

The Institute of Digital Government at  
Waseda University, Tokyo in cooperation  
with the International Academy of CIO (IAC)  
has released the results of its 15th  
International Digital Government rankings  
survey

# **The 15th WASEDA International Digital Government Rankings Report**

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## Preface

The Institute of Digital Government at Waseda University in cooperation with the International Academy of CIO (IAC) has released the 15th Waseda World Digital Government Rankings Survey 2019/20. which marks the digital transformation in many countries. The Institute was established in 2002 and this ranking survey model was created in 2005 by Prof. Dr.Toshio Obi, a Founder of the Institute and President of IAC at that time.to announce the First Ranking Survey. Dr. Obi was awarded as the honor on “The most world influential 100 people in Digital Government in 2018” by UK based Think tank. Now Both the Institute and the ranking survey are managed by Prof. Dr. Naoko Iwasaki of Waseda University. We hope this survey will be able to contribute to its value to all parties concerned.

We have now faced the serious COVID-19 all over the world and we are sure that Digital Government can be one of effective solution on the pandemic issues. It is well noted that this edition is extremely significant as the 15<sup>th</sup> memorial anniversary ranking report. We appreciate Dr.Nguyen Manh Hien at APEC Digital Government Research Center for his great contribution

**Drs Toshio Obi and Naoko Iwasaki**

## I. Overall Ranking

No	Total Rankings	Score	No	Total Rankings	Score	No	Total Rankings	Score
1	USA	96.287	23	Russia	74.016	45	Colombia	62.6534
2	Denmark	94.605	24	Austria	73.173	46	Bahrain	62.0807
3	Singapore	93.497	25	Belgium	73.138	47	Israel	61.7557
4	UK	92.129	26	Thailand	72.323	48	Mexico	61.7493
5	Estonia	91.541	27	Italy	71.062	49	Chile	61.0108
6	Australia	88.379	28	Ireland	70.564	50	Brazil	60.3950
7	Japan	88.244	29	Spain	69.117	51	Lithuania	58.6581
8	Canada	88.210	30	Malaysia	68.768	52	Morocco	58.5974
9	South Korea	86.932	31	Brunei	68.309	53	Saudi Arabia	57.1383
10	Sweden	82.430	32	Georgia	67.927	54	Uruguay	55.6577
11	Taiwan	82.067	33	Portugal	67.850	55	Kenya	55.1985
12	Norway	81.503	34	Turkey	66.521	56	South Africa	53.9830
13	New	80.655	35	Macau	66.455	57	Egypt	53.8839
14	Switzerland	80.309	36	Philippines	66.103	58	Argentina	53.2056
15	Finland	79.684	37	China	65.983	59	Peru	53.0257
16	Hong Kong	78.155	38	Czech	65.962	60	Fiji	52.4778
17	Germany	77.919	39	Poland	65.014	61	Tunisia	47.6721

18	France	77.168	40	Indonesia	64.708	62	Pakistan	44.3656
19	Kazakhstan	76.969	41	Romania	64.523	63	Nigeria	43.0047
20	Netherlands	76.272	42	Oman	64.057	64	Costa Rica	38.8549
21	Iceland	76.182	43	India	63.932			
22	UAE	75.770	44	Vietnam	63.249			

**Table I-I: Waseda Digital Government Overall Ranking**

Waseda Digital Government Rankings have been introduced since 2005. The rankings of 2019/20 mark the 15-year milestone of the Digital Government rankings for audients, researchers, and policymakers in each country. The Waseda Digital Government ranking is an overview of Digital Government development in 64 countries around the world. The rankings show the development strategies, policy implementation, and publish online services. Due to the limited resources, the rankings kept 64 countries for evaluation, reduce one country compared to the last year. In the coming years, we will endeavor to expand the rankings, in order to gain a better overview of each area for the Digital Government development.

In the rankings, the methodology is kept for evaluation. The raw data are collected from 10 main indicators and 35 sub-indicators. The collected data was analyzed and evaluated by researchers and cross-checked through discussions and experts' meetings twice a year.

In the top 10 of the 15th Waseda Digital Government Rankings is the USA in the first place, following is Denmark in the second place, Singapore ranked for 3<sup>rd</sup> and downturned from the 2<sup>nd</sup> last year to 3<sup>rd</sup> place. The rankings also marked the first time Singapore is in the 3<sup>rd</sup> place after fourteen-time is in the first and second place. The UK ranked for 4<sup>th</sup> following are Estonia, Australia, and Japan in the 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> place respectively. The 2019/20 rankings show that Canada returned in the top 10 of the most developed digital government countries and ranked for 8<sup>th</sup>. South Korea downturned to 9<sup>th</sup> place for the first time in 2019/20 and Sweden is the last nation in the top 10.

The 15th digital government rankings mark the US returned to the first place after five years since 2014 and jumped five steps compared to the rankings last year. The US digital strategies are still based on (1) Increasing mobile 5G business; (2) Ensure that as the government adjusts to this new digital world; (3) Unlock the power of government data to spur innovation. In order to focus on AI to streamline operations, in 2019 the White House issued the Executive Order on Maintaining American Leadership in AI last year and announced the American AI Initiative, a national strategy “to sustain and enhance the scientific, technological and economic leadership position of the United States in AI R&D and deployment.”

