Optimization, D-Government Development and Promotion, Network Infrastructure Preparedness, the Use of Emerging ICT, and Cyber Security are showing its strong points and advancement this year. Especially on the efforts for cyber security, Singapore equips the law and regulation framework to assure every safety measure and security upgrade can be enforced with legal basis. In respect to policy, National Cyber Security Masterplan 2018, as the latest strategy, guides government to enhance nation's security environment and create a robust and trusted society for public, private and individuals. Continuous masterplans in each crucial segment are one of the keys to keep Singapore proactive and possessing execution capacity on D-Government development.

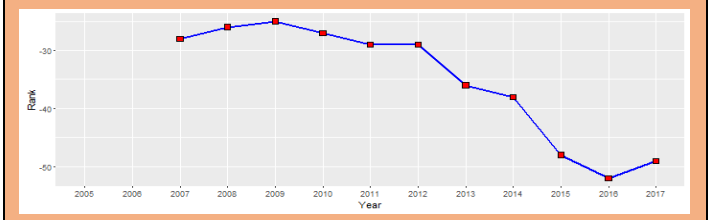
Government CIO office is reorganized to focus on emerging technology development and deployment under the Smart Nation initiative (by GovTech) and on nurturing Tech-Startup, high tech man-power development and industry transformation (by IMDA). Both GovTech and IMDA are formally being part of Infocomm Development Authority of Singapore (IDA).

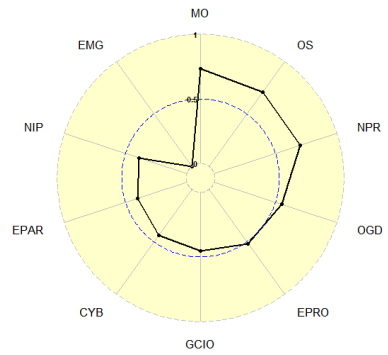
To future direction, Singapore still has potential on the growth of the use of emerging technologies. This new indicator has been introduced to Waseda D-Government ranking this year. Due to the fact that many countries are still at the start-up phase, direction for expanding the new technologies into public service sector needs more endeavor to be clarified. Singapore could seize the opportunity to formulate policies and standards, not only guide domestic innovation, but also delight international co-development.

South Africa

1 General Information

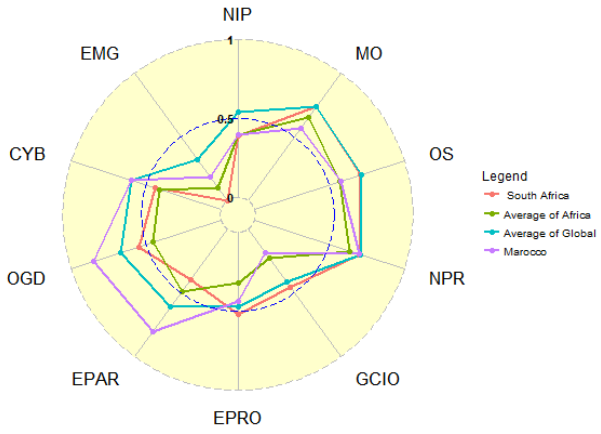
Area: 1,219,090 km^2
Population: 53,675,563
Government Type: republic
GDP: $13,400
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

AFRICA Countries



Among Africa countries, South Africa has surpassed the average of the region in most of indicators, except management optimization and e-merging technology. However when comparing with the world's average, only e-participation and e-promotion show the better scores.

3 D-Government Development

E‐Government in South Africa are considered as a high priority area for improving the internal operations and management. However, D-Government level in South Africa is still at the infancy phase. Most objectives are intended to help the Interior better executing administrative and supporting functions that

exist across the government bodies. The D-Government strategy is drafted by the Center for Public Service Innovation (CPSI) in associate with the Department of Public Service and Administration and the State Information Technology Agency.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

In South Africa, approximately 28.5 million people uses Internet in 2017. The Internet penetration is around 51.6 %. According to the latest report on Measuring the Information Society from International Telecommunication Union (ITU). Among them, wired broadband subscribers accounted for around 32% while more than 46.7% of total population have a wireless broadband connection.

4.2 Management Optimization [MO]

South Africa's National Development Plan and the National Integrated ICT Policy Green Paper published in 2013 are expected to be the major success driver of the development and uptake of D-Government services.

There is a so-called the Minimum interoperability standards (MIOS) for IS published by the South African government SITA agency. This standard defines the minimum principles that an IT system in government must meet. The target of this policy is to maintain the interoperability across government systems.

4.3 Online Service [OS]

The score for Online Service comprises of five sub-dimensions: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In general, only Tax and Customs services are delivered digitally. The South African revenue service (SARS) has put a system in place since 2003 for taxpayers to submit their tax returns. Until now the system reached the transactional level of online service, enabling individuals and businesses to submit and claim their tax totally online.

Regarding e-procurement, the etenders.gov.za is an initiative instituted by The Office of the Chief Procurement Officer to mandate all public sector organizations in South Africa to publish procurement information. Currently, the functionalities of the portal are only publishing information regarding tender and award notices and providing search capability on tender opportunities.

South Africa has a portal providing links to different types of services, however, citizens still have to go to specific department for service applying. Work is under progress to consolidate all government services in one single place. In health care, a national e-health strategy was published[54]

To measure the level of convenience, the third party application Google PageSpeed™ Insight[55] has showed that all services have a good access speed.

List of Online Services

Online Service	URL
e-Procurement	http://www.etenders.gov.za

[54]https://www.health-e.org.za/wp-content/uploads/2014/08/South-Africa-eHealth-Strategy-2012-2017.pdf
[55]https://developers.google.com/speed/pagespeed/insights.

e-Tax	http://www.sars.gov.za/
e-Customs	http://www.sars.gov.za/
e-Health	http://www.minavardkontakter.se/
One-Stop Service	http://www.gov.za/services

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. gov.za is the government portal of South Africa. It presents a wide range of information resources about country demographic, national programs, government structure, government agencies, legal documents and daily news regarding to government's operations. Information are delivered in English only

In technical aspect, the result of Google PageSpeed™ Insight showed that the website operates well in PC and shows some minor layout issues on mobile devices. The analysis also indicated several technical problems which may slow down the portal's loading speed. Social network features are supported.

4.5 Government CIO [GCIO]

The role of the CIO in South Africa was endorsed by the Government IT Officer's (GITO) Council in 2002. GITO was created to serve as an IT coordinator, to consolidate the IT activities of government agencies. The council functions as a platform in which both the government and citizens ensure that the government itself is aware of the needs of citizens.

4.6 D-Government Promotion [EPRO]

The Department of Public Service and Administration (DPSA) is responsible for the development and coordination on D-Government strategies. For implementing and monitoring D-Government projects, the South African government established statutory agencies such as the State Information Technology Agency (SITA) and Government Information Technology Officers Council (GITOC).

Public private partnerships have been promoted in South Africa recently in order to boost ICT development in the country. Most of projects are focusing on enhancing ICT infrastructure. Government's expenditure on ICT is estimated to reach $707.6 million in 2019, after reaching a total of $615.9 million in 2014, according to latest research by Frost & Sullivan[56].

The South African Government SA is aiming to provide broadband access to all citizens at reasonable prices. Given this target, the government has invested resources in enhancing infrastructure capacity, with the initializing the first phase of a 3-year project on broadband network. The total funding of R740 million was allocated for this purpose. The first phase was said to cover 7 provinces, with 5803 facilities including schools, health and other government entities. Steering committees have been shaped in all eight district municipalities and they comprise the provincial Departments of Basic Education, Health, Cooperative Governance and Traditional Affairs, Higher Education, Safety, Security and Liaison as well as the South African Local Government Association.

At local government level, most evidences were found related to the Gauteng Government D-Government promotion activities. Last year, the Gauteng provincial government has invested over R1 billion in the full penetration of the Gauteng Broadband Network (GBN) for the next four years. This is a part of the Gauteng city region-wide D-Government strategy, targeting at enhancing linkages and integration among city region governments and their departments[57].

[56] http://www.itweb.co.za/index.php?option=com_content&view=article&id=144530:Govt-ICT-spend-to-reach-707m-in-2019&catid=86

[57] http://www.itweb.co.za/index.php?option=com_content&view=article&id=150061:Gauteng-targets-100-broadband-connectivity&catid=147

4.7 D-Government Participation [EPAR]

Provincial and Local Liaison provides development communication and extends government's information infrastructure through partnerships with provincial and local government. It coordinates the establishment of Thusong Service Centre (TSC) programme – the one stop central for government services and information. There were 171 such centers by 2012. This is hoped to bring government services closer to the people.

4.8 Open Government Data [OGD]

The second South African open government partnership action plan[58] was released, reaffirmed South Africa's commitment to good governance and an open society underpinned by values of transparency, accountability and participatory governance.

4.9 Cyber Security [CYB]

May 2016, the international cooperation in the area of information and communications technology (ICT) and cyberspace between South Africa and China was promised to be strengthened.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). There is little evidence found on the use of emerging technologies in public sectors. No evidence has been found on the utilizing high-end technologies in government's operations.

5 Some Highlights

South Africa has achieved average scores on Online Service, D-Government Promotion and e-Participation, thanks to the recent efforts of the government in the cooperation with private sectors to enhance national ICT capacity. The government considers the public-private partnership to be the central focusing point of the National Development Plan and key to rapid development for economic growth.

However, the country scored low in all the rests. There are several major reasons for this situation, but the most important one is the lack of a long-term D-Government strategy. It is recommended that the South African Government should endorse a national strategy which put more focus on ICT and D-Government development.

Although GCIO is considered to be one of the key factors in the success of South African D-Government implementation, this indicator's score was not improved recently. It is advised that the Government should pay closely attention to develop government CIO in terms of quality and quantity.

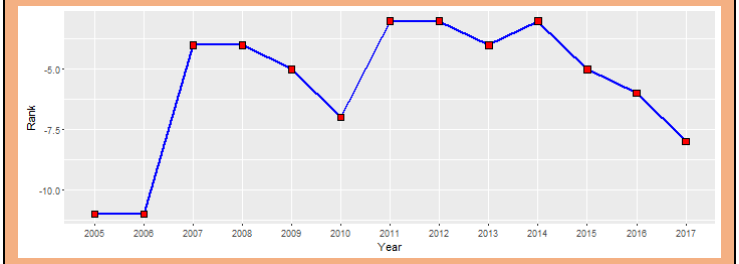
Though some South African government websites show great promises but they are still working with silo style, agency centric perspective, with the lacking of cooperating together and the insufficient focus user friendly and consumer-centric. This calls for a set of standards being published as the guidance for portals and service design.

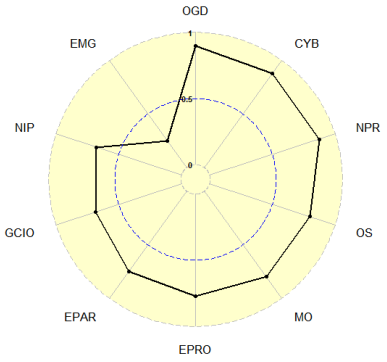
[58] http://www.opengovpartnership.org/sites/default/files/OPG%20booklet%20final%20single%20pages.pdf

South Korea

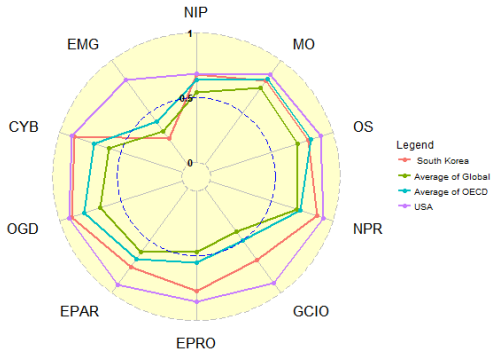
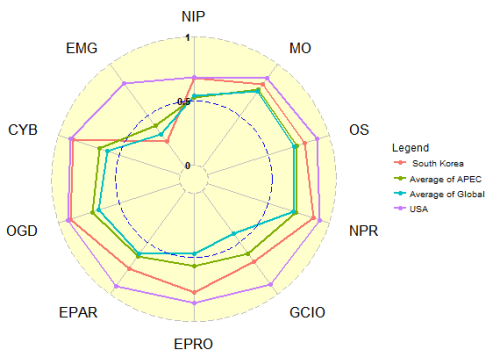
1 General Information

Area: 99,720 km^2
Population: 50,924,172
Government Type: Presidential Republic
GDP: $37,900
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	APEC Economies
	

Among OECD countries, the Korean government shows a great progress in D-Government development, with all indicators except Management Optimization (MO), Online Service (OS) and the use of Emerging Technologies for government (EMG) are better than the OECD's average. In APEC group, the Korean's government performance is even better, with all indicators except the use of Emerging Technologies for government (EMG).

3 D-Government Development

The history of improvement on Korea's D-Government could be divided into three periods; the infrastructure development (1987-2002), the full-fledged implementation (2003-2007), and the further advancement (2008-now).

Based on the development of D-Government which it has been achieved from 1978, Korea Government has been expanding the integration of D-Government towards the Smart D-Government promoting the usage of public service and active participation in anytime and anywhere. Since 2010, Korea has emerged as the world leader in ICT and D-Government.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

The total of Internet users in South Korea accounts for nearly 89.9% of the population in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). Among them, more than 109.7% people have a wireless broadband connection, while the figure for fixed-broadband subscriptions is only 40.2%.

4.2 Management Optimization [MO]

The Korean Government 3.0

Since 2013, the Park Geun-Hye's Government embraces Government 3.0 as a new paradigm which pursuits two major targets: delivering customized public services and generating new jobs. In order to turn these targets into realistic, the new paradigm aims to transform the government into a more service-oriented, competent, and transparent government. The On-nara BPS is a new business process management system that has improved the efficiency and transparency of administration process by handling, recording and managing in a standardized way all the business procedures of the government online. Approximately 362.000 government officers in 154 local and central governments are currently connecting to the system. In addition, all information systems operated by individual government agency are integrated and managed by the Government Integrated Data Center. Currently, there are 1200 systems of 43 government departments connecting to GIDC. GIDC helps to ensure security mechanisms against cyber-attacks and make all connected systems being prepared for natural disasters.

Information sharing among government organizations is fostering under Government 3.0. Examples can be seen in My Car Information App where vehicles' records (insurance, maintenance and accident) are provided for common usage.

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In terms of complexity level, most of Online Service in Korea has reach a transactional level in which user can totally conduct their businesses online. Korea Online E-procurement System, or KONEPS, won the United Nations Public Service Award (PSA), and was selected by OECD as one of the best cases for improving transparency, and won the 'Global IT Excellence Award' from World Congress on Information Technology (WCIT) in 2006. The entire procurement procedures are processed via KONEPS's subsystems: e-bidding, e-contracting, e-ordering from online shopping mall and e-payment. With the presence of Home Tax initiative, all tax businesses including filing, billing, and payment are processed online and information is retrieved anytime by taxpayer. Taxpayers or their tax agents can request and receive 18 civil affairs certificates. In terms of civil services, Minwon "http://www.minwon.go.kr/" is the one-stop portal where users can find services they need by searching through around 5,300 services available and get detailed information.

To measure the level of convenience, the third-party application result has showed that all portal is above the average in terms of speed. The third-party application for assessing the portal is the application from Google PageSpeed™ Insight.

List of Online Services

Online Service	URL
e-Procurement	https://www.g2b.go.kr/index.jsp
e-Tax	https://www.hometax.go.kr/
e-Customs	https://unipass.customs.go.kr/
e-Health	http://hi.nhis.or.kr/main.do
One-Stop Service	http://www.minwon.go.kr/

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information, Technical, and Functionality. National Portal of South Korea "http://www.korea.go.kr/" contains proper information for local citizens and foreigners. Information about the country, government structure and latest government's activities are also available. In terms of technical aspects, the result of Google PageSpeed™ Insight showed that the portal performs at average speed and operates well with both PC and Mobile devices. The portal is also equipped with several basic functionalities search capability, site map, and Social Network integration.

4.5 Government CIO [GCIO]

Currently, the country's D-Government lead agency is the Ministry of Security and Public Administration (MOSPA). CIO was introduced in each ministry of the government since 1998. The Fundamental Law on National Informatization and the Presidential Directive states the appointment of CIO in national and bureau level. According to The Presidential Directive No.157, the position of CIO in each ministry and governmental agency is mandatory.

The main roles of CIO are planning ICT projects, allocating ICT budget, and improving regulations related with D-Government project. The eligible personnel must meet the following qualifications; strong expertise

in the corresponding agency's actual performance, wide perspective and professional knowledge on ICT, and strong will to initiate innovations in administration through informatization.

4.6 D-Government Promotion [EPRO]

By pursuing Government 3.0, President Park shows her ambition and interests in utilizing ICT to transform government. The vision and strategy of Government 3.0 are received a broad consensus of government officers. The strong willingness and commitment from the top-level leaderships is one of success factor to the D-Government development of South Korea.

Another fundamental factor that has been contributed to the success of D-Government adoption in Korea is the presence of solid IT policy and regulation framework. Some examples are Framework Act on Informatization Promotion (FAIP), 1996; Electronic Government Act, 2001; Open Data Act; Information Disclosure Act; and so on. Alongside this, the sustained investment for D-Government (around 1% of national budget every year) guarantees Korea Government has sufficient resource for implementing its strategies and action plans. Funds for D-Government come from various sources such as the Informatization Promotion Fund; the Telecommunication Promotion Fund or the Central Fund for D-Government. And finally, the presence of institutions as coordinating bodies in public sector such as National Computing and Information Agency; National Information Society Agency; and Data Strategy Board; Gov. 3.0 Advisory Group; Gov. 3.0 officers in every ministry ensure the success of the new D-Government paradigm.

4.7 D-Government Participation [EPAR]

Another target of Government 3.0 is about connecting with citizens and encouraging them to engage in public affairs. Government enables this via online voting, online consultant and other large-scale public projects.

'e-People' website for online participation of citizens was selected as one of the top 10 services for online politics in 2006 World D-Government Forum. This portal facilitates citizens' participation in policy-making by processing people s complaints and suggestions via a single window. This is a single window application enables citizen participating in policy making process by receiving and handling their suggestions and complaints.

The official Facebook "https://www.facebook.com/govkorea" and Twitter "https://twitter.com/govkorea" is also available. Furthermore, elected officials and politicians often have their own website or SNS account to notify their activities and communicate with citizens

4.8 Open Government Data [OGD]

Government 3.0 pursues transparency of government. Open government in terms of data and information means the transition from supply-driven transparency (reactive, responsive disclosure of public information) to demand-driven transparency (proactive sharing). According to President Park, Government 3.0 places emphasize on "make information sharing more equitable and transparent between the central government, local governments, government agencies and the public." Aligning with this vision, Korea has published the National Action Plan on Open Government Partnership 2014 - 2016. Currently, Citizens can access public information and data at "https://data.go.kr/".

4.9 Cyber Security [CYB]

The National Cyber Security Master Plan was released in 2011, since then, it has been viewed as the foundation to guide the nation's cyber defense strategy. Korea also has a solid legislation framework on cyber security such as: The Information and Communication Infrastructure Protection Act 2001 (critical infrastructure protection); Act on Protection of Personal Information Maintained by Public Agencies (1994); Electronic Transaction Basic Act (February 1999, into force on 1 July 1999); and so on.

Both KrCERT/CC and KN-CERT are considered as computer emergency response teams in Korea Government. The Korea Internet and Security Agency is responsible for network and information security. In addition, the National Cyber Security Center (NCSC) is the central point of government for identifying, preventing and responding to cyber-attacks and threats in Korea. The NCSC, in collaboration with the private sector and the military sector, will improve warning systems and response time to security incidents and protect critical national infrastructures in Korea. For raising awareness on cyber security, the Korea Information Security Agency is responsible for online training and broadcasting about the responsible use of the Internet among users.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). In 2013, the first center for big data analytics was established which provides an adequate, secure large-scale data analytics infrastructure for future potential big data projects. Big data is currently integrating in Government Integrated Data Center (GIDC) too. Its big data log analysis system nSIMS, developed after 18 months of efforts, monitors 100,000 dangerous IPs in countries like North Korea, Romania, and the U.S. in real time while detecting signs of system failure.

The government's G-Cloud Project is expanding. A total of 260 D-Government systems have adopted G-Cloud by 2014, and the number is scheduled to be increased to 740, which is equivalent to 60 percent of the entire systems, by 2017.