Denmark ranked for 2<sup>nd</sup> after one year of leading on the digital government in Waseda rankings. Compared to the rankings last year, Denmark received a higher score in e-participation and cybersecurity indicators. In Denmark, the new digital strategy runs up

to 2020 and covers local, regional, and also the central government. It will help shape the digital Denmark of the future and ensure that the public sector can seize the technological opportunities to create added value, growth, and efficiency improvements while maintaining the confidence and trust of Danes in the digital society. The new strategy sets the course for Danish public sector digitization efforts and their interaction with businesses and industry. The strategy is also a more efficient public sector, new technology, and digital welfare solutions that have already empowered the elderly to live more autonomously and with a greater quality of life.

The 15<sup>th</sup> digital government rankings have many changes in order compared to previous years, especially in the top 10. Singapore is a typical example, the rankings show that this is the first year Singapore ranked for 3<sup>rd</sup>. Singapore keeps a high score in most indicators, but all other countries in the top 5 have a positive change in all indicators. In Singapore, digitalization a key pillar of the Government's public service transformation efforts. Their vision is to create a Government that is "Digital to the Core, and Serves with Heart". A Digital Government will be able to build stakeholder-centric services that cater to citizens' and businesses' needs.

The UK ranked in 4<sup>th</sup> place, which slipped down compared to the last year. National Portal and Open Government are two main indicators that have decreased. It makes the UK's position is not as expected. However, based on the evaluation from 10 indicators the UK has already made good progress for the development. The strategy for the digital government in the period 2017 - 2020 is structured around these 5 objectives, it helps the government works better for everyone.

This year, Estonia is ranked 5<sup>th</sup>, compared to the last year, even in some indicators that have not received a full score (e-Government promotion and Open government data) but Estonia has made a big impression on the global stage. As of 2020, Estonia is the only country in the world where 99% of the public services are available online. Estonia has reached an unprecedented level of transparency in governance and built broad trust in its digital society. 2019/20 is also the year marks the Estonian government introduces Government AI strategy and Cloud, which makes Estonia the most digital country in the world and taking the next step in its digital evolution to expand its ICT society.

Australia marked a big jump in the top 10 of the rankings when it ranked for 10<sup>th</sup> from last year to 6<sup>th</sup> place this year. A new digital transformation strategy was released in November 2018, thanks to this strategy, it helps to improve government services and the Australian government also expects that by 2025, Australia will be one of the top 3 digital governments in the world for the benefit of all Australians.

Compared to the last year, Japan keeps the same position in 7<sup>th</sup> place. In July 2019 the ministry established the METI Digital Transformation (DX) Office with aiming to improve the convenience of administrative services for corporate bodies and to systematically advance policy planning based on data and service improvement. It has

been called the “One-stop, once-only” service. In rankings, management optimization and open government data are two indicators that got a higher score compared the last year rankings.

Canada has a big jump in the 15th digital rankings. Last year, Canada was not in the top 10, even it ranked 16<sup>th</sup>. There have been many efforts carried out by the Canadian government to improve Digital Government. The newest Digital Operation Strategic Plan for 2018-2022 focuses on the establishment of the integrated direction for the government on digital transformation, service delivery, security, information management, and information technology. In 2019/20 also marked the government updates for the Canada Cloud Adoption Strategy, in which the government expects to expand online services and minimize the cost of applications and infrastructure.

In the bottom of the top 10 are South Korea and Sweden, South Korea slipped from 6<sup>th</sup> place to 9<sup>th</sup> place in the rankings. In 10 main indicators, “National Portal” and “The use of Emerging Technologies” are two indicators receive lower score compared to the last year rankings. It makes South Korea’s position in overall rankings is lower than last year’s rankings. By improving eGovFrame Portal, it has been applied to 702 e-government projects at a local, central, and integrated management system for providing businesses with policy information. Following South Korea is Sweden and tied at 10<sup>th</sup>, compared to last year rankings, Sweden slipped from the 8<sup>th</sup> to the 10<sup>th</sup>. In March 2019 the cybersecurity action plan was issued at government agencies level. The joint action plan contains 77 of the most important measures that are scheduled to begin implementation in 2019, it helps Sweden got a higher score in terms of cybersecurity indicator. The Nordic Mobility Action Program is continuing to implement in 2019/20, besides that the Swedish government cooperates with other countries in Nordic and Baltic to speed up the implementation of the eIDAS project. In which, Nordic and Baltic citizens will be able to use their national electronic IDs to access public services when they move to, work in, or study in any other country in the region. Based on the application of digital transformation, the Swedish government and the local authorities and region want to improve social services and health care to 2025 with the vision to 2025 Sweden will be best in the world at using the opportunities offered by digitization and eHealth to make it easier for people to achieve good and equal health and welfare.

There is not much change for the position from 11<sup>th</sup> to 30<sup>th</sup> except UAE and Kazakhstan. Most countries in this group are European countries such as Norway, Switzerland, Germany, France, Netherlands, Iceland, Austria, Belgium, Italy, Ireland, and Spain. Thailand and Malaysia are the only two representatives from Southeast Asia. UAE and Kazakhstan have the strongest promotion in digital government activities. A series of planning have been implemented which brings two countries getting closer to the top 15 of the Waseda digital government rankings.

In recent years, the UAE has been one of the fastest-growing digital governments. In 2018, the Telecommunications Regulatory Authority (TRA) launched the UAE digital government maturity project. The project focuses to develop Digital government readiness and create a Digital government maturity framework, which includes (1) Global digital maturity models, (2) UAE federal and local digital maturity models, (3) UAE leadership in smart government, (4) The UAE Strategy for the Fourth Industrial Revolution, (5) UAE Strategy for Artificial Intelligence, (6) National Innovation Strategy, and (7) Emirates Blockchain Strategy 2021. With the introduction of this model, the UAE government has come a long way in promoting online services, as well as applying it to provide health services to improve quality and become among the best countries in the world in terms of quality of healthcare to 2021. In 2019, the UAE government updated the National Cybersecurity Strategy, which aims to create a safe and strong cyberinfrastructure in the UAE in order to serve the digital transformation in UAE.

Kazakhstan government has approved “Digital Kazakhstan” with the main mission of the program to improve the quality of life of residents and the competitiveness of the country's economy, through the use and development of digital technologies. The program is planned for two vectors of development: “Digitalization of the existing economy” in the medium term and “Creating a digital industry of the future” in the long term. The 120 planned events of the program will form the basis of the digital sector as a new branch of the economy and will be implemented in five directions: “Digitalization of economic sectors”, “Transition to a digital state”, “Realization of the digital Silk way”, “and Development of human capital” and “Creation of an innovative ecosystem”. Since the program affects all spheres of life and is aimed at improving the standard of living of every resident of the country, the beneficiaries of its implementation will be citizens, business entities and government agencies of the Republic of Kazakhstan.

There is not much change in the position for the countries from the 31<sup>st</sup> to the 50<sup>th</sup>. Most of them are developing countries from Eastern European countries such as the Czech Republic, Romania, and Georgia. In which, Georgia has made a great step forward compared to the last year's rankings. Some countries from Southeast Asian such as Brunei, Philippines, Indonesia, and Vietnam. In particular, Brunei leads the Southeast Asian countries in this group. Brunei has a big jump in overall rankings compared to the 2018's rankings. At the bottom of this group are Colombia, Chile, and Brazil representative for South American countries.

In 15th digital government rankings, Brunei marks a positive change in digital government activities. In 2015, the government proposed 6 years' programs for Brunei digital government strategy, in which they focused to promote digital services to 2035 to support the high standard of living, become a world-class of infrastructure and high growth. Thanks to the digital transformation, Brunei's citizens can access to multiple online services by using the only e-Darussalam account. When deploying digital government services, the Brunei government focuses on (1) service innovation, (2)



security, (3) Capability and Mind-set, (4) enterprise information management, (5) Optimization, and (6) collaboration and integration.

At the bottom of the 2019/20 overall rankings, Fiji, Tunisia, Pakistan, Nigeria, and Costa Rica ranked for 60<sup>th</sup>, 61<sup>st</sup>, 62<sup>nd</sup>, 63<sup>rd</sup>, and 64<sup>th</sup> respectively. There is no information on the digital government in Venezuela. Therefore, in total the Waseda digital government rankings have only 64 countries.

In this group, Fiji has significant progress in the development of the digital government. The digital FIJI is the Fijian Government's Digital Transformation Program, by improving this program which expects to implement several government applications, enhance the overall ICT infrastructure and build and develop capacity in digital transformation in the government. The digital FIJI aims to drive developments and improvements in the areas that will enable a strong and sustainable development of Fiji's Digital Economy, this includes to develop IT infrastructure, ICT capacity, and engage the public to stimulate the development of a vibrant, inclusive and sustainable IT industry and community in Fiji.

## II. Digital Government Ranking by Indicators and Sector Analysis

The Waseda Digital Government Ranking relies on comprehensive benchmarking indicators in order to obtain an accurate and precise assessment of the latest developments of D-Government in the ICT section of all targeting countries. Ten main indicators are currently used to carry out the Waseda Digital Government Ranking survey. The table below shows all ten indicators and their thirty-five sub-indicators.

Indicators	Sub-indicators
<b>1. Network Preparedness/Infrastructure (NIP)</b>	1-1 Internet Users 1-2 Broadband Subscribers 1-3 Mobile Cellular Subscribers
<b>2. Management Optimization/ Efficiency (MO)</b>	2-1 Optimization Awareness 2-2 Integrated Enterprise Architecture 2-3 Administrative and Budgetary Systems
<b>3. Online Services / Functioning Applications (OS)</b>	3-1 E-Procurement 3-2 E-Tax Systems 3-3 E-Custom Systems 3-4 E-Health System 3-5 One-stop service
<b>4. National Portal/Homepage (NPR)</b>	4-1 Navigation 4-2 Interactivity 4-3 Interface 4-4 Technical Aspects
<b>5. Government CIO (GCIO)</b>	5-1 GCIO Presence 5-2 GCIO Mandate 5-3 CIO Organizations 5-4 CIO Development Programs
<b>6. D-Government Promotion (EPRO)</b>	6-1 Legal Mechanism 6-2 Enabling Mechanism 6-3 Support Mechanism 6-4 Assessment Mechanism
<b>7. E-Participation/Digital Inclusion (EPAR)</b>	7-1 E-Information Mechanisms 7-2 Consultation 7-3 Decision-Making
<b>8. Open Government (OGD)</b>	8-1 Legal Framework 8-2 Society 8-3 Organization
<b>9. Cyber Security (CYB)</b>	9-1 Legal Framework 9-2 Cyber Crime Countermeasure 9-3 Internet Security Organization
<b>10. The use of Emerging ICT (EMG)</b>	10-1 The use of Cloud Computing 10-2 The use of Internet of Things 10-3 The use of Big Data