In 2014, the Ministry The government has adopted the field of "Internet of Things" as a national strategic project, announcing the Internet of Things master plan to achieve a leading country of hyper-connected digital revolution.

5 Some Highlights

By implementing initiatives for optimizing business process of public sectors such as Government-wide Enterprise Architecture (GEA), On-nara BPS and Government Information Sharing, South Korean government has reached a high level of efficiency and transparency of administration process. This is awarded by a nearly perfect score on Management Optimization indicator this year.

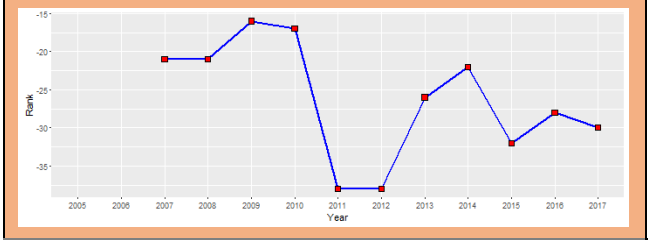
Another strength of South Korea is the comprehensive cyber security framework, indicating by full score in this dimension. With a supportive cyber regulation environment and well-established security agencies, the cyber security framework is strengthened, giving the government the capability to identify, prevent and respond to cyber-threats.

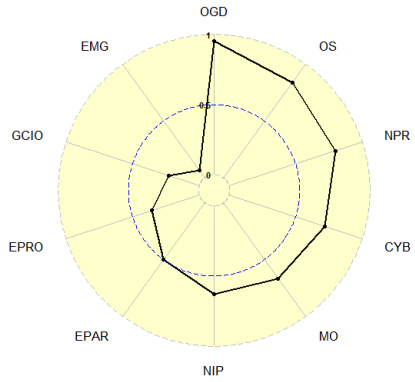
On 3rd March 2015, Korea passed the world's first cloud-specific law, with the stated aim of driving the adoption of cloud computing in Korea. The Ministry of Science, ICT & Future Planning announced the "K-ICT Cloud Computing Development Plan" during the November 2015 cabinet meeting with other related agencies and the Government 3.0 Committee. On April 2016, the Ministry established a cloud computing support center in Daegu City so public institutions can make better use of the tools provided by entities in the private sector.

Spain

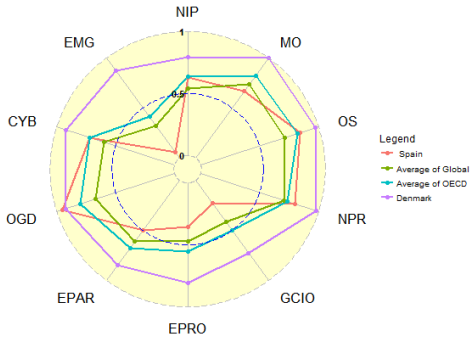
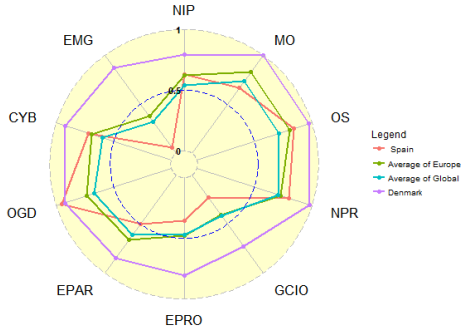
1 General Information

Area: 505,370 km²
Population: 48,146,134
Government Type: parliamentary constitutional monarchy
GDP: $35,200
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

OECD Countries	Europe Countries
	

3 D-Government Development

The development of D-Government in Spain was marked by a series of projects on ICT, especially the projects of Public Administration - The "Conecta" Plan. The aim of this strategy is to promote electronic interactions between Public Administrations and citizens (eCertificates); e-ID card; and a citizen portal to provide access to interactive and transactional services.

The "Moderniza" Plan (2006-2008), a plan of measures aimed at improving, modernizing and simplifying the Administration with a view to better accommodate the needs of citizens. In 2008 the Spanish Council of Ministers approved a 'Plan for the Reduction of Administrative Burden and the Improvement of Regulation' the plan targets a 30 % cut in the burden currently resting on businesses. The 'Avanza' Plan for the development of the Information Society forms part of the broader program 'Ingenio 2010'. The

objectives of this plan is to develop user-centric D-Government which furthermore overcomes the most serious challenges facing public e-Services. This plan was divided into 2 phases. The first phase is to develop Information Society and for Convergence with Europe, and among Autonomous Communities and Cities. The second is consolidate the milestones achieved during the first phase of the Plan while contributing to foster the demand for ICT and to fortify the ICT industry.

Avanza 2 was introduced in 2010 toward the second strategy 2011-2015. The aim of this plan is to help overcome ten objectives such as Promote innovative ICT processes in regional governments, Spread ICT applications in health and well-being, and Enable the application of ICT to the educational and training system.

In 2012, Spanish government issued MEJORA plan (Strategic Plan for Improving Public Service and Administration) for the period of 2012-2015. The MEJORA is divided into three major strategies: General State Administration (Racionaliz@ Plan), Citizens (Simplific@ Plan), and other public administrations (Compart@ Plan).

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Spain, 76.9% of the population uses the Internet in 2017. The number of fixed-broadband subscriptions is 28.3 per 100 inhabitants, while the number of active mobile broadband subscriptions is 82.1 per 100 inhabitants.

As for intranet connection, Spain has The 'Red SARA' network, administered by the Ministry of Finance and Public Administrations, is Spain's Government intranet. It interconnects 16 ministries, all Autonomous Communities (17) and Autonomous Cities (2), as well as over 3708 local entities, representing more than 90 % of the population. Red SARA's objective is to increase collaboration and interoperability among the information systems of the various levels of Government.

Furthermore, the Spanish government developed a lot of platform to promote D-Government services such as Public Certificate Authority (CERES), National e-ID Card (DNIe), @firma – MultiPKI Validation Platform for e-ID and eSignature Services, Cl@ve, and ePassports.

4.2 Management Optimization [MO]

In 2015, the Spanish government adopted its newest strategy, the "Digital Transformation Plan for the General Administration and the Public Agencies belonging to it", also referred to as the "ICT Strategy." It sets out the global strategic framework to make progress in the transformation of the Administration, sets forth the guiding principles, goals and actions required to complete it, as well as the landmarks in the gradual development of Digital Government. The strategy clearly defines five strategic objectives and nine related areas of work. The document is available to download in the website of the "Electronic Administration Portal" (PAE).

4.3 Online Service [OS]

Like other European countries, e-Services in Spain also are divided to citizens and businesses. The Portuguese government maintains websites for all five types of e-services assessed in this survey: e-procurement, e-tax, e-customs, one-stop service, and e-health; all of them have transactional features and obtained relatively high scores. The e-tax website integrates e-customs as well, is clear and easy to use, and offers a high level of interaction with the user. Similar are the cases of the e-procurement and e-health websites. The one-stop service website presents a search option on its main page, and lists the most consulted procedures. It also provides government information and different channels users seeking support. Users

have access to a personal account by using the "Cl@ve" system, which is the official authentication system for public administration procedures. It is available in five languages.

4.4 National Portal [NPR]

Spain's national portal is also the official website for the Spanish government and the president. It features news, a search function, and links to other sites related to the pubic administration. Basic and demographic information about the country, and information about the government and its structure is available on this website. The site also offers integration with SNS, the possibility to subscribe to a newsletter, and an option to send messages to the president. The site is available in Spanish and other four languages used in Spain, as well as English.

4.5 Government CIO [GCIO]

Although the title of GCIO is not used as such, an equivalent role is that of the Director of ICT of the State General Administration, whose mission is to coordinate the execution and implementation of the national D-Government strategy. Information regarding CIO training programs was found in at least one educational institution. No additional information on CIO regulations was found.

4.6 D-Government Promotion [EPRO]

The ICT Strategy and the Digital Agenda are the main guidelines in the promotion of D-Government. While the ICT Strategy focuses on initiatives and goals defined at the national level, the Digital Agenda aims to develop the use of ICT in compliance with the objectives set for the European Union. No information on publications, training programs, or events on D-Government was found.

4.7 E-Participation [EPAR]

Citizens have access to information on elected officials, government structure, and legislation on several government websites. The one-stop service website is highly functional and offers information on a wide range of topics. The president has an official website, which is also the national portal, and offers the citizens so send messages to him. No evidence to prove that the government takes the opinions of citizens in the decision making process was found.

4.8 Open Government Data [OGD]

Spain has performed well in establishing an open government. The government has issued the Open Government Plan, which follows the guidelines of the Open Government Partnership. The third version, for the 2017-2019 period, is expected to be released later this year. The government has enacted a solid legal framework for the promotion of open government. Also, the government has an open data site (http://datos.gob.es) in which an extensive range of information from very diverse areas, like demographic and health datasets, is available to citizens. This site is available in Spanish and English, as well as other three languages used in Spain. The government also has a portal for transparency (http://transparencia.gob.es), where it provides more information about the public administration and open government initiatives.

4.9 Cyber Security [CYB]

Spain introduced the National Cyber Security Strategy in 2013. In is, the government defines six cyber security objectives and eight lines of action. This strategy works in compliance with the National Security Plan and existing security laws. Spain penalized cyber crimes through its penal code. It also has laws for information protection, data security, and e-commerce. There is an official agency for dealing with cyber

security incidents, the CNN-CERT, and an information security agency, the National Centre for Critical Infrastructure Protection (CNPIC).

4.10 The use of Emerging ICT [EMG]

The growth of IoT in Spain is being incubated by academia in the area of information and computer science such as at the NICS Lab. There is evidence that Cloud Computing services are being developed for the public administration (SARA network), and some regulations have been established. No evidence of official usage or regulations by the government of emerging technologies such the Internet of Things or Big Data was found.

5 Some Highlights

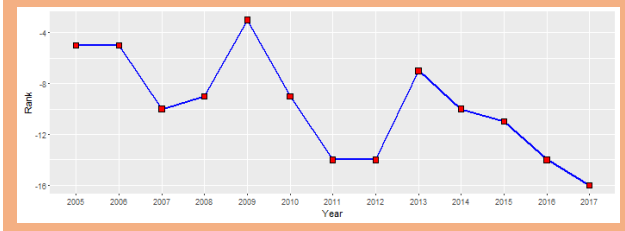
There will always be a percentage of the population unable or reluctant to use electronic means with Public Administration. Extending the benefits of D-Government to these citizens is, without any doubt, the major challenge for inclusive D-Government policies. The development of multi-channel strategies based in human intermediaries is now possible in Spain.

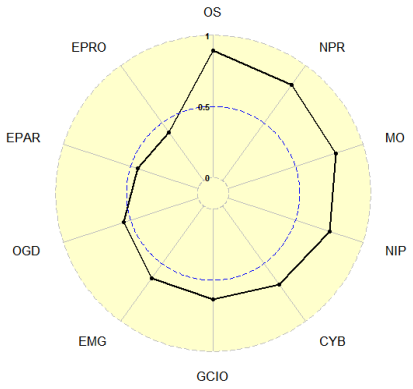
The Spanish government's efforts to promote D-Government have seen results in the areas of open government and cyber security, while citizen participation still needs to be improved. The strategy is well structured and that can be seen in the quality of e-services the public administration offers. In addition, the development of the SARA network will offer a platform for increased integration and efficiency in public administration.

Sweden

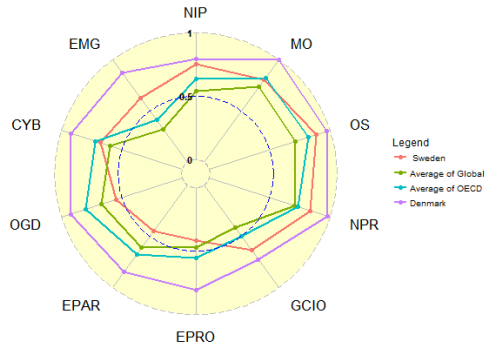
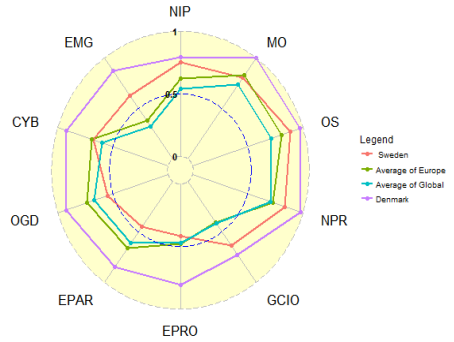
1 General Information

Area: 450,295 km^2
Population: 9,801,616
Government Type: constitutional monarchy
GDP: $48,000
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

OECD Countries	EUROPEAN Countries
	

Among OECD countries, Sweden has very high scores on network infrastructure, D-Government promotion and management optimization. These scores are far above the world and OECD's average and very close to the USA's – who achieved the top position in OECD countries.

In European countries, Sweden surpasses the regional average on almost indicators, except Online Services, Open Government and National Portal. Especially in D-Government promotion, the Swedish government even outweighs Denmark, securing the 1st in the European in this indicator.

3 D-Government Development

As one of the world's best connected countries, Sweden has 100% cell phone subscriptions with data, 94.6% Internet users, 90% households with personal computers, and 32% broadband subscribers). All of these

conditions combine with an early interest from decision-makers on IT, have turned Sweden into a prominent ICT nation with good infrastructure and advanced services. In fact, Sweden is one of the international leaders with regards to D-Government. The Swedish government has formulated strong policies in this progress.

The Swedish government focused on the D-Government and enhanced access to information in three main areas: citizen-oriented public sector development, the re-use of public administration documents and aid transparency. The major identified challenge of the action plan is 'More Effectively Managing Public Resources and Increasing Corporate Accountability. They also identified 5 commitments for Sweden, (1) put citizens at the center, (2) re-use of public administration documents, (3) Increased access to Swedish aid information, (4) Improved opportunities for dialogue and transparency, and (5) Increased aid transparency at global level.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 94.6% Sweden's population uses Internet in 2017, according to the Measuring the Information Society Report 2017 from International Telecommunication Union (ITU). Among them, wired broadband subscribers accounted for around 25.8% while more than 100% of total population have a wireless broadband connection.

4.2 Management Optimization [MO]

In December 2011, the Ministry of Enterprise, Energy and Communications published the latest national policy for D-Government, called ICT for Everyone - A Digital Agenda for Sweden Digital Agenda[59]. The agenda describes how the Swedish Government plans to further reinforce the capacity of government agencies to work together in delivering digital services.

In order to strengthen the collaboration among government agencies, Sweden launched a new D-Government strategy, "the Digital Step" targeting on making public administrations simpler, more transparent, and more efficient, with a major focus on citizen-centric e-Services.

4.3 Online Service [OS]

The score for Online Service comprises of five sub-dimensions: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In general, most of public services in Sweden are provided digitally. However, not all of them reached the transactional complexity level. Regarding e-Procurement, the Swedish Government has not implemented a centralized portal for electronic public procurement, as this is intentionally left up to private operators. The website avropa.se is currently the primary means of communication with procuring entities and suppliers. In order to facilitate the delivery of transactional e-Services to citizens, the Swedish Government has put into place the National e-Identification Board, whose mission is to promote and coordinate electronic identification and signature for the public sector e-Services. Regarding Taxation and Customs, skatteverket.se and tullverket.se are two electronic portals established to provide various transactional services to citizens and businesses. Those services obtained the highest level in complexity score.

[59] http://www.government.se/contentassets/8512aaa8012941deaee5cf9594e50ef4/ict-for-everyone---a-digital-agenda-for-sweden

To measure the level of convenience, the third party application Google PageSpeed™ Insight[60] has showed that all services have a good access speed.

List of Online Services

Online Service	URL
e-Procurement	http://www.avropa.se/
e-Tax	http://www.skatteverket.se/
e-Customs	http://www.tullverket.se/
e-Health	http://www.minavardkontakter.se/
One-Stop Service	N/A

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. Government.se is the government portal of Sweden. It presents a wide range of information resources about government structure, government agencies, legal documents and daily news regarding to government's operations. Information are delivered in 16 different languages.

In technical aspect, the result of Google PageSpeed™ Insight showed that the website operates well both from PC and from Mobile Device. The portal also provides several contacting methods via various Social Networks such as Facebook, Twitter, YouTube, Flicker as well as there is a feature allowing user to receive update mail notification.

4.5 Government CIO [GCIO]

Tt is clear that the position of CIO does exist in all levels of government, from national, to regional, to local, albeit under different names and with different responsibilities.

4.6 D-Government Promotion [EPRO]

The Swedish D-Government Delegation was said to be completed its mission and no longer responsible for D-Government development. Instead, another D-Government unit was said to be setting up at Ministry of Financial and the Minister for Public Administration Ardalan Shekarabi will be responsible for D-Government.

For municipalities digitalization, Swedish Association of Local Authorities and Regions (SKL) continues being in charge. Swedish Association of Municipalities for Joint Development of Public e-Services (SAMBRUK) initiated in 2003, involving 11 ICT Managers, for joint development of e-Services. So far, this organization's members include approximately 80 member municipalities from all over Sweden

In terms of monitoring D-Government progress, the Digitalisation Commission has been established in 2012 by the Swedish Government to analyze and monitor progress towards the Swedish ICT-policy goal to become the best in world at digitalization. Sweden also has research think-tanks on D-Government, such as eGovLab of Stockholm University[61] or Timbro[62].

4.7 D-Government Participation [EPAR]

There are around 60% of Swedish citizens use e-Services. The total of services provided online is around 3800 services. Another successful story about e-participation in Sweden is E-identification, which has over 4 million users out of 9 million citizens. These users conducted over 250 million transactions in various

[60]https://developers.google.com/speed/pagespeed/insights.
[61]http://www.egovlab.eu/index.php/about-us
[62]http://timbro.se/en

private and public e-Services during 2011[63], thanks to the availability of a world-class broadband. This enables households and businesses to have good opportunities to use electronic public services via broadband.

4.8 Open Government Data [OGD]

By publishing the Swedish Second National Action Plan 2014-2016 for the Open Government Partnership, the Swedish government reaffirmed its commitment to open government efforts, both in principle and in practice. Similar to other Nordic countries such as Finland and Norway, Sweden has a high degree of transparency and open government.

The Public Sector Information website was launched in February 2014 by VINNOVA (Sweden's Innovation Agency). The website is about making public information more accessible, denoting the extent to which Swedish authorities comply with the holistic vision on open data.

The openaid.se portal is a data-hub providing Swedish aid information on disbursements in an open format, thereby allowing citizens, CSOs and entrepreneurs to use, refine and develop the data provided. The aid information is provided on a global scale, at country level, per sector or by implementing agency.

4.9 Cyber Security [CYB]

A national strategy on Cyber security is under preparation progress. However there are some policies promulgated by government agencies such as the Strategy for Information Security in Sweden 2010-2015[64] by The Swedish Civil Contingencies Agency.

Sweden has formulated several legal documents regarding e-commerce and cyber security such as Personal Data Act, Public Access to Information and Secrecy Act, Act on Electronic Commerce and other Information Society Services (2002).

In terms of cyber security government entities, CERT-SE was established in 2003 and is responsible for coordinating incident response measures for both government institutions and private entities across all Swedish networks[65], while network and information security protection is the main role of The Swedish Civil Contingencies Agency (MSB).

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). There is little evidence found on the use of emerging technologies in public sectors.

5 Some Highlights

There have been lots of efforts carried out by Swedish Government to promote for D-Government. These activities could be found in both central and local government levels. For example, in October 2015, an advisory board for D-Government was established by the Swedish government which consist of high-level decision-makers in the public sector with the task to give advice on D-Government policy[66]. In addition,

[63] http://www.opengovpartnership.org/es/files/swedens-ogp-action-plan-2014-2016-pdf/download
[64] https://www.msb.se/RibData/Filer/pdf/25940.PDF
[65] http://cybersecurity.bsa.org/assets/PDFs/country_reports/cs_sweden.pdf
[66] https://joinup.ec.europa.eu/sites/default/files/ckeditor_files/files/D-Government%20in%20Sweden%20-%20February%202016%20-%2018_0_v1_00.pdf

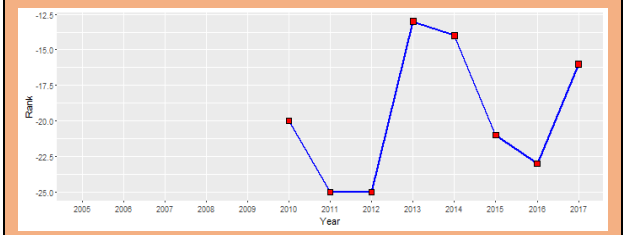
regular meetings and events were held at municipality level to promote different aspects of D-Government. All of these evidences resulted a high score for Sweden on D-Government promotion ranking this year.