Table II-I: The Main Indicators and Sub-Indicators

<b>Network Preparedness</b>		
No	Country	Score
1	Denmark	8.057
2	Iceland	7.986
3	Norway	7.955
4	Netherlands	7.926
5	South Korea	7.917
6	Switzerland	7.866
7	UK	7.817
8	Sweden	7.709
9	Germany	7.695
10	France	7.679

<b>Online Services</b>		
No	Country	Score
1	Canada	12.00
2	Denmark	11.88
3	Iceland	11.76
4	Estonia	11.64
4	USA	11.64
6	UAE	11.40
6	UK	11.40
8	Australia	11.28
8	New Zealand	11.28
10	Finland	11.22

<b>Government CIO</b>		
No	Country	Score
1	Singapore	10.00
1	USA	10.00
3	Japan	9.546
4	Estonia	9.090
4	South Korea	9.090
4	UK	9.090
7	Denmark	8.636
8	Iceland	8.181
9	Canada	7.727
9	Malaysia	7.727

<b>E-Government Promotion</b>		
No	Country	Score
1	Singapore	10.00
2	USA	9.677
2	Kazakhstan	9.677
4	UK	9.355
4	Japan	9.355
6	Australia	9.032
6	Denmark	9.032
8	Canada	8.709
8	South Korea	8.709
8	Russia	8.709

<b>Open Government Data</b>		
No	Country	Score
1	Canada	10.00
1	Denmark	10.00
1	Indonesia	10.00
1	South Korea	10.00
1	USA	10.00
6	Australia	9.500
6	Finland	9.500
6	India	9.500
6	Netherlands	9.500
6	New Zealand	9.500

<b>Emerging ICT</b>		
No	Country	Score
1	USA	8.000
2	Denmark	7.000
2	UK	7.000
4	Singapore	6.500
4	Germany	6.500
6	Estonia	6.000
7	Belgium	5.500
7	Norway	5.500
7	Switzerland	5.500
7	Taiwan	5.500

**Table II-II: Top 10 Countries by selected Individual Indicators**

## **1. Network Preparedness/Digital Infrastructure**

The first indicator that is used for evaluation of digital government in the Waseda-IAC digital government rankings is “Network Preparedness”. The National Portal is a measure for internal and external connections in one country. Internet users are always an important sub-indicator for assessing application services online in a country. Nowadays, with the development of wireless broadband, especially 5G. It has been deployed and applied in many countries. Which expands high-speed connectivity, changing infrastructure with large bandwidths, it will be of great help for developing countries in adopting and pursuing digital government strategies, and also reduce the information gap between developed countries.

Norway has adequate infrastructure for ICT network and digital government which allows for system interoperability and data interchange between administrations, government agencies, and departments. The use of the Internet is widespread and continues to grow amongst rural areas outside of big cities. The government is focused on rewarding private industry for continually expanding its ICT infrastructure and emphasis on “Green IT” solutions in order to contribute a healthier environment for everyone.

## **2. Management Optimization**

Management Optimization is a key indicator for Waseda digital government rankings, which refer to the actions of the government in the application and implementation of digital government. It is expressed through the implementation of projects, strategy for the ICT application development. Apply new technologies in accelerating online services to citizens. Setting policies and system architecture is also a factor that every government needs to consider in moving to a digital model. This indicator reflects the utilization of ICT for improving government business processes and internal processes (back office in each organization). Management optimization is a significant indicator of Digital Government development because it relates to optimization awareness, enterprise architecture (EA), and also the administrative management system.

To realize the importance of digital transformation, since 2018 the Australian government has made significant progress for digital transformation by 2025. The strategy aims to create a digital identity system for users. The Australians using the digital ID for receiving personalized services. The digital ID was introduced in March 2019 covering services including grants management, business registration, and student services. The Australian government expects with this digital strategy will deliver world-leading digital services for the benefit of all Australians by 2025.

## **3. Online Services/ Applications**

E-Services are the primary indicator in the development of digital government. The outcome of the Digital government is e-Services or products/services that the government

introduces to citizens, making e-Service as the interface of digital government. The growth of a nation in the digital government is measured by the increase in online services and the level of services (information, download form, transaction, and e-payments). The Waseda digital government ranking is currently evaluating five major online services of countries including e-procurement, e-tax, e-custom, one-stop service, and e-health. These are basic services for online services. To cover better and evaluate online services, in the coming rankings will expand more online services.

2019/20 marks for the first time UAE ranked in the top 10 of Waseda digital; government rankings in terms of online services. By improving the UAE digital government maturity model, and introducing many online services covering business, personal, and service bundle. UAE got a full score in most sub-indicator for online services with full transaction levels.

#### **4. National Portal/Homepage**

National Portal (one-stop service) is defined as a place where the government integrates all e-services and makes them accessible via one gateway. It is also a primary interface for stakeholders to access the government electronically. Through the national portal, governments offer many benefits to users of public services—from citizens and businesses to the public administrators themselves—including faster, cheaper, and superior services. In the public sector, a one-stop service is one of the most promising concepts of service delivery in public administration. National Portal implementation is included in the Digital Government strategies in most countries.

Singapore has always been at the top one in Waseda digital government rankings for 15 years. Not only the top 1 in the overall rankings, Singapore always leads in all evaluation indicators. GovTech is the government department responsible for the planning, implementation, and implementation of digital government. GovTech builds key digital platforms and infrastructure to support Singapore's Smart Nation initiatives. As one of Singapore's Smart Nation Strategic National Projects, the National Digital Identity (NDI) ecosystem aims to provide convenience and security for citizens and businesses when they transact online. The NDI is a common and universal trust framework for public and private sectors to build value-added digital services. A smart nation is a digital government development strategy in Singapore. A smart nation where the government wants people, businesses are empowered through increased access to data, more participatory through the contribution of innovative ideas and solutions. Furthermore, the platform for Smart Nation will be one of the anchor initiatives that will enable everyone and everything, everywhere, to be connected all the time in Singapore.

#### **5. Government Chief Information Officer (GCIO)**

In the first version of Waseda digital government rankings, GCIO was introduced as a critical indicator in evaluating of digital government in each country. The CIO is

expected to align management strategies with ICT investment in order to achieve a balance among business strategy, organizational reform, and management reform. This indicator is aimed to evaluate the role of the director of information technology in planning, developing strategies, and implementing digital government, as well as transforming the traditional management model into applications of digital technologies (digital transformation).

Together with Singapore, the USA is ranked for 1<sup>st</sup> place for the GCIO indicator. In the US the CIO Council is a forum of Federal Chief Information Officers (CIOs) with the goal is to improve IT practices across U.S. Government agencies. CIO.gov is where the Government CIO shares priorities, key technology policies, news, and the programs and events for the development of ICT and digital government. The government CIO leads digital transformation efforts and implementing digital technology, research, and workflow methodology to transform federal agencies' agility and digital landscape. In the USA, the government CIO develops and leads the execution of cybersecurity strategy and solutions to address the issues that concern federal agencies and supports clients in multiple cybersecurity fields, such as policy, governance, risk management, endpoint security engineering. Government CIO helps businesses to develop cutting-edge scientific analyses, simulations, and data visualizations.

## **6. Digital Government Promotion**

This indicator measures a government's activities toward the promotion of Digital Government and distribution of e-Services to citizens, businesses, and other stakeholders. It includes activities involved in supporting the implementation of Digital Government such as legal frameworks and mechanisms (laws, legislation, plans, policies, and strategies). In other words, the government carries out these activities in order to support the development of e-Services as well as the Digital Government as a whole.

In 2019/20, Japan ranked for 4<sup>th</sup> in digital government promotion indicator. Through the media, the government has introduced the promotion of the services and utilities of using the internet to deliver public services. Workshops on digital government are also regularly held, in addition to combining with the top University in terms of CIO and digital government training. It keeps, the digital government action plan will be updated and followed.

## **7. E-Participation/ Digital Inclusion**

E-Participation is the application of ICT to expand and increase participation in a digital government building. It allows people to connect, give opinions to the government in the implementation of a digital project, making the process more transparent and more consistent. Processes may concern administration, service delivery, decision-making, and policy-making.

Along with Canada, Denmark, Singapore, and the USA, Estonia is one of the five countries sharing the No. 1 for the e-participation indicator. Over the past 5 years, Estonia has become a phenomenon in developing digital government. Along with the development of broadband across the country, Estonia also focuses on the formulation of strategies, as well as digital government policies. Typically, the Digital Agenda 2020 for Estonia, in which the Estonian government develops information society and increase cybersecurity. Thanks to these policies, it attracted 46.7% of people participating using the internet for voting and the number of e-residents in 2019 is 62,000. Besides that, 99% of the Estonian population uses e-ID, now 99% of government services have been digitized.

## **8. Open Government Data**

Open Government Data is a measure of the publicity and openness of certain government data to citizens and businesses, as well as to other governments. To encourage its use and reuse data sources transparently and efficiently.

In 2011, Denmark joined the international initiative “Open Government Partnership” (OGP), which serves to promote good governance and strengthen democracy by promoting transparent and inclusive governance. The first Danish Open Government action plan was launched in 2012 in which to focus was to improve digital public service for citizens and businesses as well as improve transparency and accountability in public projects and processes. The second Open Government action plan was introduced in 2013 which focused on Local democracy, digital communication, and new forms of collaboration. The newest Open Government action plan was covered for the period 2017-2019, in which the government commits to (1) More and better open data for citizens, shared data to a public distribution platform, open data for Denmark; (2) Tailored data to ensure a basis for citizen participation; (3) Working together for a better public sector; and (4) A global effort for openness.

Indonesia is an example of Open government policy in developing countries. This is also the first year marking Indonesia in the top 10 of the Open Government data indicator. The Indonesia Open Government Partnership National Action Plan 2018-2020 is started with the formulation of grand challenges aiming for Village, Health, Education, Poverty, and Economic sectors through a long process. In 2018, the Indonesian government launched the Open Government Indonesia National Action Plan with 14 commitments and 46 milestones.