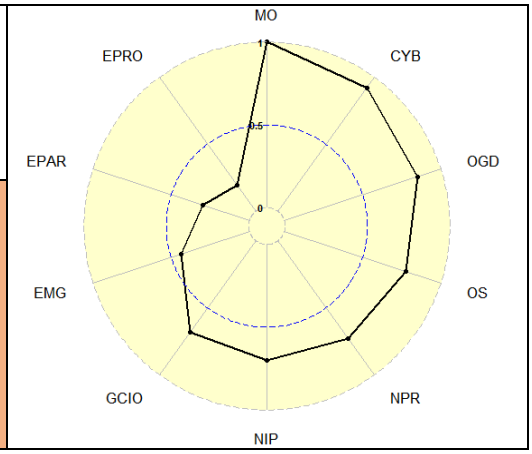
More attentions need to be paid on providing information on the national portal. It is advised that country information and available services should be included on the national portal as a one-stop gateway for residents and foreigners. In addition, being the country with many famous technology corporations such as Erikson, the government is recommended to utilize emerging technologies into public sector's operations. This will help to improve the ranking of Sweden in this area.

Switzerland

1 General Information

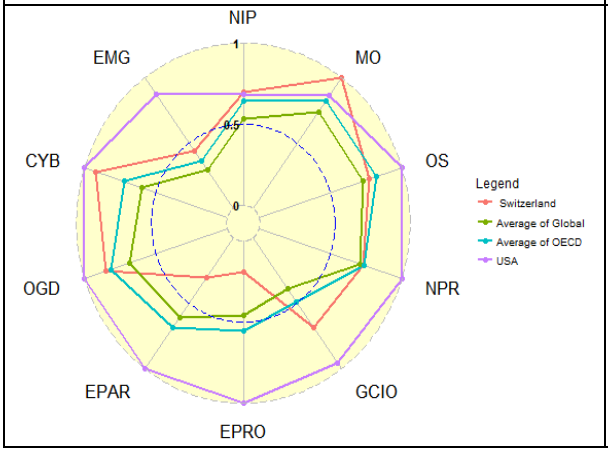
Area: 41,277 km^2 [67]
Population: 8,179,294 [68]
Government Type: Federal Republic [69]
GDP: $ 59,400[70]
Historical Ranking (2005 – 2017):



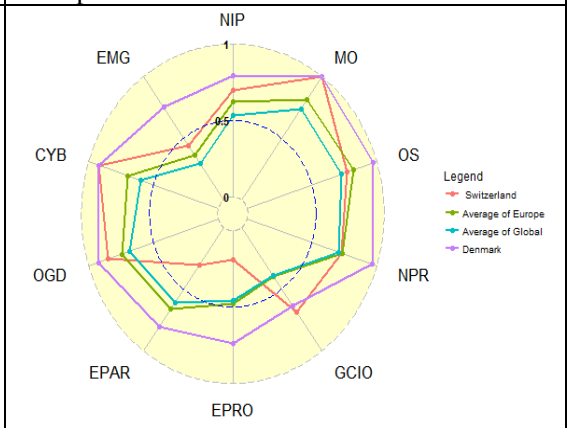


2 Positioning in a global organization and a region

OECD Countries



European Countries

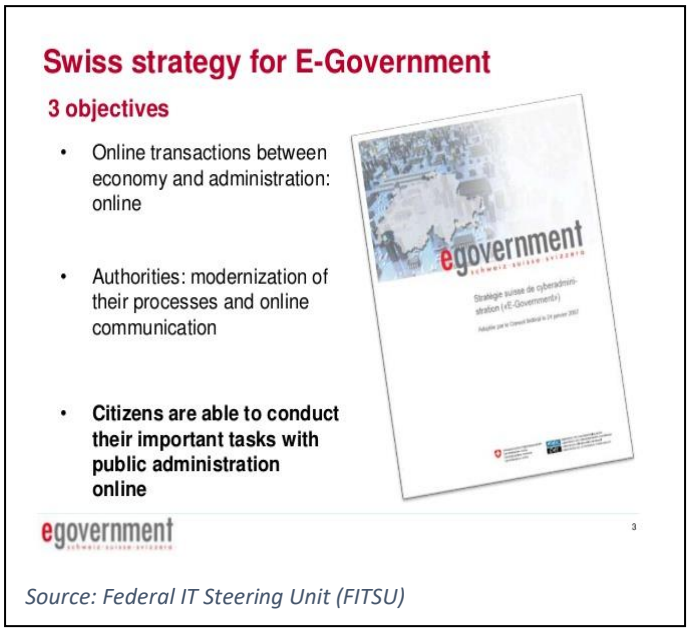


Switzerland has an outstanding performance on Management Optimization, which is above the average of OECD countries. However, similar to other developed countries in European, Switzerland has very low D-Government Promotion initiatives. Its score on D-Government Promotion is lower than the average score of both OECD and European Countries

[67] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html
[68] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[69] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[70] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

3 Government Development

On 24 January 2007, the Federal Council launched a national eGovernment strategy. Unlike in many countries where the national D-Government strategy is commonly proposed by central government, Switzerland develeop the strategy in a collaboration between the cantons and the municipalities, under the direction of the FITSU. The strategy comprises the basis for the Confederation, the cantons, and the municipalities to align their efforts toward common goals.



Source: Federal IT Steering Unit (FITSU)

In December 2015, the Confederation and Cantonal Government of Switzerland adopted the revised strategy and settled the framework agreement for 2016-2019 legislative period.

To strengthen the integration and collaboration among government intitutions, The Swis Conference on Informatics (CSI) encourages the participation of cantonal and municipal authorities in the implementation of D-Government strategy.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 88% of people in Switzerland were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 44.2% have fixed-broadband subscriptions, and wireless broadband subscription has reach 97.6%.

4.2 Management Optimization [MO]

D-Government Strategy Switzerland was created through a collaboration between central and local government. The strategy has set the role and responsibilities of each agencies. There are measurable target and objectives on the D-Government Strategy. Furthermore, the strategic plan has been cascaded into more detailed action plan.

Switzerland government uses Business Process Model Notation (BPMN) for illustrating government business process. This practice will enable to identify redundancy or critical process that could be eliminating or adding more control over it.

Since the strategy is the result of good cooperation between central and local government, there is a mutual control system among them regarding data exchange. Network Administration Switzerland handles such activities.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online service, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of

Security, and Level of Convenience. Among these five Online Service, e-Procurement, e-Tax, and One-Stop Service are the best performer among five online services.

In term of complexity level, all online services have reach interaction level where the citizen can obtain the service without necessarily visit to the government office. Initial stage of interaction with government through the portal. In addition to that, all Online Service have implemented security measures such as SSL, Site Authentication, and Password Protection for obtaining the services.

To measure the level of convenience, the third-party application result has showed that three portals are above the average considerably in term of speed. E-Procurement and e-Customs are the only portal that scored below average, thus, considerably slow to access. The third-party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	http://www.simap.ch/
e-Tax	https://www.estv.admin.ch
e-Customs	http://www.ezv.admin.ch/index.html?lang=en
e-Health	http://www.e-health-suisse.ch
One-Stop Service	https://www.ch.ch

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Switzerland (https://www.admin.ch) contains proper information for local citizens and foreigners. Information about Switzerland is available on the portal. User can find information about culture and heritage, demographic, and government. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average on both from PC and from Mobile Device. However, from the user experience aspect, this website is tremendous.

4.5 Government CIO [GCIO]

Switzerland has clearly defined the appointment of GCIO in all level of department. Furthermore, the mandate and the role of GCIO are stated on the official document under "Framework agreement under public law on D-Government cooperation in Switzerland (2016 – 2019)".

4.6 D-Government Promotion [EPRO]

There is no significant evidence to indicate that Switzerland government conduct any initiatives to promote the use of D-Government Service. This situation is similar to the one in any developed countries where the IT Culture has been embraced in the society.

4.7 E-Participation [EPAR]

Culture and society in Switzerland has been created as a high-tech society. These factors have driven Switzerland to the next horizon of D-Government. Citizens and government can take the benefit of ICT in their daily life. However, there is no application where the citizen can directly communicate to the government. The absence of e-participation portal significantly impacts the score of this indicator.

4.8 Open Government Data [OGD]

In 2004, Switzerland has launched Federal Act on Freedom of Information in the Administration to participate in the Freedom of Information Act movement around the world. To strengthen the implementation of these act, Switzerland has established Open Data Portal (https://opendata.swiss/en/) to provide public with accessible government information. To keep the information update, Switzerland government authorize all government agencies to publish their data to the open data portal on behalf of the state.

4.9 Cyber Security [CYB]

Switzerland has ratified several laws related to cybersecurity. Some of them are as follow:

- Information Protection Ordinance 2007
- Federal Act on Data Protection 2010
- Information Protection Ordinance 2007
- "Military Act, Art 99/100 Ordinance on the Armed Forces Intelligence Service (O-AFIS)"
- Federal Law on Certification Service

In addition to these laws, Switzerland has strengthened organization capacity for cybercrime countermeasure by setting up Swiss Cyber Security Advisory and Research Gr0up. Beside the advisory group, there are two important organizations in the Swiss cybersecurity, i.e., FITSU and Swiss-CERT.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Switzerland has attempted to implemented Cloud Computing for Public Sector. Switzerland built a private cloud for government. The strategy for implementing Government Cloud has been approved by D-Government Steering Committee in October 2012. Along with the implementation of Government Cloud, Swiss government has implemented Big Data Analytics in Swiss State Secretariat for Economic Affairs.

5 Some Highlights

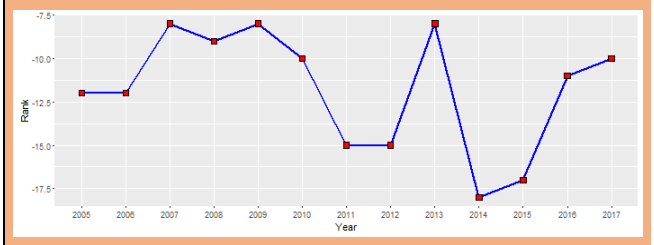
Among ten indicators in the current ranking, the Management Optimization is the best among other indicators in D-Government Switzerland. This achievement signifies the importance of strong collaboration between central and local government; Confederation and Cantonal, for improving the quality of government business process. Similar to other European countries, Switzerland is shifting its D-Government to the next level in which they try to make all public service will be digital by default.

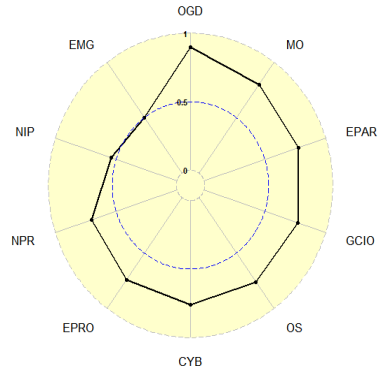
The weak point in Switzerland is about D-Government Promotion and the use of emerging ICT. One argument is that the lack of D-Government promotion activities occurred because Switzerland does not need such programs anymore. Their citizen is aware already of D-Government service and knows how to use it. However, by the increasing use of emerging ICT, Switzerland still has a chance to get the higher score in D-Government Promotion. The promotion activities will follow the progress of implementation of the New D-Government Strategy since it needs some introductions of new services to the citizens.

Taiwan

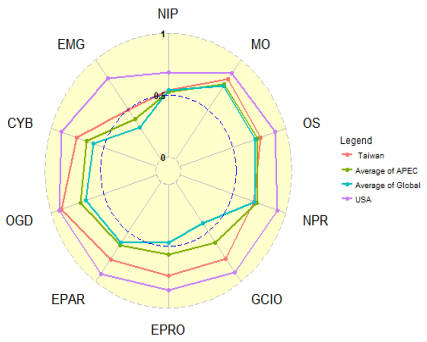
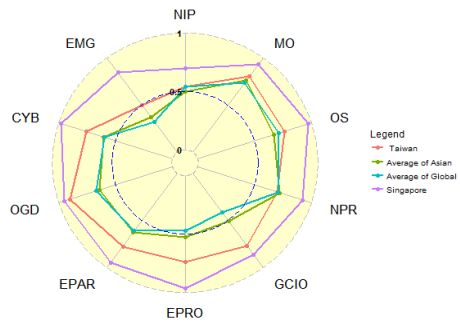
1 General Information

Area: 35,980 km^2
Population: 23,415,126
Government Type: multiparty democracy
GDP: $47,500
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

APEC Economies	ASIAN Countries
	

Among APEC countries, expect Network Infrastructure Preparedness and National Portal, rest 8 indicators of Taiwan are above the average score of other members, especially the performance on Open Government Data. Taiwan also has achieved comparatively better scores compared with Asia countries, exceeding or equal to the average except Network Infrastructure Preparedness and National Portal.

3 D-Government Development

The national development council of Taiwan has published national D-Government plan (2017-2020) this year, as the fifth step after previous strategies. The new plan is aim to match the white paper: ide@Taiwan2020 Policy which released earlier. According to its definition, “e” is for “D-Government”: to provide people proactive, niche, or comprehensive services through streamlined administrative processes and effective and efficient management. Also, “I” (intelligent Taiwan), “d” (digital nation) and “a” (accessible to the people) are indispensable and relative goals valued at the paper. However, in its new plan

for next 4years, Taiwan sets the goal to move towards a "digital government" era surpassing traditional D-Government phase. The new objective adopting emerging technologies like big data and cloud-computing is to build a comprehensive data-driven system of which citizens can take full advantage instead of receiving standard public service. Other targets such as government transparency and accountability could be achieved effectively as well in the new vision.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

According to ITU's investigation, Internet users take up 80% of the population in Taiwan. About 24.7% are Fixed-Broadband users, and 57.1% of the wireless broadband users, in which most of advanced countries have achieved more proportion close to 100%~110%. According to nation's own research, the network coverage has already reached 100% over the island, and the internet usage rate was about 80% for those age were above 12 years old. It gives government and enterprises a good opportunity to offer information and services to people via internet.

4.2 Management Optimization [MO]

Taiwan has propelled the administrative reformation by information system since 1980s. After consistent D-Government plans of five stages within particular emphases on government system integrations, it has optimized the internal office and established an effective operation. However, to keep the D-Government program advancing, meticulous periodic evaluation of each plan needs to be fulfilled and presented to the public by government.

4.3 Online Service [OS]

The score for Online Service is evaluated on five online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. There are three levels of sophistication were examined as Level of Complexity, Level of Security, and Level of Convenience. For Taiwan, most of the online services have been estimated as high performances which provide citizens with transactional online service, except the portal for e-Health. The services presented on the site(http://www.mohw.gov.tw/) are staying at e-information, application and inquire. Now some advanced countries have already established an e-Health online system to connect the hospitals, care-center with citizens in which multiple needs on health can be satisfied even with one APP. Considering the fact of incoming aging society, there are undoubted necessaries to integrate the e-Health system to serve citizens in different needs and priorities.

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. The National Portal of Taiwan (http://www.taiwan.gov.tw/) offers information about Taiwan including demographic and historical introductions. Other information has been classified by different purposes such as Visas/Immigration, Education/Employment, Tourism, Economy and so on. There are also guides for residents with various aspects of living in Taiwan. E-Information is the main function for National Portal of Taiwan, which could increase more services in the future.

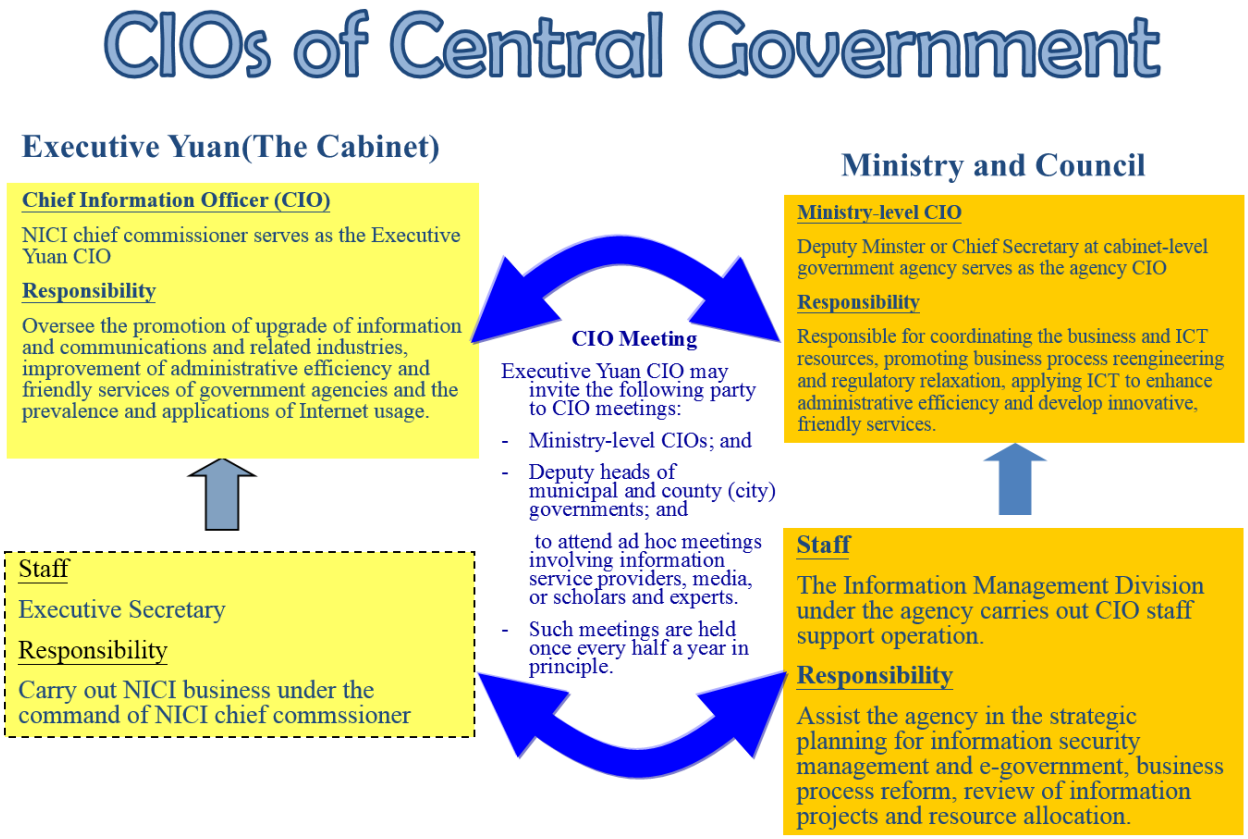
4.5 Government CIO [GCIO]

Taiwan has put effort to establish the GCIO system. The year 2012 was an important time point in which the first GCIO Mr. San-Cheng Chang has been appointed and the second- degree GCIO system was set up. According to it, The Convenor of National Information and Communications Initiative Committee (NICI) will fill the post of GCIO in Executive Yuan level and each Ministry level of central government have their

CIOs as well. Regular CIO Meeting has been held among the CIOs and deputy heads of municipal and city governments.

The GCIO organization in Taiwan consists of the Deputy Minsters or Chief Secretaries at cabinet-level government agencies who serve as the ministry level CIOs. Regarding the government ICT strategies, all those ministry level CIOs are under the command of NICI chief commissioner who serves as the Executive Yuan CIO. The Responsibility of Executive Yuan CIO is to oversee the promotion of upgrade of information and communications and related industries, improvement of administrative efficiency and friendly services of government agencies and the prevalence and applications of Internet usage.

The Responsibility of Ministry-level CIOs is to coordinate the business and ICT resources, promote business process reengineering and regulatory relaxation, apply ICT to enhance administrative efficiency and develop innovative, friendly services.



4.6 D-Government Promotion [EPRO]

The newest D-Government agenda published in 2016 focus on the digital government construction within the utilization of emerging technologies including IOT, Cloud Computing and Big Data. To coordinate with the ide@Taiwan 2020 white paper, the fifth e-Government plan has proposed three main objectives as “Proving convenient living” “Develop digital economy” and “Fulfill governance transparency”. The core concept of the new plan is “Data-driven” “ public-private collaboration” and “civilian-centric”. There are also other promotions cover issues such as government open data and infrastructure.