## **9. Cyber Security**

In Korea, various laws, regulations, and guidelines promote cybersecurity, such as the Act on the Promotion of IT Network Use and Information Protection (Network Act), and the Personal Information Protection Act (PIPA). The Network Act plays an important part in promoting cybersecurity in terms of protecting personal information and

enhancing data security in the context of IT networks. The PIPA acts as a general law on personal data protection that is applied in combination with the Network Act to all incidents of data privacy infringement, including cyberattacks and data leaks. In 2019 rankings, South Korea got a full score in terms of Cybersecurity, higher compared to last year's ranking.

## **10. The use of Emerging ICT**

In the first stage, the government uses information technology for public reform. The next step is to use the Internet and telecommunication networks to transfer services to all citizens and businesses. Nowadays, with the development of many new technologies such as IoT, it does not only help people access government services through computers, phones, tablets, and thousands of other devices. Cloud computing helps the government and citizens to connect easier. Big data helps the government expand data to optimize services. Therefore, the emerging of these technologies always requires the highest priority and should be implemented by the government.

Compared to last year's rankings, Taiwan still keeps the position in the top 10, there is no change in terms of evaluation score. But during one year, the Taiwanese government has some actions to promote using the technology of big data, IoT, and AI in the government departments. To serve the citizen better, the government introduced “Civil IoT Taiwan” which is one of the government’s “forward-looking infrastructure-digital construction”. The program gathers and integrates the big data of earthquakes, water resources, air quality, and disaster prevention, the government can promote the transformation of the digital city to a smart city. The program helps the government in smartly preventing and effectively recurring disaster. Enhancing people’s life quality and protecting people's safety from the threats of natural disasters, support data science industries with the IoT infrastructure, and also provide firsthand sensing data to the academic community.



### III. Digital Government Ranking by Organizations and Regions

#### 1. Ranking of APEC Economies (Countries and Areas)

APEC Economies			APEC Economies			APEC Economies		
No	Economies	Score	No	Economies	Score	No	Economies	Score
1	USA	96.287	8	New Zealand	80.655	15	China	65.983
2	Singapore	93.497	9	Hong Kong	78.155	16	Indonesia	64.708
3	Australia	88.397	10	Russia	74.016	17	Vietnam	63.249
4	Japan	88.244	11	Thailand	72.323	18	Mexico	61.749
5	Canada	88.210	12	Malaysia	68.769	19	Chile	61.011
6	South Korea	86.932	13	Brunei	68.309	20	Peru	53.026
7	Taiwan	82.067	14	Philippines	66.103			

**Table III-I: Digital Government Ranking in APEC Economies**

Australia was initially quick to join the global digital government trend. The first Electronic Transactions Act was introduced in 1999. Through more than 20 years of development, the Australian digital government has gained many important achievements. The newest Digital Transformation Strategy was launched in 2018 with the aiming to deliver world-leading digital services for the benefit of all Australians. In this project, the government focuses on 3 strategic priorities (1) government that easy to deal with, (2) government that’s informed by you, and (3) government that’s fit for the digital age. The strategy is accompanied by a clear roadmap that includes key projects and milestones to 2020 and some of the major transformation opportunities to 2025.

Brunei has a big changed in the position of digital government rankings this year, compared to other economies in the group. To realize the growth of technology, the Brunei government has been quick to adopt new tools in their current business processes and drive to increase the efficiency, effectiveness, quality, and accessibility of information and services that will contribute to economic and social growth. Since 2015, the Brunei government has digital government strategy to 2020 in order to drive by the Wawasan 2035, in which the government expects to see Brunei Darussalam recognized everywhere for (1) The accomplishments of its well-educated people, (2) The quality of life, and (3) The dynamic, sustainable economy. The mission is to lead the digital transformation and make government services simpler, faster, and more accessible.

#### 2. Ranking of OECD Countries

OECD Countries			OECD Countries			OECD Countries		
No	Country	Score	No	Country	Score	No	Country	Score
1	USA	96.287	11	New Zealand	80.655	21	Ireland	70.565
2	Denmark	94.605	12	Switzerland	80.310	22	Spain	69.117

3	UK	92.129	13	Finland	79.685	23	Portugal	67.850
4	Estonia	91.542	14	Germany	77.918	24	Turkey	66.521
5	Australia	88.379	15	France	77.168	25	Czech	65.963
6	Japan	88.244	16	Netherlands	76.273	26	Poland	65.014
7	Canada	88.210	17	Iceland	76.183	27	Israel	61.756
8	South Korea	86.932	18	Austria	73.174	28	Mexico	61.749
9	Sweden	82.430	19	Belgium	73.138	29	Chile	61.011
10	Norway	81.504	20	Italy	71.062			

**Table III-II: Digital Government Ranking in OECD Countries**

In this group, the USA changed its position with Denmark compared to the rankings last year. Followed by the UK, Estonia, and Australia, these countries are in the top 5 in this group. There is not much change in the top 10 compared to the last year of rankings except Canada, which has a big jump compared to the 2018 ranking and tied at 7<sup>th</sup> place. Japan keeps the same place while South Korea slipped down to the 8<sup>th</sup> place. In the middle of the group, only Italy has a positive change. At the bottom of this group are Israel, Mexico, and Chile.