4.7 E-Participation [EPAR]

Most of the government agencies in Taiwan have prepared channels for citizens to interact with specific agencies via email, Tel and online message form. A simple search engine on the one-stop service portal

enables users to find the departments they want to reach directly and effectively with completed contact lists by names. In response to the rapid development of the internet and the rise of citizen participation awareness, the government has established E-participation Platform (http://join.gov.tw) to gather the public opinions. People can initiate proposals on this website. Once the proposal gets 5,000 signatures within 60 days, then the authority has to respond formally in 60 days after a comprehensive research and analysis. The government enables to win people's trust and make good use of social innovation power to improve the effectiveness of government governance.

4.8 Open Government Data [OGD]

Taiwan got comparatively high scores on indicator of Open Government Data and tied with Singapore for the first place among Asia nations. Open data initiative has remained one of the first priorities in D-Government plans of Taiwan, within legal preparedness such as "The Freedom of Government Information Law (2005)""Copyright Act (2014)" and "Personal Information Promotion (2015)". The Open Data Portal (http://data.gov.tw/) are not only updating datasets on every aspect in social life and governments, but also providing space for citizens to comment and discuss after checking the data. What's more, the details in data standards and guide for users to read and utilize information are presented on the website.

4.9 Cyber Security [CYB]

Several policies related to Cyber Security have been issued in Taiwan including such as Information and Communication Security Policy White Paper (2008/2010) and National Information and Communication Security development project (2013-2016). To strengthen nation's capacities in Cyber Security, the National Information and Communication Security Taskforces (NISCT) was formed by The Executive Yuan in 2001, by whom Ministry of Science and Technology were issued as the responsible authority for Cyber Security instead of NISCT, within a new institution called "National Center for Cyber Security Technology (NCCST)" in 2016.

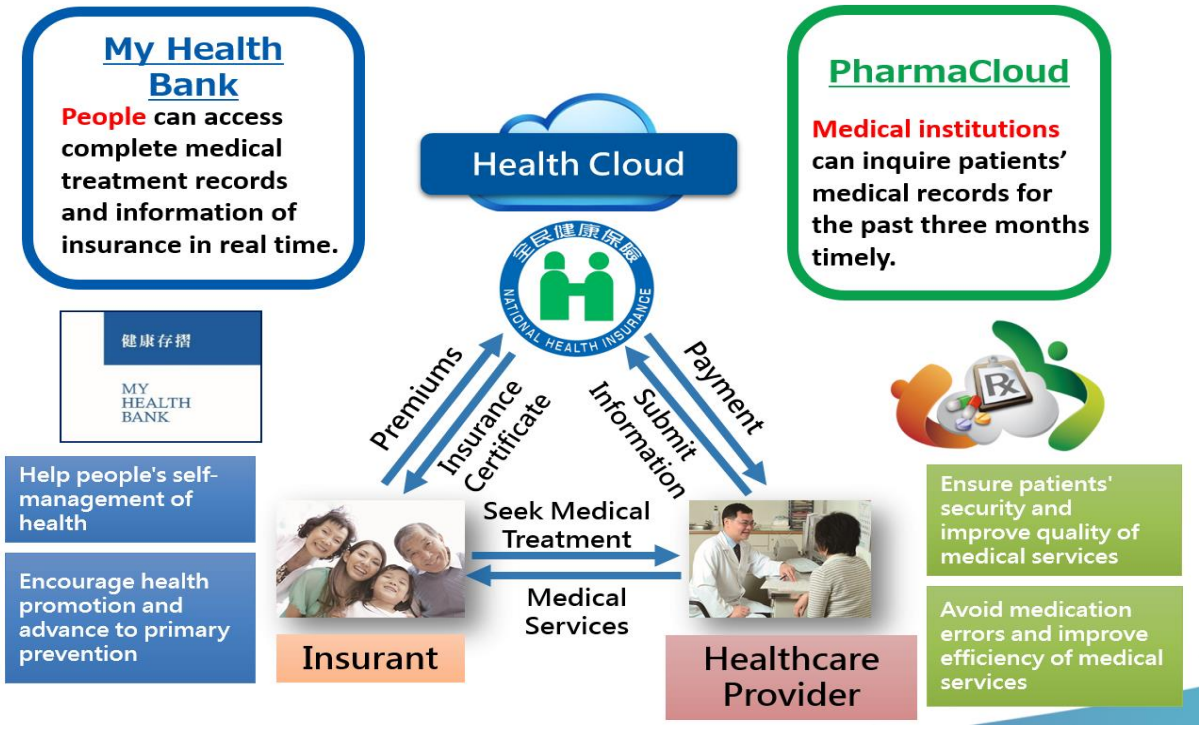
4.10 The use of Emerging ICT [EMG]

Taiwan has followed the global development of emerging ICT, the Executive Yuan passed "Cloud Computing Industrial Development Program" on April 29th, 2010 in order to extend the advantage of hardware manufacturing from our existing Information and Communication Industry and to obtain the early opportunity of global cloud computing market. in November, 2012,the Executive Yuan amended the program again to expand the appeal to be "Promote the government cloud application people need, Drive the development of domestic cloud industries" and to adjust the original name to be" Cloud Computing Application and Industrial Development Program", focusing on both "application value" and "output of industry and economy."

As many countries, Taiwan is facing the challenge of population aging. Taiwan government built up My Health Bank and Pharma Cloud in the D-Government to improve the quality and efficiency of medical care and promote people's self-care.

My Health Bank is based on the National Health Insurance system, relevant data can be uploaded to NHI System through API. It is mandatory for people and medical institutions to submit relevant data which fits NHI system's data standard.

The Pharm Cloud provides three services: To facilitate patients' drug safety and reduce duplicate prescriptions; to provide a real-time inquiry into the latest 3-month prescriptions; subject to strict privacy and security through the VPN and HCA. The target users of Pharma Cloud would be hospitals, doctors, specialists, or medical care givers, and pharmacists in local drug stores etc. The benefits of Pharma Cloud include immediate query (for example the query will response within 10 seconds and now we have a total of Over 200 million times inquiry), enhancing healthcare quality (now we have 80% of total medical institutions, around 22 thousands, adopts Pharma Cloud), and improving relationship between physicians and patients.



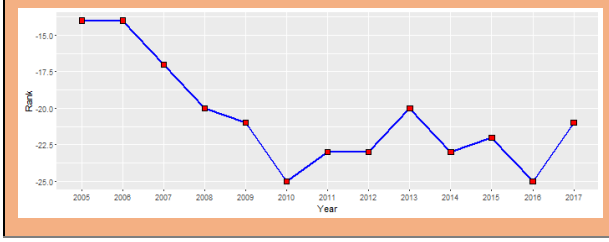
5 Some Highlights

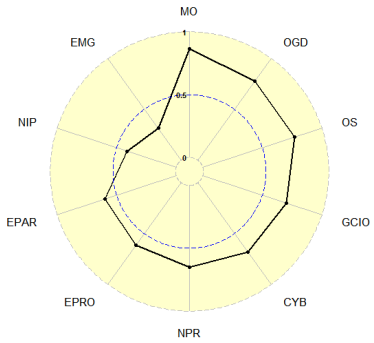
Taiwan jumped to 10th in Waseda D-Government ranking in 2017 and kept its superior position among Asia. It has great performance on indicator of "Open government", showing government's effort actions to achieve the goals that have been emphasized in aforementioned national plans. As a matter of fact, Transparency, Accountability or E-democracy have always remained social focus in the society. Along with the development of digital government strategy, Taiwan is indeed expected to gain better achievements on "e-participation" "the usage of emerging technologies" in the future. On the other hand, national portal should not be forgotten since it is not only the portal to send nation's message to citizens but also an important window for non-Taiwan citizens to understand and become familiar with the society. In addition, cyber security is a vital issue for digital government as well.

Thailand

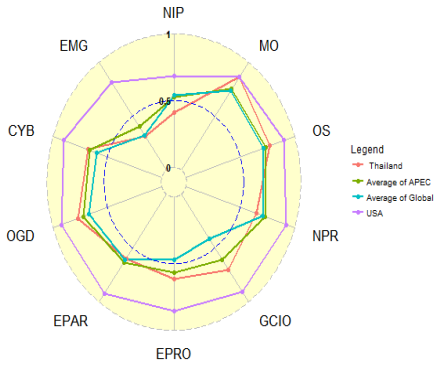
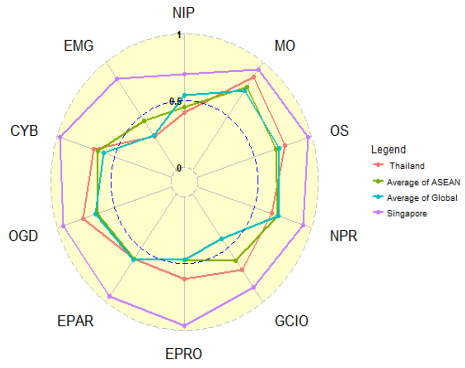
1 General Information

Area: 513,120 km^2
Population: 68,200,824
Government Type: Constitutional Monarchy
GDP: $16,800
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

APEC Countries	ASEAN Countries
	

Among APEC Countries, the Management Optimization (MO), Online Service (OS), Government CIO (GCIO), E-Promotion (EPRO), Open Government Data (OGD) and Cyber Security (CYB) indicators are above the average score of APEC members. The Management Optimization (MO) indicator of Thailand gets the same level of United States, the best country in APEC. Amongst ASEAN countries, Thailand is placed below Singapore. However, the National Portal (NPR) indicator of Thailand is lowest among these regions.

3 D-Government Development

The Ministry of Information and Communications Technology (MICT), now the Ministry of Digital Economy and Society (MDE) is the main body responsible not only for the ICT master plan but also for the National D-Government policy formulation. MICT presented Thailand Information and Communication Technology (ICT) Policy Framework (2011-2020) is ICT2020 which was released on May 2011. In 2016, Thailand government announced the draft of Digital Economy Development plan along with Digital Government Development plan. The digital economy sets the framework and direction driving the economy and society as a whole; while the Digital government development plan provides more detail for the government sector moving toward digital economy. The strategic framework "Digital Thailand" for promoting a digital economy consists of four areas: Digital Commerce, Digital Entrepreneur, Digital Innovation, and Digital Content. Emphasis will be placed on five strategies, namely, Hard Infrastructure, Service Infrastructure, Soft Infrastructure, Digital Economy Promotion, and Digital Society.

Thailand Digital Economy and Society Development Plan

Digital Government development plan has been established by Electronic Government Agency (Public Organization) (EGA) with takes the roles to develop and integrate information and communication technology systems to achieve establishing D-Government which is the country's key strategy to effectively leverage government's capabilities of management and public service systems. Digital Government Plan 2016-2018 has characters with 1) Government Integration; 2) Smart Operations; 3) Citizen-centric Services; 4) Driven Transformation. In addition, there are 4 digital government strategies define as 1) Developing the capacity to support government services; 2) Elevation of Citizen's Quality of life; 3) Enhancing the capacity of business sectors' competitiveness; 4) Increasing national security and public safety.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 39.3% of people in Thailand were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 9.2% have fixed-broadband subscriptions, and wired broadband subscription has reach 75.3%.

4.2 Management Optimization [MO]

Although Thailand scores highly in terms of optimization awareness, the development of an EA framework remains average. There is significant work to put interoperability under the control of MICT. The present Thailand Information and Communication Technology (ICT) Policy Framework (2011-2020) is ICT2020 which was released on May 2011.

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and their URL Address. All of those services were investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Among these five Online Service, e-Procurement, e-Tax, and e-Customs are the best performers among five online services.

In terms of complexity level, all online services have reach interaction level where the citizen can obtain the service without necessarily visit to the government office. Initial stage of interaction with government through the portal. In addition to that, all Online Service have implemented security measures such as Site Authentication, and Password Protection for obtaining the services. However, it is still limit to use SSL as security measure when login to system.

To measure the level of convenience, the third-party application result has showed that all portals are below the average considerably in terms of speed. Thus, their access speed considerably slows to access, according the big size of page that use many picture and not using the web cache. The third-party application for assessing the portal is the application from Google PageSpeed™ Insight. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	http://www.gprocurement.go.th
e-Tax	http://www.rd.go.th/
e-Customs	http://e-tracking.customs.go.th/ETS/index.jsp
e-Health	https://www.moph.go.th/
One-Stop Service	https://www.egov.go.th/th/index.php

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information, Technical, and Functionality. Thailand has several websites collectively which make up government online presence. The digital portal of the Thai government is “https://www.egov.go.th/” that provides daily information and D-Government connectivity for citizens. The portal is available only in the national language Thai. In technical aspect, the result of Google PageSpeed™ Insight showed that the website performance is below average on both from PC and from Mobile Device. It scored below average in terms of page speed.

4.5 Government CIO [GCIO]

The Chief Information Officer (CIO) is a bureaucratic position mentioned in ICT Master Plan 2002 - 2006. In Thailand, CIOs are appointed at all levels except town/city level. There are several organizations for the CIO, such as the CIO Association of Thailand (CIO and IT persons from both government and private sectors) and the International Academy of CIO in Thailand. In addition, The National Electronic and Computer Technology Center (NECTEC) also studies about CIOs. EGA has D-Government Academy that also coordinates with other organizations to hold CIO related activities like seminars, conferences, and workshops. For the purpose of the realization of Smart Thailand, the ICT 2020 also emphasizes the important role of CIOs in terms of both private and public sectors.

4.6 D-Government Promotion [EPRO]

The D-Government Promotion & Development Bureau (Under MICT) was in charge of D-Government promotion in Thailand. Now, it is charged to EGA. And, The National Information Technology Committee, NECTEC, and the IT Operations Support Office are government entities involved in assessing the progress of D-Government. However, ministries, local governments, and some state-owned companies in telecommunications are also involved in promoting D-Government.

4.7 E-Participation [EPAR]

In general, all interest groups have online access to essential administrative information. As of November 2014, current Thai government led by General Prayut Chan-o-cha has released official Facebook webpage of National Council for Peace and Order (NCPO) in order to be alternative communication between Thai people and current government. In addition, there is no application where the citizen can directly communicate to the government. The absence of e-participation portal significantly impacts the score of this indicator.

4.8 Open Government Data [OGD]

Since 2013, Thailand government has appointed EGA to develop Thailand Government Open Data "https://www.data.go.th/" and Open Application "https://apps.go.th/". These projects are still in an ongoing process. It is limited of dataset, and it contains links and descriptions for about 552 datasets and has 211 applications as one the end of May, 2016. To keep the information update, EGA authorize all government agencies to publish their data to the open data portal on behalf of the state, and EGA also has seminar and event to promote Government open data. In addition, for Thailand increasing of Government open data means showing the political will to fight against corruption by publishing as much information as possible in free access for citizens, however it is also creating new economic opportunities and helping better business decisions be made through open data.

4.9 Cyber Security [CYB]

Thailand has The Electronic Act 2001 as the core of its cyber law. This act delivers the legal framework for the validity of digital signature and electronic transaction. On 18 July 2007, the Computer Crime Act B.E.2550 (2007) came into force. Now, Thailand is in the process of establishing new legislation of the government's digital economy policy. MICT (now the Ministry of Digital Economy and Society) proposed the adoption of eight items of legislation, to support development of the digital economy, in which three of them are related to cybersecurity including: Computer-Related Crime Bill (amendment); Personal Data Protection Bill; and Cyber security Bill. The Cybersecurity Bill, one of the legal instruments proposed is under review, and the Bill specifies the establishment of a National Cyber Security Committee (NCSC) which will be chaired by the prime minister to provide national level cybersecurity policy to protect prevent and combat cyber threats.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). G-Cloud is an IaaS that utilized cloud computing technology for managing resources of government, and it has been certified by ISO / IEC 27001: 2013 that ensure the information security management system. However, the evidence shows that Big Data is not officially launched. Some Big Data Initiatives have been implemented in some of government units e.g. Department of Highway. In addition, EGA by Research & Development team is working on some research and published some papers on IoT issue. And many of prototype project that provided by EGA is ongoing.

5 Some Highlights

Thailand has the impressive point on Management Optimization, Government CIO, and Online Service. A new plan of Digital Economy and Society Development, taking into account of the past experience, current status and future challenge to be expected, was issued by MICT for the purpose of policy continuation in 2011. The economy will be service and creativity based type, ICT value will be of significance to the whole economy while more than half population will be aware of the importance of ICT. Even though all government units have a CIO, most CIOs still lack knowledge, understanding and skills in technology. There are several organizations for the CIO, such as the CIO Association of Thailand and the International Academy of CIO in Thailand.

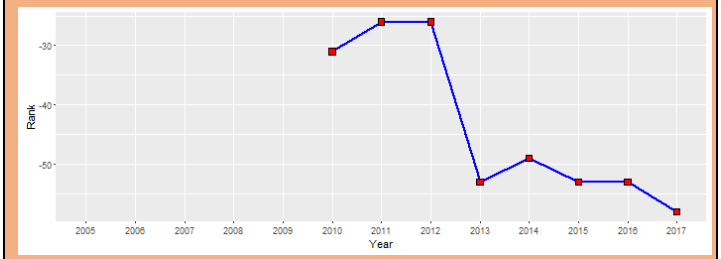
Thailand government is using the Facebook “https://www.facebook.com/egovthai/” to provide information, and citizens can follow and receive information through Facebook as one channel of e-Participation. And the data is also update time to time though Facebook account of Thailand government. However, the response from citizen is still low.

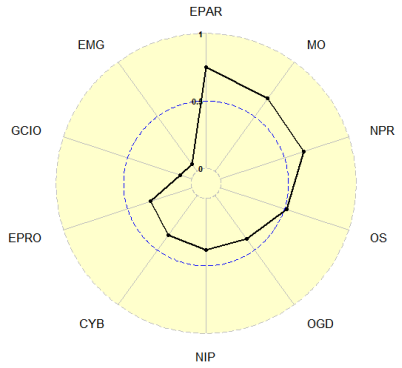
The use of emerging technology and e-Participation are the weak point of Thailand. However, the use of Cloud Computing is high that there have been accumulated numbers of 129 different organizations using G-Cloud from the total number of 259 Cloud Computing-based system or project. As of now, Thailand is still ruled by military government and still has no plan for the new election; the e-Participation score is low. Big data has been implemented in some of government units e.g. Department of Highway. The objective is considering the Big Data plan. Moreover, in 2015, the Government Big Data Conference 2015 and the Hackathon events in Big Data which organized by EGA is a highly successful and is renowned both in the public and private sectors.

Tunisia

1 General Information

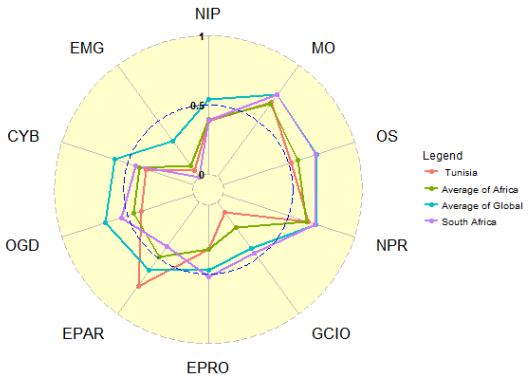
Area: 163,610 km^2
Population: 11,134,588
Government Type: Parliamentary Republic
GDP: $11,700
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

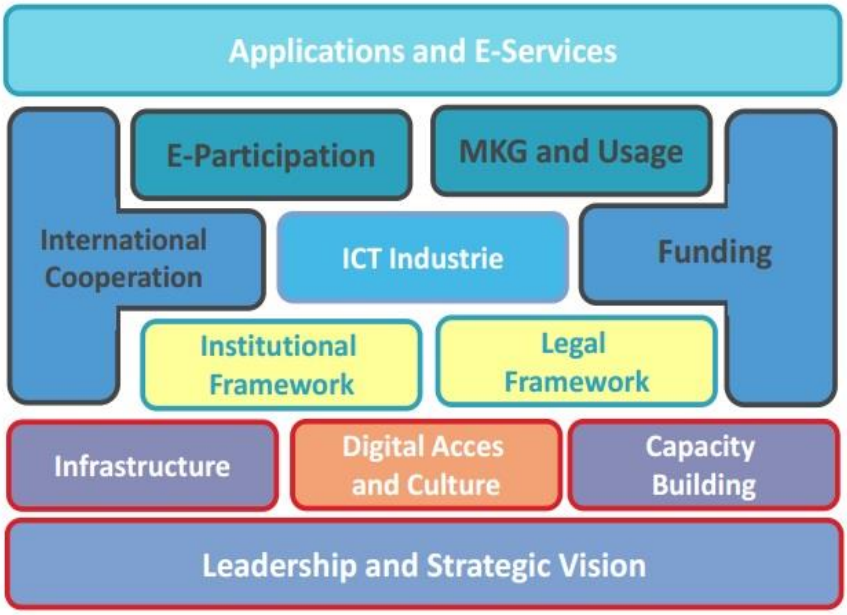
Africa Countries



Among Africa Countries, the Network Infrastructure Preparedness (NIP), Management Optimization (MO), D-Government Promotion (EPRO), National Portal (NPR) and E-Participation (EPAR) indicators are above with the average score of Africa region. In addition, the E-Participation (EPAR) indicator of Tunisia is better than South Africa, the best country in Africa region.