In Canada, the Digital Operations Strategic Plan is the third iteration in the Government of Canada’s strategic planning process for how we manage technology and technological change in government. This Strategic Plan builds on and expands on the Government of Canada Strategic Plan for Information Management and Information Technology from 2017 to 2021. Strategic Plan sets and provides insight into the government’s digital direction, especially directly from the CIO of Canada. The Strategic Plan establishes the integrated direction for the government on digital transformation, service delivery, security, Information Management, and Information Technology. Canada has outstanding performance on the indicators of both “Online Service” and “E-participation”. As one of the leading nations in the Digital Government area, Canada is still expected to increase more scores on the latest indicator for the usage of new technologies, which is to have an efficient model of adopting emerging technologies such as Cloud Computing or IoT.

Digital Israel is the government national initiative that focuses on harnessing the potential of the digital revolution to advance information and communication technologies for the benefit of accelerating economic growth, reducing socio-economic gaps and making government smarter, faster, and more accessible to citizens, making Israel a global leader in the digital domain.

### 3. Ranking in European Countries

EU Countries			EU Countries			EU Countries		
No	Country	Score	No	Country	Score	No	Country	Score
1	Denmark	94.605	8	Germany	77.918	15	Ireland	70.565

2	UK	92.129	9	France	77.168	16	Spain	69.117
3	Estonia	91.542	10	Netherlands	76.273	17	Portugal	67.850
4	Sweden	82.430	11	Iceland	76.183	18	Czech	65.963
5	Norway	81.504	12	Austria	73.174	19	Poland	65.014
6	Switzerland	80.310	13	Belgium	73.138	20	Romania	64.523
7	Finland	79.685	14	Italy	71.062	21	Lithuania	58.658

**Table III-III: Digital Government Ranking in European Countries**

Denmark, the UK, and Estonia are leading countries in this group. They keep their position compared to 2018 ranking. Locate in the 4<sup>th</sup> in Sweden, Norway in the 5<sup>th</sup> place, Switzerland in the 6<sup>th</sup> place, and Finland in the 7<sup>th</sup> place. The middle of this group has appeared in Germany, France, Netherlands, Iceland, Austria, Belgium, and Italy. In which, Italy has positive progress in the development. Romania and Lithuania rank at the bottom of this group. Compared to last year's rankings, Lithuania still in the same place.

Norway plans to share digital knowledge and expertise with partner countries through a new Digitalization for development program, whose aim is to build skills and capacity in partner countries. The program expects to share Norwegian expertise in public-sector digitalization, for example through capacity- and institution-building projects in selected developing countries, including the development of systems for improved data management and utilization.

#### 4. Ranking in Africa, the Middle East, and CIS Countries

Africa, Middle East & CIS			Africa, Middle East & CIS			Africa, Middle East & CIS		
No	Country	Score	No	Country	Score	No	Country	Score
1	Kazakhstan	76.969	6	Oman	64.057	11	Kenya	55.199
2	UAE	75.771	7	Bahrain	62.081	12	South Africa	53.983
3	Russia	74.016	8	Israel	61.756	13	Egypt	53.884
4	Georgia	67.928	9	Morocco	58.597	14	Tunisia	47.672
5	Turkey	66.521	10	Saudi Arabia	57.138	15	Nigeria	43.005

**Table III-IV: Digital Government Ranking in Africa, the Middle East, and CIS Countries**

In Russia, the maturity of services provided through the one-stop portal is more or less uniform among the country regions but has a room for enhanced. The government aims at least 80% of services to be available through the portal by 2020. 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 and E-Learning systems are expected to be optimized and integrated expanding the services available through the one-stop D-Government portal to include requests for sick-leave certificates, electronic prescriptions, and electronic inquiries. Cyber Security also will be in the focus of the government in the

nearest years. Implementation of Artificial Intelligence and Quantum Computing programs depends on financial capabilities and not clear yet (financial sources and possible partnerships are under discussions).

South African government has deployed ICT to deliver basic services to its citizens that reveal progress in the portal of gov.za. The country has been realizing the key role of ICT in enabling modernized government services and benefits for service delivery, under the e-Government policy framework to improve the government's efficiency and effectiveness and make it convenient for citizens to access government services throughout the country. Gauteng provincial government has been one of South Africa's most modernized provinces and achieving major e-Government objectives. Gauteng province, via its well-organized department of e-Government, continues to further develop digital services on the established ICT infrastructure which can help drive South Africa's digital economy growth, especially at the local government level.

## **IV. Methodology**

For evaluating digital government development, this ranking survey is based on a group of indicators to evaluate the overall digital government development in a country, ranging from policy development and e-Services implementation to management optimization and digital government promotion. To improve the evaluation of digital government development in a country, from 2010, the ranking added an e-participation indicator. In 2014, Open Government Data and Cybersecurity were also added to the ranking. In the 2017 Ranking, the research team added “the usage of emerging ICT technologies”. It makes a total of ten main indicators for evaluation.

Increasing the quality, the assessment used a questionnaire as a tool to obtain some information from respondents who reside in the countries. The respondents are government officers who work for a ministry that concerns digital government and, to some extent, respondents from academia who are knowledgeable in digital government. The questionnaire in the upcoming ranking is mandatory. The score will use the feedback as additional information to mitigate the sample risk, thus, reducing bias during scoring. The following diagram shows the due process of creating the ranking.