3 D-Government Development

In 2010, the Tunisian government issued the e-strategy 2010-2015. It is a part of the dynamics of the Tunisian Government for the development of the knowledge economy and the introduction of Technologies of information and Communication "ICT" in Tunisian. The Tunisian government focuses on two complementary objectives: the improvement of the citizen-administration relationship and the development of Tunisian enterprises' competitiveness. The achievement of these two objectives rests on the development of an efficient integrated administration in the service of citizens and enterprises, enabling better interaction with citizens and a more competitive environment for enterprises. The development of e-administration in Tunisia occupies a central place among national priorities. It is a fundamental pillar in the global and sustainable development process given the primordial role of e-administration in the improvement of public management performance and the reinforcement of service quality.



D-Government Framework

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Approximately 48.5% of people in Tunisia were Internet users in 2015, according to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU). About 4.3% have fixed-broadband subscriptions, and wired broadband subscription has reached 62.6%.

4.2 Management Optimization [MO]

In 2010, the government issued the National Strategy for e-Administration Development for the period 2010-2014. This strategy includes a new generation of public services based on the idea of services integration and interoperability between information systems belonging to administrative structures.

4.3 Online Service [OS]

The score for Online Service is based on five investigating online services, i.e., e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience. Tunisia's approach to promoting information society development

and innovative citizen shaping has been positioning information and communication technologies as key drivers for its economy. Tunisia has well-designed and developed technology parks such as El Ghasala. Furthermore, it has strong research centers and good universities researching modern ICT tools and techniques.

For measuring the level of convenience, the third-party application result has shown that three portals are above the average considerably in terms of speed. The other two portals, i.e., e-Health and One-Stop Service are slightly above the average. The third-party application for assessing the portal is the application from Google PageSpeed™ Insight. In addition to that, all clickable objects on the portal work as they should do.

List of Online Services

Online Service	URL
e-Procurement	https://www.tuneps.tn/index.do
e-Tax	http://www.impots.finances.gov.tn/
e-Customs	http://www.douane.gov.tn/
e-Health	http://www.santetunisie.rns.tn/fr/
One-Stop Service	http://www.pm.gov.tn/

4.4 National Portal [NPR]

The Tunisian Government portal "http://www.tunisie.gov.tn/" serves as a government portal for the public administration, citizens, businesses, visitors and civil society. The portal only hosts online service information and provides links to relevant domains. The portal delivers most of its contents in its official language of Arabic, but also offers information in French.

4.5 Government CIO [GCIO]

The Tunisian public administration at national and local levels does not appoint CIOs or equivalent positions within the legal framework. The director general for D-Government under the prime minister can be considered the CIO at the national level.

4.6 D-Government Promotion [EPRO]

For Tunisia, it can be noted that ICT promotion, which increasingly also includes D-Government promotion, is the main priority of government and the presidential agenda. The law of D-Government exists at the national level but not at the sub-national level.

There also seems to be growing collaboration in the non-government, private and public sectors. This synergy with the presidential leadership at the top level of administration helps to promote ICT penetration and engagement of stakeholders besides changing the nation's online connectivity culture. However, the frameworks, methods and tools used to measure and evaluate D-Government as well as oversight committees lack of adequate levels of integrity.

4.7 E-Participation [EPAR]

Tunisia is one of the most technologically developed nations in the region and has good opportunities to implement e-Participation in the country. However, there has been little action taken in this direction recently. In general, government websites provide services in Arabic and French. The national portal and other high-level government sites demonstrate interactive functionality and well thought-out design. Successful national ICT initiatives correlate with increasing awareness of participation. Availability of polls and feedback options shows that the government takes the opinions of citizens into account during decision-making processes. However, there is still a lack of detailed policy declarations and there are also accountability issues.

4.8 Open Government Data [OGD]

Tunisia joined the Open Government Partnership on 14 January 2014. The Tunisian government has embarked on the preparation of a national action plan (National OGP Action Plan) for the Open Government Partnership. Currently, Tunisia has released the beta version of its open government data website, "http://www.data.gov.tn/", following the wave of open government data portals around the world. However, there is no evidence about the use of open government data, and there is not any dataset hosted on the site.

4.9 Cyber Security [CYB]

The national governance roadmap for cyber security in Tunisia is elaborated in the National Agency for Computer Security (ANSI). ANSI is responsible for the benchmarking and measuring cyber security development in Tunisia, and also responsible for providing educational and professional training programs for raising awareness with the general public, promoting cyber security courses in higher education and promoting certification of professionals in either the public or the private sectors. And Tunisia has an officially recognized National CIRT (Tunisian Computer Emergency Response Team - TunCERT).

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). Tunisia has attempted to implement Cloud Computing for Public Sector. However, the evidence shows that it is not officially launched. Other emerging technologies for government agencies are still nullity in Estonia.

5 Some Highlights

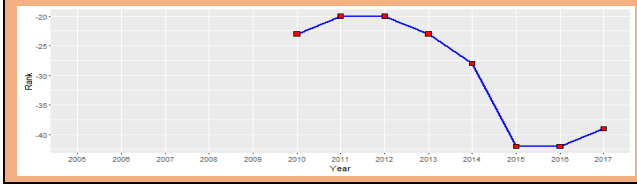
Tunisia has the impressive point on e-Participation, Management Optimization, and National Portal on 26 March, 2011, Decree-law 41 which regulates the public access to administrative document was enacted. In 2012, there was a conference to discuss 'open data and e-participation' at the initiative of the prime ministry. The main goal for the conference was the improvement of e-participation in the public and private sectors. Moreover, Tunisia joined the Open Government Partnership on January 2014, and the Tunisian government has embarked on the preparation of a national action plan (National OGP Action Plan 2015-2016) for the Open Government Partnership. However, there is not any dataset hosted on the open government data portal "http://www.data.gov.tn/".

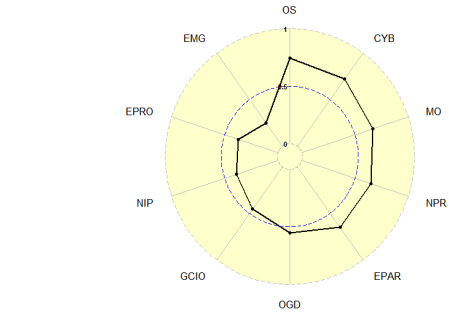
And the use of emerging technology and government CIO are the weak point of Tunisia. Currently, the Tunisian public administration at national and local levels does not appoint CIOs or equivalent positions within the legal framework. The director general for D-Government under the prime minister can be considered the CIO at the national level. And Tunisia put CIO model with empowered to implement a holistic vision on Post 2015 Agenda. Moreover, there is no evidence about the use of Cloud Computing for delivering public services. However, Tunisia government cloud initiative was started to discuss.

Turkey

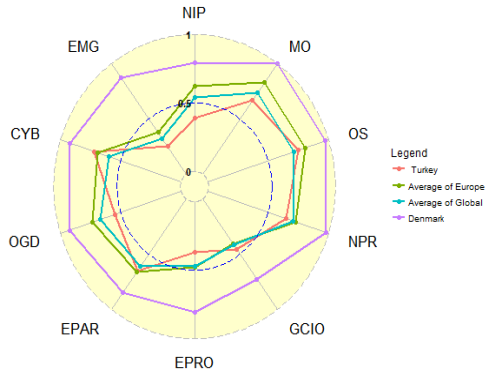
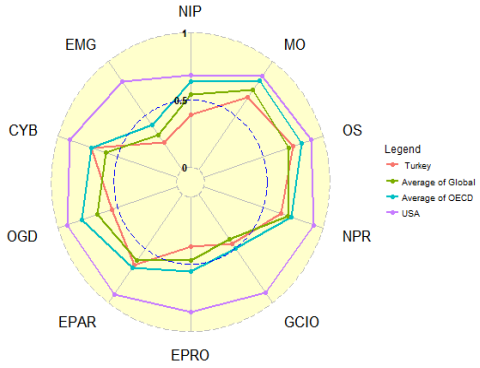
1 General Information

Area: 783,562 km^2
Population: 79,414,269
Government Type: republican parliamentary democracy
GDP: $20,500
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

European Countries	OECD Countries
	

The performances on most of the indicators of Turkey have showed comparatively low level below average of Europe countries and OECD groups. Among all the ten indicators, Online Service has a good score comparing to other indicators

3 D-Government Development

Turkey has launched its latest National D-Government strategy and action plan for 2015-2019 by the Ministry of Transport, Maritime Affairs and Communication in 2015. For ICT initiative, the Ministry of Development is responsible for the" Information society strategy and action plan". There is no official GCIO position in the government of Turkey, but three main agencies are participating in the D-Government strategy/plan making and decision: the Ministry of Development; the Ministry of Transport, Maritime Affairs and Communications and e-Transformation Turkey Executive Committee. As the last one, the

committee contains officers from different government agencies such as the Ministry of Development/Sciences/Transportation/Education, etc. Also some members came from NGOs. According to the introduction, "The Committee is the highest level policy and decision-making, assessment and steering body in the information society Strategy implementation process."

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

According to ITU's report, approximately 53.7% people in Turkey have used internet in their daily life. About 12.4% are fixed-broadband users and the wireless-broadband users are 50.9%. Internet penetration in Turkey is in a comparatively low position compared to most of the evaluated countries.

4.2 Management Optimization [MO]

Turkey's national approach to D-Government can be characterized as centralized. The National D-Government strategy and action plan for 2015-2019 has been published by the Ministry of Transport, Maritime Affairs and Communication, with a view to increase the pace of structural reforms and strengthens the fundamentals of the Turkish economy with a holistic approach.

4.3 Online Service [OS]

Regarding electronic transactions and identification, the Turkish government enacted several amendments to integrate e-Services into daily public life such as in e-commerce, e-signature and e-procurement legislation, chiefly within the last 5 years. For instance, there is legislation for regulating Internet broadcasts and combating crimes committed through such broadcasts. There are nine catalogued criminal offences, which can be committed through Internet publications. Nationwide implementation of electronic declarations by the Ministry of Finance is one of the first transactional level "e-Service" type services in Turkey. It was initially part of the Tax Office Automation Project (VEDOP) and is now at a third phase of development and aptly named VEDOP-3. Compared to other top priority services, current sophistication of daily life citizen services such as car registration, certification is still lacking certain quality and integration. However, there is an ongoing pilot project for e-ID card, which is expected to enable more integrated and transactional level daily life services.

Online information is provided by hospitals through their websites. Furthermore, online appointments are available at certain hospitals. Appointment for all hospitals through a central call center is possible. The Ministry of Health is also working on a one-stop-shop mechanism for online appointments.

4.4 National Portal [NPR]

The Turkish portal, www.turkiye.gov.tr, is integrated as the one stop service portal for citizens as well. It acts as a gateway for all D-Government services and as an administrative resource. As of June 2011, the D-Government Gateway includes more than 260 services of 28 different agencies, as well as information about administrative procedures and links to the services provided directly through websites of each public agency. Although it has well-structured navigation and interface features, the website clearly lacks interactive features such as blogs, SNS, forums or polls. On the other hand, the portal demonstrates secure transactions through mobile electronic signatures (via mobile devices) as well as non-mobile (PC or stationary device based) electronic signatures and password login. As a new functionality, users have access via has mobile handset with m-signature integration.

4.5 Government CIO [GCIO]

The Turkish public administration at national and local levels does not appoint CIOs or equally influential positions within the legal framework. Heads of IT directorates or IT departments have the main

competencies of a CIO. However, the quality of CIO competency varies from ministry to ministry. One ministry might have strong IT management and leadership while another ministry would have unclear objectives and an insignificant IT department. There is no whole of government perspective for contract management, strategic planning, or ICT implementation among ministries. At the local level, each municipality has an Information Technology Directorate position but with varying duties and degree of executive power. Thus, there is no clear intention to change administrative structure or attach well-defined CIO position to the public management. There is no CIO mandate the law and legislation as well as existence of the law creating the position of CIO in the Turkish Government.

4.6 D-Government Promotion [EPRO]

The national strategy for transitioning into an information society consists of social transformation, public modernization and a globally competitive IT sector. In light of this projection and taking into account tangible actions, public and private sector collaboration is growing. International and national D-Government related conferences have been organized by initiatives of both the private sector and academic institutions. At the local level, there are inadequate initiatives to promote e-services and to train citizens as compared to the interest in implementation. The central-local government collaboration required to realize an information society is lacking. Due to high percentage of school age population, there are significant initiatives and projects driven by ICT to improve the quality of education system and educational content, which helps to promote D-Government in different levels with public-private-NGO engagement.

4.7 E-Participation [EPAR]

In general, government web sites demonstrate interactive functionality and good design, however in terms of participatory decision making processes or public discussions, national portal and other government web sites at national and local level offer very limited public engagement. There are online channels besides dedicated phone services for both President and Prime Minister's Office to lodge a request or grievance. However, even with increased public awareness and enhanced web portals; there is not much evidence to show that the government takes the opinions of citizens in decision making processes. Taking into consideration young people, web 2.0 applications such as blogs or web forums are promising tools, which could encourage more use of D-Government services.

4.8 Open Government Data [OGD]

The Turkish Statistical Institute posts government data regularly on its website, (http://www.turkstat.gov.tr/). These statistics come from a variety of government ministries, and can be downloaded in Excel format. The site hosts a large amount of data, particularly economic data, but it does not have advanced searching, charting, or organizational features.

4.9 Cyber Security [CYB]

In Turkey, there are several laws that are complement each other's, such as Law No. 5237, "Turkish Penal Code", Law No. 5271, "Code of Criminal Procedure", Law No. 5846, "Intellectual and Artistic Works", Law No. 5809; "Electronic Communication Act", Law No. 5070, "Electronic Signature Act" and Law No. 5651, "Regulation of Publications on the Internet and Combating Crimes Committed by means of such Publication"

4.10 The use of Emerging ICT [EMG]

It is hardly to find information about emerging ICT launched in governmental sector in Turkey, general strategies around new technologies have not yet been organized by government. There have some private sectors talking about introducing IOT to Turkey such as the company IDC, but no official announcement of large plans about the upcoming visions within emerging ICT.

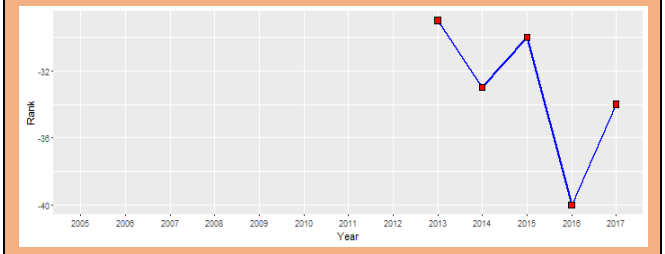
5 Some Highlights

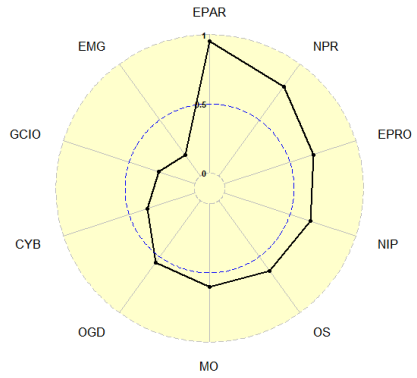
The Turkey government has continued to complete and add amendments to integrate e-Services into daily public life, the e-service portal (https://www.turkiye.gov.tr/) keeps upgraded various information to citizens, for specific service it can link users to corresponding agencies for e-tax, e-health, e-procedure, etc. The same as some well-prepared nations, Turkey has shown strength on “Management Optimization” and “Online Service”. At the mean time the same with medium developed countries, the lack of systematic GCIO institute, less promotion on D-Government implementation and open government initiative are the reasons for lagging behind. First of all, laying a good foundation as legal framework and sophisticated initiatives for special D-Government objectives as well as institutional preparedness could benefit the development of D-Government in Turkey to a great extent.

United Arab Emirates

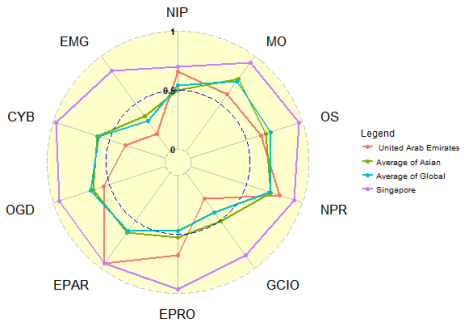
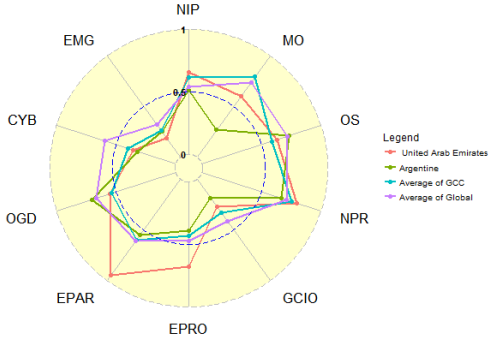
1 General Information

Area: 83,600 km²
Population: 5,779,760
Government Type: Federation of monarchies
GDP: $67,000
Historical Ranking (2005-2017):



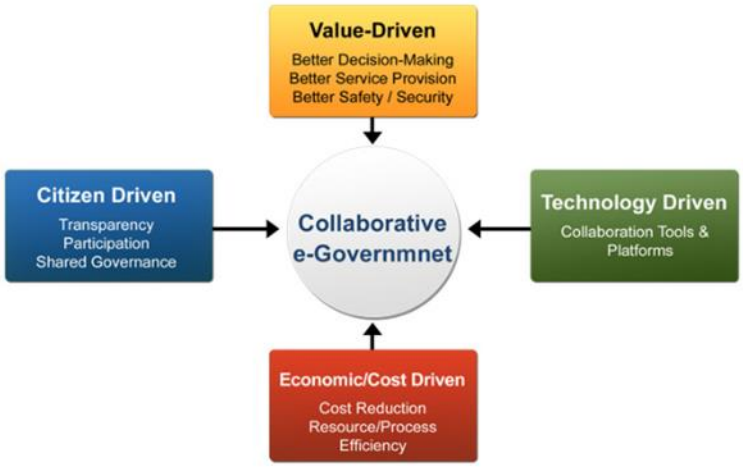


2 Positioning in a global organization and a region

ASIAN Countries	Gulf Cooperation Council Countries
	

3 D-Government Development

The development of D-Government in UAE is to enhance the role of Federal Entities in devising effective regulations and integrated policies by efficient planning and enforcement, enhance effective coordination and cooperation among Federal Entities and Local Governments. It focuses on delivering high-quality, customer-centric, and integrated government services, invest in human resource capabilities and develops leaders.



Promote efficient resource management within Federal Entities and leverage dynamic partnerships. Pursue a culture of excellence through strategic thinking, continuous improvement in performance and superior results. Enhance transparency and good governance throughout the Federal Entities. Moreover, besides focusing on development of the government sector, it tackles other social, economic, and infrastructure issues, First-class Education System, World-Class Healthcare, Competitive Knowledge Economy, Safe Public and Fair Judiciary, Sustainable Environment and Infrastructure and Strong Global Standing.

The next phase for the UAE – which is seeking to establish itself as smart government leader in the region – will be to win users over to the latest apps and building m-government to help citizens have a better channel to apply for their services. The future is going to be about interconnecting government to government, and more collaboration on the government to citizen side.