Waseda International Digital Government Ranking is also based on clustering methods by classifying countries according to the group, which has been demonstrated by organizations (APEC, OECD), by the size of population and GDP, by regions (Asia-Pacific, Americas, European, Africa, Middle East, and CIS countries).

### **1. Formulation**

The Raw Score is normalized to the 0-100 scale score using the following formula.

$$NormScore = \frac{RawScore}{MaxScore} \times 100$$

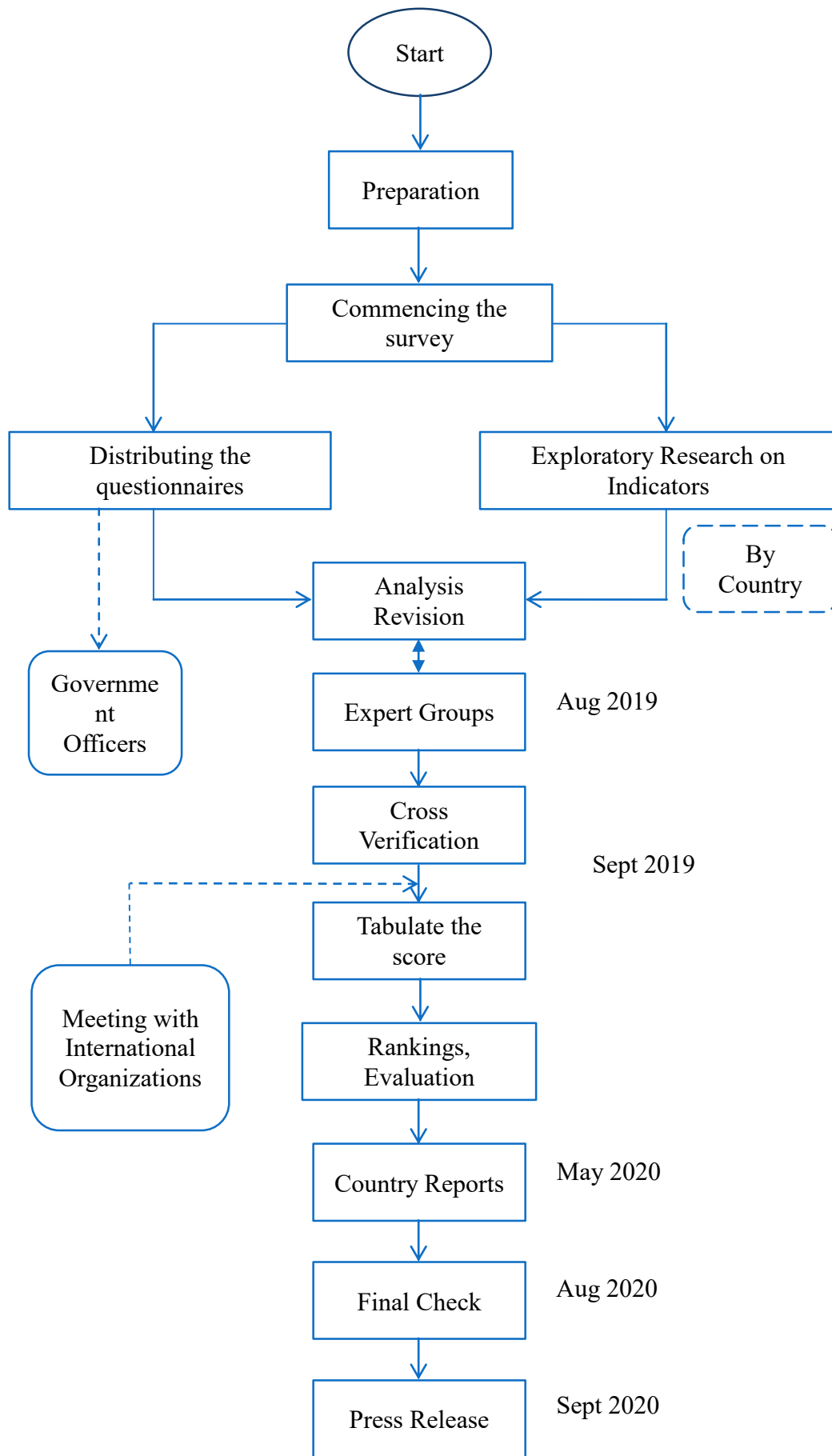
The raw score is the Score generated by averaging Score 0 and Score 1; MaxScore is the maximum score of the sub-indicators.

This will generate the Normalized Score which ranges 0 – 100. Furthermore, the Normalized Score is recalculated by the weighted rate. The result is the released score that will be used as the source for arranging the rank.

No	Indicators	2019/20
1	Network Infrastructure Preparedness (NIP)	NormScore x 10%
2	Management Optimization (MO)	NormScore x 12%
3	Online Services (OS)	NormScore x 12%
4	National Portal (NPR)	NormScore x 8%
5	Government Chief Information Officer (GCIO)	NormScore x 10%
6	Digital government Promotion (EPRO)	NormScore x 10%
7	E-Participation (EPAR)	NormScore x 10%
8	Open Government Data (OGD)	NormScore x 10%
9	Cybersecurity (CYB)	NormScore x 10%
10	The emerging technology in Digital government (EMG)	Normcore x 8%

## 2. Processes of Evaluation

The following process prepares the rankings



**Figure IV-1: Processes Diagram**

## V. Contributors List (● indicate group leader)

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