In 2014, The National Plan for UAE Smart Government Goals was initiated in alignment with the national direction embodied in UAE Vision 2021. The vision 2021 focusses on 4 factors, (1) United in responsibility, (2) United in destiny, (3) United in knowledge, and (4) United in prosperity. Together with the vision 2021, the ICT sector strategy, the UAE national plan aligns directly to enhancing business environment, specifically developing smart government services.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

The UAE has a well-developed and technologically advanced telecommunications infrastructure and has high mobile telephone and Internet penetration. The Internet users are about 8.5 million in 2017 and the penetration is about 90.6%. Almost Internet connection is by broadband with the Telecommunication infrastructure developed very well. UAE has many advantages in implementing D-Government. In 2016 the broadband market in the UAE is one of the most advanced both regionally and globally. Prior to the fixed network sharing agreement introduced in late 2015, The UAE government at both federal and emirate level

has been proactive in the digital economy and digital media sectors, with programs to encourage computer and Internet use.

Federal Network (FedNet) was launched in line with the National Plan to Support m-Government Initiative, which complies with the UAE Vision 2021. The mission of FedNet is to provide an efficient and secure means of delivering m-Government services to entities and individuals in the UAE. The primary objective of FedNet is to connect all Federal Government related entities with each other and provide seamless, safe, durable and ongoing connectivity between the entities using a private common infrastructure.

4.2 Management Optimization [MO]

The UAE is investing heavily in adopting and implementing ICT in its government and private sectors. In the past, The UAE Federal D-Government Strategy 2012-2014 aims at building a world-class federal D-Government that works with the federal government agencies to establish an effective and reliable information technology infrastructure and to provide electronic services to customers through multiple innovative electronic channels in line with the UAE Vision 2021 and the UAE Government Strategy 2012-2014.

The mission of Federal D-Government strategy is to innovative D-Government, committed to enhancing the competitiveness of the UAE and providing world-class multi-channel services based on the expectations of customers through a coherent and efficient government; taking advantage of an advanced digital infrastructure and highly qualified human resources within a smart framework of governance.

In UAE, the government structure is divided center government and local government. The country is a federation of seven emirates. The constituent emirates are Abu Dhabi (which serves as the capital), Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah and Umm al-Quwain. Each emirate is governed by an absolute monarch; together, they jointly form the Federal Supreme Council. For each emirate, they have their own D-Government strategy. For example, in Dubai they build smart Dubai Government. The mission of smart Dubai is to deliver world-class smart services and infrastructure to create happiness.

4.3 Online Service [OS]

E-Services in UAE are categorized for individuals, businesses, visitors, and governments. UAE government delivers e-Services through online and offline channels. Government.ae is the official portal of the UAE Government and it is the unified gateway to access e- Services provided by all the UAE government ministries and authorities in the UAE. Other channels, includes: customer service centers, phones, kiosks/public payment machines, banks, drive-thru service, post offices, Dubai metro stations, apps for smart gadgets, and the newest way is through robots and drones.

The Government provides users with transactional e-Payments, e-Health, e-Tax, e-Procurement by two-way interaction. With a huge number of e-Services are provided for citizen in UAE to avail a variety of services without leaving their home or office spaces. The portal has an advanced search facility to help people look for the services they want to access. The portal also contains a section on alternate means for accessing government services.

4.4 National Portal [NPR]

The national portal of the UAE Government is www.government.ae. It is part of the federal D-Government program and a major milestone in the process of e-Transformation in the UAE. It is one-stop services, it brings all e-Services provided by the UAE federal and local government bodies under one umbrella.

The national portal is well design, easy to use and very useful for everyone. It is available in English and Arabic, the national portal contains all necessary information for individuals, businesses, visitors, and government. It is a single entry-point for users to access the different federal and local government e-

Services. The portal also facilitates to boost communication between the customers and the government representatives and e-Participation through forums, blogs, surveys, polls and social media.

4.5 Government CIO [GCIO]

In the UAE, the CIO positions are appointed at all town and city. A Government CIO office is established at national level, event that in each city they have a portal and providing e-Services to citizens. Laws on information technology and e-commerce also have been found but there is no information about the CIO laws, Government CIO position and office are indicated and established at the national level as well as sub-national level and government agencies.

There is no CIO association in UAE but they have many courses training information technology and CIO in University, there are many jobs related to CIO but almost from private sectors.

4.6 D-Government Promotion [EPRO]

Promoting the development of D-Government strategy is also aimed to promote and implement D-Government services are secure and correct route. However, during one year of evaluation Waseda ranking could not find any new strategy for 2015, 2016. Therefore, it reduces UAE's score on this indicator and also in overall ranking.

There is no information on government agencies and private entities involved at local government level. Furthermore, there is no information on a think-tank between government and PPP.

4.7 E-Participation [EPAR]

The UAE D-Government believes in the importance of e-Participation and enabling its customers to take part in the decision-making process. The government portal clearly encourages citizens and customers to participate in government decision making process including policies and initiatives by having their say. The "Contact Government" section in the portal is dedicated to hear their say by providing many important tools, including web 2.0 tools and online direct communication with the customer. The UAE Government has launched its new federal portal, redesigned to offer many e-Participation channels, include advanced practices such as Open Data, and be a better unified gateway to access many online services provided by the UAE Government. The UAE Government has engaged multiple platforms like forums, blogs, chats, surveys, polls and social media tools like Facebook, Twitter, Flickr and YouTube to reach to the general public and engage them in active communication with the government with regard to their opinions and experiences on government services, policies.

Especially, in UAE the ranking shows there is evidence to proof that the government takes the opinions of citizens in the decision making process, and there is evidence to proof that the government inform the citizens on which decisions made based on citizens input.

4.8 Open Government Data [OGD]

http://bayanat.ae/ is an open data portal for UAE. It provides official statistics about UAE as well as many advanced features for analyzing, visualizing, and reporting statistical data over time, it also allows preparing presentation-ready for users. Individuals can select Data Catalogue to get some customized filtered or detailed data on UAE level or even emirate level for direct use and comparability. There are a lot of data can be opened, it covers demographics, education, foreign trade, health, households, labor, population, and socio-Economic datasets.

4.9 Cyber Security [CYB]

In UAE, the Telecommunications Regulatory Authority (TRA)'s Computer Emergency Readiness Team (AECert) recently underscored the role of cyber security in ensuring public safety amid rapid developments

in the ICT sector and growing incidents of harmful cyber-attacks. AECert also emphasized the need to raise more public awareness and educate society about information security, the attack risks and prevention methods.

In 2014, The National Electronic Security Authority, NESA, has officially announced the publication of a range of key strategies, policies and standards to align and direct national cyber-security efforts in UAE. NESA is a federal authority responsible for developing, supervising and monitoring the implementation of U.A.E. cyber-security strategies, policies and standards.

4.10 The use of Emerging ICT [EMG]

Even UAE is developed country in ICT, but the use of emerging ICT is still in a mature stage. There is no information could be found on evidence that government agency has used Cloud Computing and provide the cloud service from SaaS to IaaS, and also there is no evidence that government agency has used Big Data.

5 Some Highlights

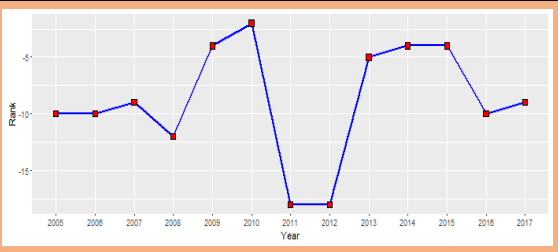
In the UAE, the CIO positions are appointed at all town and city. A Government CIO office is established at national level, event that in each city they have a portal and providing e-Services to citizens. Laws on information technology and e-commerce also have been found but there is no information about the CIO laws, Government CIO position and office are indicated and established at the national level as well as sub-national level and government agencies.

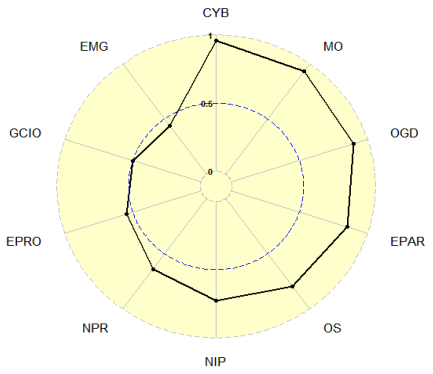
The official portal of the UAE government is the unified gateway for all information and services provided to the public. It was divided into four categories: services for individuals, services for businesses, services for visitors and services for all. The Government provides users with transactional e-Payments, e-Health, Employment and Labor, Religious Affairs and Society as well as Business activities allow two-way interaction between the user and government.

United Kingdom

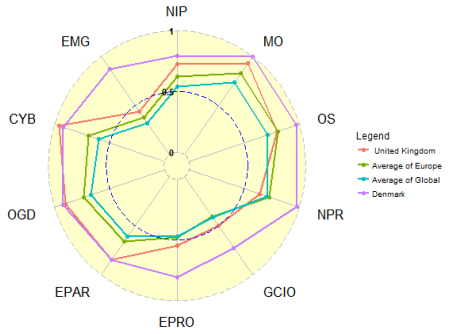
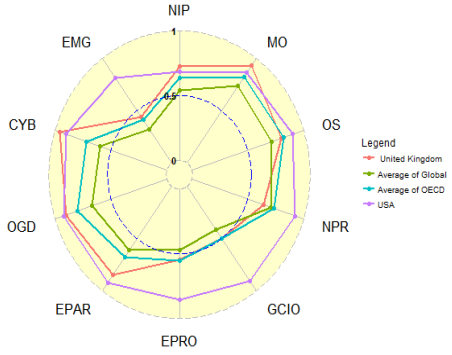
1 General Information

Area: 243,610 km^2
Population: 64,088,222
Government Type: constitutional monarchy and Commonwealth realm
GDP: $41,200
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and region

European Countries	OECD Countries
	

UK is one of the leaders in D-Government among OECD and European countries. The UK government has scored greater results in all indicators than the average of OECD and European. Only National Portal shows a lower score in comparing with OECD and European's average level while Cyber security and Management Optimization are considered as UK's strongest parts.

3 D-Government Development

The UK has a long history of D-Government development. The Government Digital Strategy released in 2011, updated in 2013 by the Cabinet Office, sets out how the government will become digital by default.

April 2014, with the launching of new projects which were funded £1.5 million (about €1.8 million) from the Release of Data fund, the government strived a huge step to unlock data from public bodies and increase transparency (European Union, 2014).

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

According to the Measuring the Information Society Report 2016 from International Telecommunication Union (ITU), Internet users in UK account for 92% of total population. About 37.7% have fixed-broadband subscriptions, and 87.8% of the population has a wireless broadband connection.

4.2 Management Optimization [MO]

UK has launched its Government ICT Strategy since 2011 focusing on several critical targets such as reducing waste and project failure, and stimulating economic growth; creating a common ICT infrastructure; using ICT to enable and deliver change; and strengthening governance. In term of digital government, the Government Digital Strategy was published by the Cabinet in 2012, with the ultimate goal focusing on "how government will redesign its digital services so well that people prefer to use them".

To achieve those targets, the UK government has concentrated on developing the UK government ICT reference architecture (UKRA) to provide interoperable platform in which ICT solutions can be shared and reused across government agencies. The architecture consists of the Business Reference Model, Information Reference Model, Application Reference Model and Technical Reference Model. In addition, a new model of Government Shared Services was introduced as one of the efforts to ensure cost reduction target among government agencies.

4.3 Online Service [OS]

The score for Online Service is based on five pillars, which are: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service. These services were assessed based on three major factors such as Level of Complexity, Level of Security, and Level of Convenience.

With the Digital Service Standard came into force, UK has obtained a very high level on digital service, reflected by most of services' complexity are provided at the highest level (transactional). All services are integrated into a single gateway with adequate security mechanisms were fully implemented ranging from basic authentication as Password protection to complex methods like digital certificate or secured socket layer. Of the five pillars, Tax and Customs are the most comprehensive services, while Procurement is still at its beta testing period for the new application so-called ContractFinder, which was launched in February 2015. For Health, NHS (http://www.nhs.uk/) is the biggest provider in e-Health services, with lots of transactional services such as My Vision Online or Patient Access.

4.4 National Portal [NPR]

The official portal of the UK Government is https://www.gov.uk/ which replaced for the previous version direct.gov.uk by October 2012. The new version has been introduced as the best place to find government services and information in simpler, faster and clearer manner. The website of 24 government ministerial departments and 331 other public agencies are being gathered at gov.uk. By doing this, citizens, business and government officers are believed to easily find public services in one place. However, lacking some country's information such as demographic, culture resulted in a medium score in NPR for UK.

4.5 Government CIO [GCIO]

UK government established the Government CIO Council since 2010 to empower the leadership in the area of D-Government development. The council was leaded by Cabinet Office and was shaped by gathering all CIOs from public sectors at all levels with the mission to "creating and delivering a government-wide CIO agenda to support the transformation of government and to build capacity and capability in IT-enabled business change ".

However, since 2013, UK government has abandoned the role of cross-departmental chief information officer. The responsibility for governance of technology projects was moved into the Government Digital Service. The reason behind this action, according to Mike Bracken, the executive director of the Government Digital Service is to focus more on driving business performance based on meeting user needs.

4.6 D-Government Promotion [EPRO]

There are not much evidences found in UK's D-Government promotion programs, due to the country has reached a high position in digital government development and citizens are quite familiar with D-Government initiatives.

Regarding support mechanism, UK Government has a comprehensive legislation framework and strategies for D-Government development from central to local governments.

There are reports on digital government progress published every 3 months, showing what government has achieved against the strategy's objectives.

4.7 D-Government Participation [EPAR]

UK citizens frequently interact with their government and proactively participate into government's decision making process. This is due to a huge portion of populations (almost 90%) are online users and there is a clear opportunity for government to deliver digital services to them. All information related to government structure, legislation, policy and budget are open to citizens. UK government agencies also utilized the strength of social media to reach their citizens instantly, allowing them to contribute their voices and ideas to the government's policies. Statistics shows that in the past 12 months there have been 636 completed consultations where the government takes into consideration all responses and opinions of citizens into decision making process.

4.8 Open Government Data [OGD]

April 2014, with the launching of new projects which were funded £1.5 million (about €1.8 million) from the Release of Data fund, the UK government strived a huge step to unlock data from public bodies and increase transparency (European Union, 2014). With the presence of the Open Government Partnership UK National Action Plan 2013 to 2015 setting out a series of commitments, the UK government is making progress to improve transparency, participation and accountability.

At the local government level, there was a so-called the Local Authority (LA) Incentive Scheme running until March 2015 with the purpose providing monetary encouragements for councils to publish data on specific categories in standard tabular formats. This project was allocated funding (£721,360) from the Cabinet Office's Release of Data Fund, focusing on the priorities of the UK Open Data community.

4.9 Cyber Security [CYB]

UK has ratified several laws related to cybersecurity. Some of them are as follow:Data Protection Act (1998) ;The Privacy and Electronic Communications (EC Directive) Regulations 2003; Electronic Communications Act (2000) and Electronic Commerce Regulations (2002)

In five years, from 2011 to 2016, the UK Government has financed a National Cyber Security Programme of £860 million to deliver the 2011 National Cyber Security Strategy. Some activities included in the program: the launch of "10 Steps to Cyber Security" in 2015 together with new guidance for businesses: "Common Cyber Attacks: Reducing the Impact"; "Think Cyber – Think Resilience" seminars for around 700 policy makers and practitioners from local authorities; the Foreign Secretary publicly confirmed the Centre for Cyber Assessment (CCA) to provide assessments of cyber threats and vulnerabilities to policymakers; provide briefing and training to public sector staff in information security roles; and so on.

4.10 The use of Emerging ICT [EMG]

The UK has strong capabilities in high technology manufacturing, telecommunications and digital services which could place the country among the leaders in reaping benefits from using emerging technologies. The UK Government has established the private Government Cloud Computing Infrastructure called G-Cloud which includes Infrastructure-as-a-Service (IaaS), Middleware/Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS). For IoT, the UK government has published a review named "The internet of Things: making the most of the second digital revolution" by chief scientific adviser, considering this technology as the way to transform citizens' life and deliver great benefits to economy.

5 Some Highlights

UK is remaining one of the best groups on performance of D-Government area. Most of indicators are at very high score which reflects a well-developed D-Government situation. The main focus of digital government strategy is on how to improve users' experience with online services and reduce digital divide.

Being one of the countries with a high level of D-Government development, the UK government actually did not need to put much efforts on broadcasting D-Government initiatives. Instead, a bunch of policies and guidelines were developed to uniform all D-Government initiatives such as: Guidelines for UK Government Websites, Quality Framework for UK Government Website Design, D-Government Metadata Standard Version 3.0, e–Government Interoperability Framework and so on.

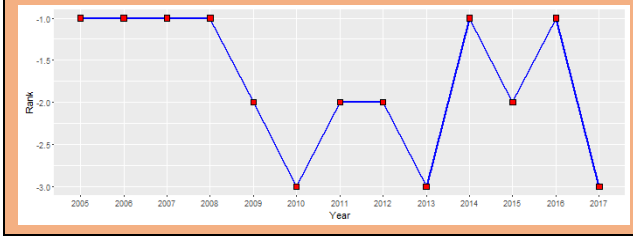
The UK government is aiming to enhance public services quality by issuing the Digital by Default Service Standard which mandates all government agencies to follow when developing new digital services. This standard covering 5 different stages of service development: discovery, alpha, beta, live and retirement. As the result the country has reached a very high rank on online service delivery indicator.

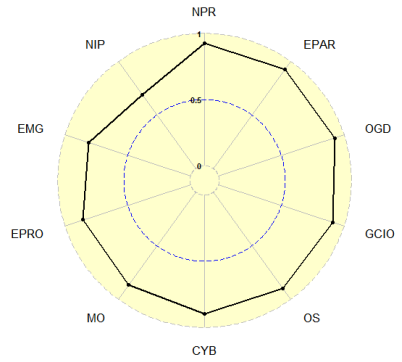
Having a high level of capabilities in technology, infrastructure and telecommunication, the UK Government has a great opportunity to reap the benefits from emerging technologies such as Big Data or Internet of Things to transform the national economy and citizens' life.

United States of America

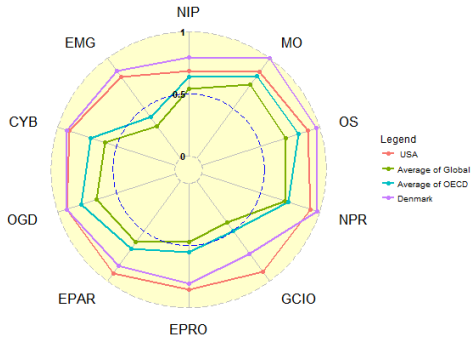
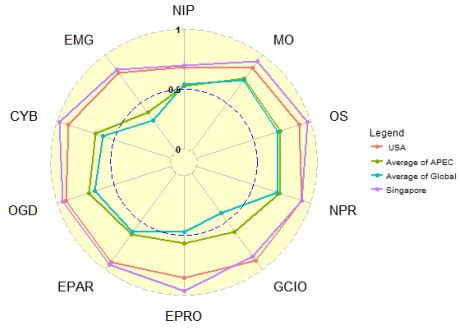
1 General Information

Area: 9,826,675 km[271]
Population: 321,368,864 [72]
Government Type: Federal Presidential Republic[73]
GDP: $56,300 [74]
Historical Ranking (2005-2017):





2 Positioning in a global organization and a region

OECD Countries	APEC Economies
	

3 D-Government Development

The U.S. has continued to improve its open-data and online service offerings. Healthcare.gov, for example, which was infamously flawed at launch, operated with very few problems in 2016. Data.gov, analytics.usa.gov, Census.gov and other open data sites continued to become more user-friendly.

ICT continues to provide new and innovative ways for U.S. citizens to interact, get involved and become empowered. Public participation enhances the government's effectiveness by improving the quality of its

[71] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html
[72] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[73] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[74] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html

decisions through collaboration. Innovative tools can be used to create unprecedented openness in the Federal Government through increased citizen participation to make this type of collaboration a reality.

On the U.S. national portal, www.usa.gov, citizens can use many online services including e-tax, applying for a driving license, filing a complaint, finding a local doctor, applying for a passport or getting travel advice. The portal's design makes it easy for citizens to find both broad, common information, as well as specific, personalized services. The government has also developed forward-looking Enterprise Roadmaps and modernization profiles to offer a path forward into the next phase of government modernization.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

Internet access in the United States is largely provided by the private sector and is available in a variety of forms, using a variety of technologies, at a wide range of speeds and costs. By 2004, three quarters of Americans had Internet access at home. The United States has over 67.7 million people subscribed to the top broadband speed.

In the U.S., around 146.7 million people use social networking services at least monthly, representing nearly 60% of Internet users. Some changes regarding across-the-board-improvements on key metrics underlying user performance have been identified including three primary improvements in residential broadband service.

4.2 Management Optimization [MO]

E‐Government objectives are focused on high-priority areas for improving the internal operations and management. Most objectives are intended to help Interior better execute administrative and supporting functions that exist across entities. These functions, while in many cases part of the "back office", play critical roles in accomplishing the missions for which Interior is responsible. They are also crosscutting and have impacts across the Department and all mission-related activities.

The usage of ICT in the U.S. is improving day by day in internal processes and the government's computerization efforts and the level of ICT integration has been very good in the last couple of years. Standardization of service procedures and information systems in order to achieve internal effectiveness and efficiency of governmental operations can be constrained by many reasons.

4.3 Online Service [OS]

In this indicator we examine the laws of American cyber security and e-Transaction as well as e-Services that the U.S. government provides to citizens and enterprises. Available e-Services include an e-Tender system, e-Tax systems, e-Voting, e-Payment system, Social Security services, Civil Registration services and e-Health systems.

To enhance the security and resiliency of the cyber and communications infrastructure of the United States, a new Cybersecurity Act was issued in 2012 and it focused on protecting ICT critical infrastructure, Information sharing, governmental and private networks. The current statutes for required interfaces will be enhanced and revised. The Electronic Transactions and Information Law which was enacted in the U.S. regulates all matters pertaining to information and transactions in all electronic forms. The Law regulates cyber activity in the U.S. It provides a general outline, and requires further elaboration through government regulations.

4.4 National Portal [NPR]

www.usa.gov is the U.S. Government's Web portal for citizens. It presents a wide range of information resources and online services from various government sources, accessible from a single point. It is also known as the National Portal of the USA and is a gateway to improve the communication experience between the government and the public. Moreover, it provides information that helps the public to better understand government structure. The well-organized portal serves as a platform that assists the public to find desired information. To improve users' browsing experience, the portal also allows users to create government accounts that allow each individual user to customize the portal as they desire. The website contains accessibility features, a live chat platform, and the chat hours operation services are conveniently available every weekday except holidays. This provides a one-stop-shop for all government information and services. It comprehensively lists all public services, forms, tools and transactions that the government provides in a user-friendly manner.

4.5 Government CIO [GCIO]

The U.S. CIO position was established within the White House's Office of Management and Budget (OMB) to provide leadership and oversight for IT spending throughout the Federal Government. In addition, each Federal agency has its own CIO, as established by the Clinger-Cohen Act.

The CIO in government is a very important indicator in the world D-Government ranking, not to mention its importance in improving American D-Government platforms. The Federal CIO position is currently awaiting a permanent replacement, but Margie Graves is currently serving as the acting U.S. GCIO until a permanent appointment is determined.

4.6 D-Government Promotion [EPRO]

The digital interactions between the U.S. government, citizens, businesses, employees and other governments improved from couple of years ago. This clearly results from the efforts to develop and promote electronic Government services and processes by the establishment of an Administrator Office of Electronic Government within the Office of Management and Budget. The promotion of the use of the Internet and other information technologies to increase opportunities for citizens to participate with the U.S. Government and promoting interagency collaboration providing electronic Government services, where these collaborations would improve the services provided to citizens by integrating related functions and the use of internal electronic Government processes.

To provide effective leadership of the Federal Government, there have been efforts to develop and promote electronic Government services and processes by establishing an Administrator Office of Electronic Government within the Office of Management and Budget. D-Government promotion has reduced the cost and burden for businesses and government entities

4.7 E-Participation [EPAR]

ICT provides innovative ways for American citizens to interact, get involved and become empowered and these relate to more traditional approaches. Public participation enhances the government's effectiveness by improving the quality of its decisions through collaboration. Innovative tools can be used to create unprecedented openness in the Federal Government through increased citizen participation. This program includes: Citizen Services Dashboard, Open Government Dialogue Platform, Challenge.gov, and the Citizen Engagement Platform.

The U.S. significantly enhanced its D-Government in this indicator. In the national portal, citizens can use many online services which include paying taxes, submitting tax returns, applying for a driving license, making a complaint, applying for a passport or getting a travel advance. It is a very convenient portal for citizens.

4.8 Open Government Data [OGD]

As a priority Open Government Initiative for President Obama's administration, Data.gov increases the ability of the public to easily find, download, and use datasets that are generated and held by the Federal Government. Data.gov provides descriptions of Federal datasets (metadata), information about how to access the datasets, and tools that leverage government datasets. The data catalogs will continue to grow as datasets are added. Federal, Executive Branch data are included in the first version of Data.gov. The site has undergone continuous improvements since then.

4.9 The use of Emerging ICT [EMG]

The United States government believes the security of computer systems is important to the world for two reasons. The increased role of Information Technology (IT) and the growth of the e-Commerce sector, have made cybersecurity essential to the economy. Also, cybersecurity is vital to the operation of safety critical systems, such as emergency response, and to the protection of infrastructure systems, such as the national power grid. Based on then-DHS Secretary Janet Napolitano's testimony to the Senate in 2012, in 2011 alone, the DHS U.S. Computer Emergency Readiness Team (US-CERT) received more than 100,000 incident reports, and released more than 5,000 actionable cybersecurity alerts and information products. Twitter, the Wall Street Journal, New York Times, and the Department of Energy and many other prominent companies have reported that their systems had been breached. Furthermore, classified government data has been leaked to the press and the public in several high-profile cases. Current efforts are being made to secure sensitive data to prevent future breaches.

5 Some Highlights

Notable highlights include the U.S. Citizenship and Immigration Services (USCIS) portal, which allows applicants to check their immigration status instantly along with typical wait times, and the Open Government Initiative. The USCIS portal is consistently rated among the most accessed websites in the U.S. government, according to the official Open Analytics counter at www.analytics.gov.

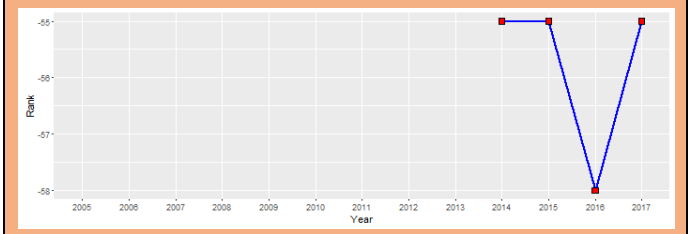
On the local government front, sharing best practices can particularly improve the provision of benefits for low-income individuals by state governments. Millions of federal dollars are spent annually on state or local IT that supports these services, and the Advance Planning Document (APD) process allows states to obtain approval for the portion of the costs of acquiring new online systems that the federal government contributes. The current system contains important mechanisms to hold states accountable for making smart choices about which systems are developed, but it may also encourage siloed systems, which might add greater costs for later integration as well as biasing states against migrating to solutions that could be more cost-effective in the long term. To address this gap, The Office of Management and Budget (OMB) should work with relevant agencies to modernize the APD process to encourage governments to develop enterprise-wide solutions.

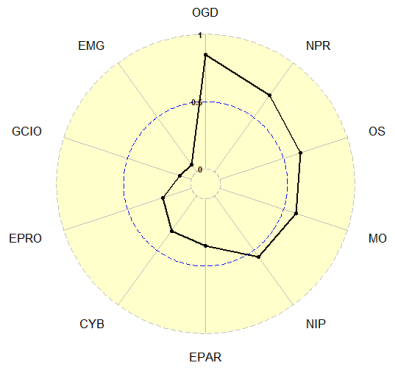
Though more than 75% of Internet users have visited a U.S. government website, reports consistently show that public sector websites lag the private sector. Additionally, the government has failed to meaningfully integrate lessons learned from best practices of leading online government services into its operations. Because public sector websites lag the private sector in usability and design, the Federal Web Managers Council should benchmark the design and usability of government websites against leading industry best practices. The Office of Management Budget should continually recommend specific improvements that agencies should make, highlight best practices in its annual D-Government Report to Congress and deploy the D-Government Fund to help replicate best practices across the federal government. The U.S. government has already made some steps in this direction, but more should be done in the coming years.

Uruguay

1 General Information

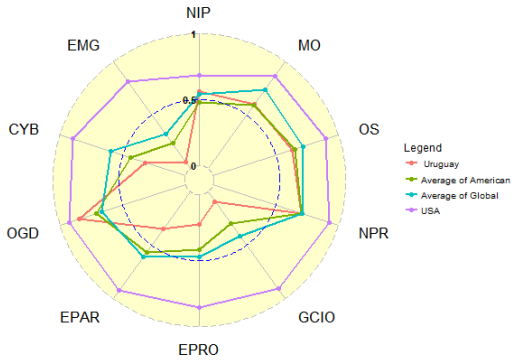
Area: 176,215 km^2 [75]
Population: 3,341,893 [76]
Government Type: Presidential Republic [77]
GDP: $ 21,800[78]
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

American Countries

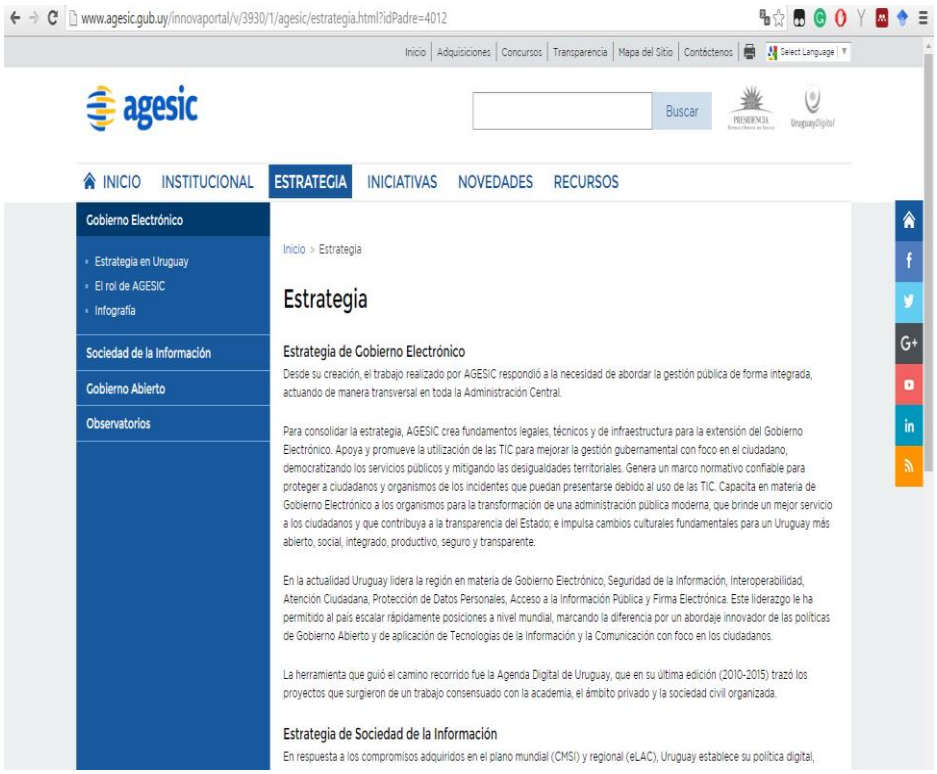


Among American Countries, Uruguay has a better score than the average score of American countries in Open Government Data. As shown on the above picture, Uruguay is very low on the D-Government Promotion, e-Participation, and the use of the Emerging ICT. However, despite the lack basic infrastructure, Uruguay has been trying to take the benefit of National Portal for creating demands of citizen for more advance D-Government services. This also applies to the Online Service, which is on the average of American countries.

[75] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html
[76] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
[77] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2128.html
[78] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

3 D-Government Development

D-Government in Uruguay is formally led by Agency for the Development of Government Electronic Management and Information Society and Knowledge (AGESIC). AGESIC has mandate to generate, plan and implement D-GovernmentD-Government projects with emphasis on improvement of public service delivery.



Source: AGESIC Uruguay at http://www.agesic.gub.uy

AGESIC hold a strategic role in D-Government in Uruguay. Not only technical aspect but also providing government office with assistance on financial aspects. In addition to that, President has appointed Director of Agency for the Development of Government Electronic Management and Information Society and Knowledge (AGESIC) to act as a Government CIO by Presidential Decree. There is a strong leadership for D-Government development in Uruguay.

In all, Uruguay has put all D-Government trend into their D-Government Strategic Plan. The strategic plan is developed under "Program to Support D-Government Management". Not only does the strategy has targeted the citizens' participation but also how to create interoperability system among government institution.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Uruguay, 71.6% of the population uses the Internet in 2017Vene, an increase over the previous year. The number of fixed-broadband subscriptions is 26.3 per 100 inhabitants, while the number of active mobile broadband subscriptions is 77.7 per 100 inhabitants, both values being comparatively high among Latin American countries.

4.2 Management Optimization [MO]

Uruguay's D-Government strategy is presented in a document titled "Agenda Uruguay Digital – Transforming with Equity 2020", in which the government recognizes the need of using ICT to improve its relationship with its citizens, and to work towards the country's digital transformation. The strategy defines nine objectives in four areas: social policy and inclusion, sustainable economic development, government management, and governance for the information society. For each objective, commitments, goals, and responsible institutions are specified. The Agenda is available for download in a dedicated website, and is also available in English.

4.3 Online Service [OS]

The Uruguayan government maintains websites for all five types of e-services assessed in this survey (e-procurement, e-tax, e-customs, one-stop service, and e-health), and all of them obtained medium scores. The e-procurement website is transactional and wide range of information, while having a clean and simple design. The e-tax and e-customs websites offer two-way interaction features The e-health website only provides news and information on health centers. The one-stop service website features a search function, a list of the most consulted procedures, categories of the procedures, and contact information for users seeking support.

4.4 National Portal [NPR]

Uruguay's national portal (http://portal.gub.uy) prominently features a search function, working also as a one-stop service website. In addition, it has an option that allows to directly search for procedures on the official one-stop service website (http://tramites.gub.uy) from its menu. On its main page, it displays news and links to other government agencies. It also links to the official contact website (http://contacto.gub.uy), from where users can send emails to different officials and dependencies. It does not provide basic or demographic information of the country. The portal is also available in English.

4.5 Government CIO [GCIO]

Although the appointment of a GCIO position is not specified in any official document, the functions of a GCIO are performed by Agency for D-Government and Information and Knowledge Society (AGESIC). This agency leads the implementation of the national D-Government strategy by promoting the use of ICT in public administration. No additional information on CIO regulations, CIO office, or training programs was found.

4.6 D-Government Promotion [EPRO]

The promotion of D-Government is one of AGESIC functions. Through the national D-Government strategy, AGESIC aims to promote the use of ICT to improve the relationship between the citizens and the government. However, evidence of activities regarding promotion in the country is very limited. No information on publications, training programs, or events related to D-Government was found. Funding for D-Government Promotion is provided by AGESIC and included in AGESIC's budget.

4.7 E-Participation [EPAR]

Citizens have access to information about elected officials, government agencies, legislation, and the national budget through the national portal and other official government websites. The president has an official website from where it is possible to send him messages. Also, there is a dedicated website from where citizens can directly contact various government agencies, officials, and some private agencies. In spite of this, e-Participation in Uruguay is relatively low. There is some evidence on how the government asks citizens' opinions for making decisions.

4.8 Open Government Data [OGD]

In 2000, Uruguay adopted the Public Information Act to participate in the Freedom of Information Act movement around the world. The government is committed to provide open information to its citizens, for which it offers an open data portal (http://datos.gub.uy). According to the site, there are currently 140 datasets available from 29 institutions, grouped in 13 categories, including demographic and e-health datasets. The datasets are available for download in various formats. The website is also under the supervision of AGESIC. There is also a website for open government information (http://gobiernoabierto.gub.uy), which offers news and links relevant to this subject.

4.9 Cyber Security [CYB]

Uruguay has enacted specific legislation to penalize cybercrime. It also has laws on information and privacy protection, and data security. There is an official government agency in charge of handling incidents related to cyber security, the CERTuy, which offers information on security and good practices. In addition, the AGESIC is responsible for the implementation of a cyber security strategy.

4.10 The use of Emerging ICT [EMG]

Some evidence suggests that the government has used Cloud Computing services, although this is not specified in any official document. No evidence of usage or regulations by the government of emerging technologies such as the Internet of Things or Big Data was found.

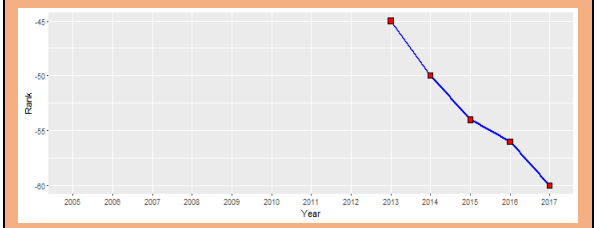
5 Some Highlights

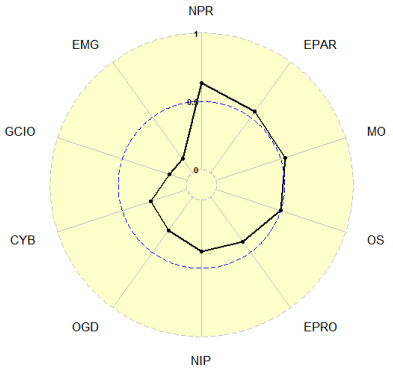
Among ten indicators in the current ranking, the National Portal, Open Government Data and Online Services are the top three indicators in Uruguay. The national D-Government strategy is clearly written and sets objectives and frameworks, although little is mentioned about evaluation. The national portal contains useful information for local and also foreigners such as country information, tourism, and link to available e-Services. The Uruguayan government has put Open Data as one of priority initiatives in their agenda. As one part of Open Data initiatives, government set an API standard so that other parties are able to use the single data for many purposes; Uruguay is performing well in open government initiatives. However, this survey suggests that current efforts in e-participation are insufficient. Without any efforts to increase the citizen awareness on D-Government, the huge investment in developing D-Government in Uruguay could become meaningless where citizens do not use the e-Services simply because they do not know how to use it or they do not know that they exist.

Venezuela

1 General Information

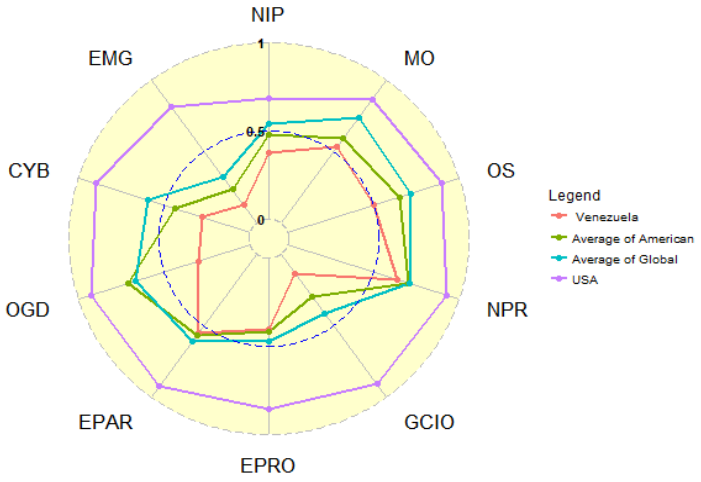
Area: 912,050 km^2
Population: 29,275,460
Government Type: Federal Republic
GDP: $16,100
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

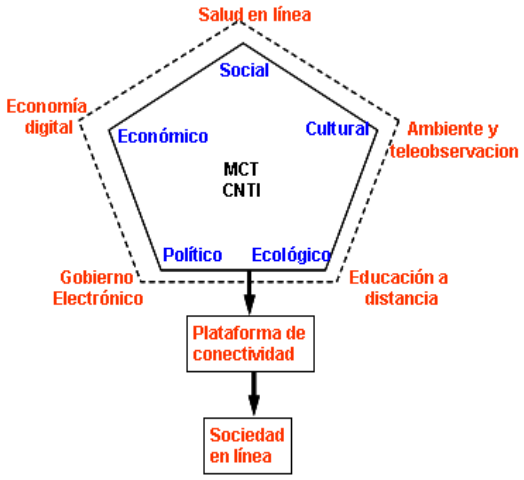
American countries



Among America Countries, an only e-Participation (EPAR) indicator is above with the average score of America region. And Venezuela is placed below USA, the best country in America region.

3 D-Government Development

Since 1999, Venezuela has a Ministry of Science and Technology (MCT) which, in 2009 and through the merger of various Venezuelan ministries, was renamed the Ministry of Popular Power for Science, Technology and Industry (MCTI). The MCTI is responsible for forming and maintaining the National System of Science, Technology and Innovation (SNCTI) to promote processes of research, innovation, production and transfer of knowledge, with relevance to fundamental problems and demands affecting Venezuelan society. Currently, MCTI suppurated to become the Ministry of Popular Power for Communication and Information (MINCI) and merged to the Ministry of Popular Power for University, Science and Technology Education (MPPEUCT). Venezuela's Government has an information technology national plan and Telecommunication plan, and the last version is ICT Plan 2007-2013.



Structure of Venezuela ICT Plan

The Electronic Government seeks rapprochement and exchange between government and citizen, relying on ICT for transformation of the Venezuelan State, of Public Management, structures and processes of government. The Venezuelan D-Government portal is "http://gobiernoenlinea.gob.ve/", this portal developed and administered by the National Center of Information Technologies (CNTI) under MPPEUCT. However the portal has only static information, news and links to other government websites.

4 By Indicators

4.1 Network Infrastructure Preparedness [NIP]

In Venezuela, 61.5% of the population uses the Internet in 2017. The number of fixed-broadband subscriptions is 8.2 per 100 inhabitants, while the number of active mobile broadband subscriptions is 43 per 100 inhabitants, both values being comparatively low among Latin American countries.

4.2 Management Optimization [MO]

The Venezuelan government issued an information technology national plan and Telecommunication plan, and its last version covered the period 2007-2013. It identifies many strategic objectives in five areas. However, there is no evidence of the existence of a new D-Government strategy or an update to the current plant.

4.3 Online Service [OS]

The Venezuelan government maintains websites for four out of five types of e-services assessed in this survey (e-procurement, e-tax, e-customs, one-stop service, and e-health), and all of them obtained low to medium scores. The e-procurement website is only accessible after authentication has been accepted, and does not provide any other kind of information. The e-tax and e-customs website offers two-way interaction features, authentication, and information on a wide range of procedures. Its design is very simple though. The e-health website only provides news and some limited information regarding healthcare. There is no one-stop service website.

4.4 National Portal [NPR]

Venezuela's national portal (http://gobiernoenlinea.gob.ve) shows news and links to other sections that contain information on different subjects. It provides basic and demographic information about the country, as well as government information. Also, it provides a list and information regarding administrative procedures, information for different groups of individuals, access to legislation, and a list of government agencies. It offers integration with social networking services, and links with Twitter for direct communication with the president.

4.5 Government CIO [GCIO]

The legal framework related to D-Government does not consider the CIO position. Some GCIO functions are performed by the National Center for Information Technologies (CNTI). No additional information on CIO regulations, office, or training programs was found.

4.6 D-Government Promotion [EPRO]

For D-Government promotion in Venezuela, President Chávez issued decree number 825 dated May 10, 2001 to develop the D-Government process. He also issued the telecommunications, data messages and electronic signatures law as well as a technology and innovation law. Telecommunications Law (OTA) (2000) instrument aims to "establish the legal framework regulating telecommunications in general, to guarantee citizens the human rights of communication and offer the implementation of telecommunications business activities necessary to achieve it." In spite of this, e-promotion in Venezuela has been very limited. The CNTI is in charge of managing the D-Government efforts in the public administration, but evidence of recent developments is limited.

4.7 E-Participation [EPAR]

The Venezuelan government brings together a variety of perspectives on participation and democracy. An interdisciplinary group of contributors focuses on the everyday lives of Venezuelans, examining the forms of participation that have emerged in communal councils, cultural activities, blogs, community media, and several other forums. In order to achieve smooth communication between the government and the citizen, using social network services now plays an important role. Twitter "https://twitter.com/gobenlineave" is now available in Venezuela's national portal. This feature encourages citizen e-participation in Venezuela. In addition, citizens may contact the president via his official website. Citizens also have access to the list of elected officials, information about the governments structure, legislation, and budget on several government websites.

4.8 Open Government Data [OGD]

Venezuela has not adopted a Freedom of Information Act. There is no evidence showing that the Venezuelan government is developing an open government plan or open data initiatives. It has a law for simplifying administrative procedures.

4.9 Cyber Security [CYB]

Venezuela has enacted legislation to penalize cybercrime through its penal code. However, it has not established laws or regulations on information and privacy protection, or data security. There is an official government agency in charge of handling incidents related to cyber security, the VenCERT, and the CNTI is responsible for information security in the public administration.

4.10 The use of Emerging ICT [EMG]

No evidence of usage or regulations by the government of emerging technologies such as Cloud Computing, the Internet of Things, or Big Data was found.

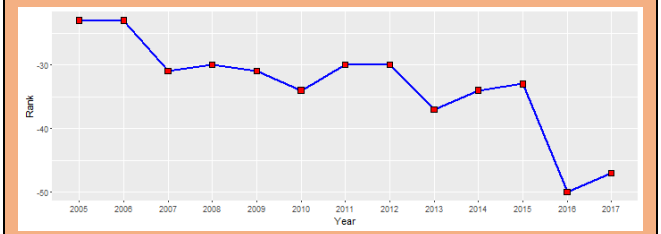
5 Some Highlights

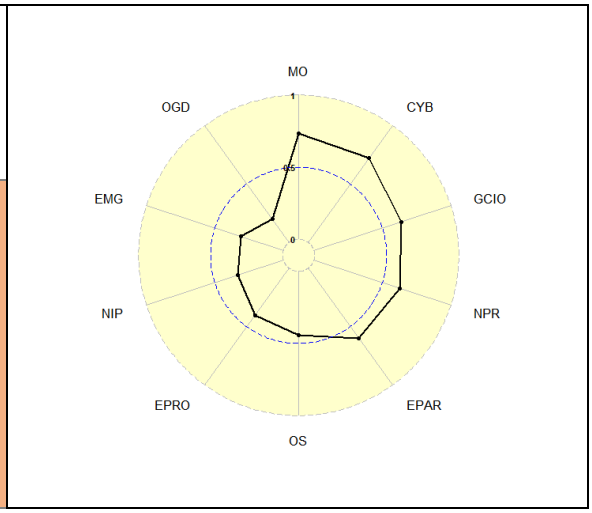
In general terms, Venezuela's D-Government development is still low. This could be related though to neglect from the government, and the political and social unrest of the country in recent years. The government does not prioritize free access to information for citizens, and making government data available to the public is out of the agenda. In addition, no current plan or strategy for developing D-Government is in effect. This suggests that Venezuela still has many weaknesses to overcome in order to develop a proper D-Government strategy.

Vietnam

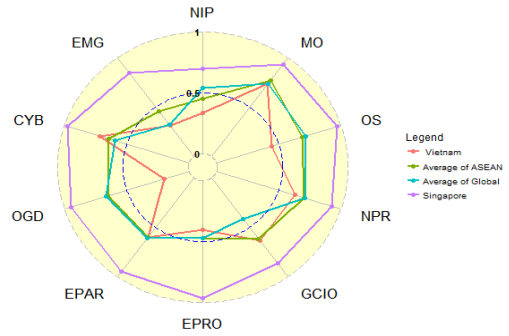
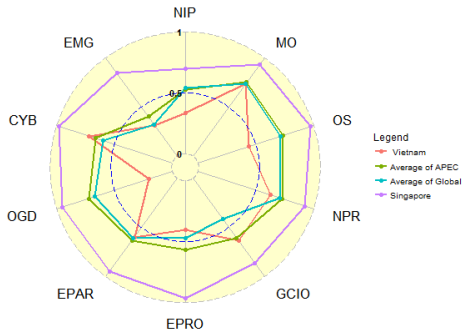
1 General Information

Area: 331,210 km²
Population: 94,348,835
Government Type: communist state
GDP: $6,100
Historical Ranking (2005 – 2017):





2 Positioning in a global organization and a region

ASEAN Countries	APEC Economies
	

This year Vietnam's overall D-Government score experienced a significantly decrease. Among ASEAN Countries, Vietnam shows little progress on D-Government development. The country scores lower than ASEAN's and the world average on almost of indicators. The similar phenomenon when comparing Vietnam with APEC economies.

3 D-Government Development

ICT development has been one of the priorities of Vietnamese government since 2000. On October 2000, the Directive 58-CT / TW on embracing ICT for national industrialization and modernization came into force, making ICT becomes the top priority for the national socio-economic development. In this period, Vietnamese government emphasized on promoting administration reform, developing the national information network, increasing Internet penetration rate and utilizing IT in the state administration

operations. The most notable ICT project were approved by the Government in this period was the Project 112 on computerization of state administration in 2001-2005 with the total funding being around 3.800 billion VND. In September 2001, the Prime Minister approved the state administrative reform program in the 2001-2010 period.

The year of 2015 was considered as an important milestone, marking by the officially announcement of the first legal document on D-Government of Vietnamese Government through the Resolution 36a/NQ-CP dated October 2015. The resolution places priorities on ensuring the effective operations of state agencies, better serve people and businesses, and improve the nation's competitiveness.

In 2011, the Vietnamese government introduced a public administration reform master plan for the period 2011-2020. In this plan, they focus on promote the ICT application for administration in both local and center government in order to promote using e-services and delivering the best government services to citizens, business, and other stakeholders.

4 Indicators

4.1 Network Infrastructure Preparedness [NIP]

The total of Internet users in Vietnam accounts for 52.1% of the population, according to the Measuring the Information Society Report 2017 from International Telecommunication Union (ITU). Among them, around 31% people have a wireless broadband connection, while the figure for fixed-broadband subscriptions is only 6.5%.

4.2 Management Optimization [MO]

Until 2015 the Vietnamese Government published the first official legal document on D-Government. It was the Resolution 36a/NQ-CP dated October 2015 signed by the Prime Minister. The resolution lays the foundation for D-Government development in Vietnam, with priorities given to promote the development of online public services, IT infrastructure and human resources during 2015-2017. The major targets set in the period are pushing administrative reform, utilizing IT in management and provision of public services. Drawing upon these targets, several measurable actions are prioritized: develop the information system to connect government agencies at all level; establish the national one-stop-service portal; promote IT application in administration reform to enhance the national competitiveness and facilitate business environment; and improve ICT infrastructure capacity to deliver Internet connection to remote areas.

Vietnamese government has successfully implemented several information systems in central government agencies, for examples, the Treasury and Budget Management System in Ministry of Finance (project TABMIS sponsored by World Bank), the electronic customs declaration system (project VNACCS/VCIS system partially funded by Japanese government from 2012) in General Department of Customs, and the in General Department of Tax. In addition, until 2015, almost ministerial-level agencies have implemented basic applications such as human resources management system, document management system, one stop shop application, and so on. All these projects aim to reduce the burden of application process for citizens and enhance public sectors efficiency.

Pursuant to Decree No.17/2017/ ND-CP dated 17 February 2017 by the Government defining the functions, tasks, responsibilities of the Ministry of Information and Communications. Pursuant to Decree No. 150/2016 / ND-CP dated 11 November 2016 by the Government defining the functions, tasks, responsibilities and organizational structure of the Office of the Government.

- Providing essential public online services level 4, meet actual demand, serving the people and businesses anytime, anywhere, on various devices. IT applications to save time of citizens and businesses when applying administrative procedures.

- Apply IT effectively in the operation of state agencies to speed up job processing, reduce operational costs.
- Improving technical infrastructure, information systems, national database, establishment the platforms to develop D-Government, to ensure the safety and security of information. Integration, connecting information systems, databases on the national scale, establishment an environment to exchange information through the network between state agencies based on the Framework of Vietnam D-Government Architecture.
- Successful implementation of the annual objectives proposed in the Resolution on D-Government.
- Decision No. 1819 / QD-TTg dated 26 October 2015 by the Prime Minister approved the national program on IT applications in the operation of state agencies period 2016-2020
- Resolution No. 36a / NQ-CP by the Government on D-Government

4.3 Online Service [OS]

The score for Online Service is based on an investigation of five online services: on an investigation of five online services: e-Procurement, e-Tax, e-Customs, e-Health, and One-Stop Service for Citizenry. Table 1 lists the online services and its URL Address. All of those services was investigated using three factors, i.e., Level of Complexity, Level of Security, and Level of Convenience.

In terms of complexity level, only online service in Tax and Customs reached the transactional level in which user can totally conduct their businesses online. Organization or enterprise who want to declare their tax online will need to have a bank account belonging to one of banks that have the cooperation relationship with General Department of Tax. The General Department of Customs has launched the project named VNACCS/VCIS in 2012 with the support from Japanese government, in order to provide an effective tool to support customs departments national wide in cargo clearance services and customs management. In order to declare customs, enterprises need to download and install client software and connect to VNACCS/VCIS system. Payment can be made by bank transfer or directly at customs offices. One stop service gateway is under planning progress.

To measure the level of convenience, the third-party application result has showed that all portal is above the average in terms of speed. The third party application for assessing the portal is the application from Google named Google PageSpeed™ Insight on https://developers.google.com/speed/pagespeed/insights. For public procurement, the electronic procurement portal only works on Internet Explorer. The portal also supports https protocol with a certificate provided by Korea Certificate Authority.

List of Online Services

Online Service	URL
e-Procurement	http://muasamcong.mpi.gov.vn
e-Tax	https://nhantokhai.gdt.gov.vn
e-Customs	http://www.customs.gov.vn
e-Health	N/A
One-Stop Service	N/A

4.4 National Portal [NPR]

The score for National Portal is based on three factors, i.e., Information (Content), Technical, and Functionality. National Portal of Vietnam (chinhphu.vn) contains proper information for local citizens and foreigners. Information about the country, government structure and latest government's activities are also available. In terms of technical aspects, the result of Google PageSpeed™ Insight showed that the portal performs at average speed and operates well with both PC and Mobile devices. The portal is also equipped with several basic functionalities such as search capability and site map.

4.5 Government CIO [GCIO]

Currently, the government body responsible for the overall D-Government development at national scope is the Ministry of Information and Communication. There is a Government CIO Council established in 2011 with the members are the directors of ICT departments in all provinces. To date, the council has demonstrated its roles in several actions such as promulgating instructions in building ICT planning for local governments, applying technical standards for local portals or using state budget for applying ICT in government agencies. Besides, there are CIO-equivalent positions appointed with the roles to promote ICT development at local government level.

Consulting for the Minister of Information and Communications and relevant agencies to formulate policies, legal documents, guidelines on information technology, information security, IT applications, and D-Government development.

Pursuant Decision No. 814 / QD-BTTTT dated May 18 2016 by the Minister of Information and Communications on consolidation of the Chief Information Officer Council of State Agencies in central government.

Consulting for the Minister of Information and Communications and relevant local governments to formulate policies, legal documents, guidelines on information technology, information systems, sharing data resource among state agencies and connecting with central government in order to promote IT application and develop D-Government.

Pursuant Decision No. 1972 / QD-BTTTT dated November 24 2011 by the Minister of Information and Communications on establishment the Chief Information Officer Council of State Agencies in local government.

4.6 D-Government Promotion [EPRO]

There is a national strategy on ICT development every year. And it is mandated on provinces to endorse similar strategy at local level. There has not been a separate financial mechanism for ICT development. Funding for ICT projects is deducted from the Science Technology fund.

4.7 D-Government Participation [EPAR]

Vietnamese citizens seem not to be aware about government's plans on D-Government although they are supposed to be the center point in any D-Government project. This is due to D-Government projects were used to be designed and developed mostly based on suppliers' perspectives.

Private sectors are the most proactively participated users in D-Government initiatives with 98% of total companies lodging tax via Internet in 2015. In the same year, the number of firms participating in electronic customs declarations was 35,020, accounting for 98.13% of all businesses. These are the results of government's aggressive efforts in recent years to promote the tax and customs modernization process.

4.8 Open Government Data [OGD]

Currently the management, exploitation and usage of national data are facing with lots of challenges. For instance, there is no existence of a national population data, however practically there has been several separate databases related to the population such as civil, labor, health insurance, driving license, and so on which are managing by different agencies. The statics on socioeconomic are published limitedly without reusing or redistribution. Data from a few sectors such as environmental resource has not been managed well, resulting in fragmentation, inconsistent and duplication. Under specific circumstance, data can be exchanged among different government agencies.

4.9 Cyber Security [CYB]

With the strong growth of ICT, the Vietnamese government is putting more effort into ensuring the safety and security of cyber environment. The Law of Information Technology was approved on 2006, establishing the basic principles for this purpose. In terms of institutional, the Vietnam Computer Emergency Response Team (VNCert) was established in 2005 under the Ministry of Information and Communications with the duties to give warnings on computer network security and advise the Ministers in the safety and security management of state agencies.

There are few national regulations relating to information safety came into force such as: The directive 28-CT/TW, on 16-9-2013 of the Party Central Committee's Secretariat (XI) to enhance the network information security and Decree No. 72/2013/ND-CP, validated 15-7-2013 of the Government in management, provision and use of Internet services and online information.

VNCERT is an organization under the Ministry of Information and Communications, established by Decision 339/2005 / QD-TTg of the Prime Minister, performing coordination activities of computer emergency response in the national scale; warning about safety issues of computer networks; Proposal for standards, technical regulations on the safety of computer networks.

The Authority of Information Security is an organization under the Ministry of Information and Communications to perform the function of advising and assisting the Minister of Information and Communications regard to information security enforcement. The Authority has functions, duties and powers stipulated in Decision No. 1281 / QD-BTTTT dated September 09 2014 by the Minister of Information and Communications.

4.10 The use of Emerging ICT [EMG]

This indicator uses three current technologies for measuring as the scoring items. These technologies are Cloud Computing, Big Data, and Internet of Things (IoT). No information was found regarding to the utilization of emerging technologies within government agencies.

According to the Decision No. 1819 / QD-TTg dated October 26 2015 by the Prime Minister approved the national program on IT application in the operation of state agencies period 2016-2020. Vietnam strives to carry out smart city at least 3 places.

For example, in the cities like Hanoi, Ho Chi Minh, the project is being studied and implemented, such as Intelligent Transport Systems - ITS (Intelligent Transport System); GPS technology applications for bus operator; VOV traffic map mobile application to help citizens find location, plan a route in order to avoid traffic congestion.

5 Some Highlights

Vietnam started to connect to the Internet in 2000. At the time, only 0.3% of the population were Internet users in Vietnam. This figure has grown to 49.7 million, accounting for more than half of the population in 2017, ranking 7th in Asia. After two decades, the ICT industry is playing an important role in socio-economic development of Vietnam. Recently, Vietnam stands in the top 10 most attractive outsourcing environments in the Asia-Pacific region; the total IT industry revenue reached 33 billion USD and the total employees working in the IT sector was over 440,000 in 2013.

This year, Vietnam has its highest score on Management Optimization, which reflects the efforts of government in utilizing ICT in state administration bodies' operations. The Resolution No. 36a / NQ-CP issued by the Government on October 2015 identifies general visions on D-Government such as: promote the development of D-Government; improve the quality and efficiency of the activities of State agencies to

serve citizens and businesses better; improve Vietnam's position on United Nation D-Government ranking; and publicize the activities of state agencies in the network environment. Inheriting achievements accumulated from previous periods, the IT utilization in state agencies have shown optimistic results.

However, online service delivery is still very limited, despite of a high rate of Internet penetration. Most of online services are at interactive level, calling for necessary activities of the government to boost the administration reform process. Lack of consistent direction in D-Government implementation, especially in local governments, resulted in the highly fragmentation in D-Government initiatives and imped collaboration and data sharing among agencies.

Cyber security is another weak point of the country as the lack of necessary security mechanisms and legal framework made online transactions become more vulnerable to cyber threats. Alongside with the fast growth in ICT, high-tech criminal status in Vietnam tend to be more complicated. This in turn will become the barrier preventing citizens and businesses in interacting with governments via online way.

Although there has been some progress from the Vietnamese government on D-Government development, the outcome is still far from meeting expectations. This implies that the government should pay attention not only to technical investments but also to other indispensable determinants such as leadership commitment, legislative framework, inter-cooperation among government agencies and strict supervision from independent bodies.