

Strategic Plan for Smart Government Promotion

(Approved)

(Approved by the Executive Yuan on January 10, 2019)

National Development Council

January 2019

Content

I. Preface	1
II. Digital development trends in advanced countries	3
1. Estonia.....	4
2. Singapore	6
III. Key strategies that Taiwan can borrow	8
1. Establish a secure and convenient digital identity verification mechanism	9
2. Cross-agency data sharing and interfacing mechanism.....	10
3. Strengthen cyber security	11
4. End-to-end online government services.....	11
IV. Planning for Smart Government development.....	14
1. Fundamental framework	15
(1) Full issue of New eID	15
(2) Establish a secure and trusted data exchange system (T-Road).....	16
2. Three major goals	18
(1) “Open and transparent data, maximize added value.....	18
(2) Chained governance network, optimize quality of decision making	22
(3) Integrated services functions, create innovative smart services	25
3. Three supporting measures	32
(1) Build a regulatory adjustment platform	33
(2) Implement supervision of privacy protection	34
(3) Strengthen cyber security protection.....	35
V. Conclusion	36
1. Methods of implementation	37
2. Key milestones	38

I. Preface

As Artificial Intelligence (AI), Big data, cloud computing and Internet of things (IoT) develop, innovative technologies have gradually changed the entire world, promoting transformation of global industrial structure and bringing substantive change in how society operates, and driving government to innovate public governance. In the face of the rising technology tide, advanced countries are all actively planning national digital strategies to accelerate digital transformation. For example: United Kingdom implemented the “Government Transformation Strategy” in 2017, Australia launched “2025 Digital Transformation Strategy” in 2018, and in 2016 Japan and Singapore carried out “Society 5.0” and “Smart Nation 2025” respectively. Since advanced countries are leading the construction of digital development strategy at national level, it is clear that governments are aware of the importance of strengthening digital transformation and services to maintain national competitiveness.

Taiwan also seized the chance to develop in this digital transformation wave; the Executive Yuan approved “Digital Nation, Smart Island” on November 24, 2016, aiming at ‘smart governance that people can feel’ as guidance for all levels of authorities under the Executive Yuan to digitalize services to meet people’s needs. Premier Lai commanded the National Development Council (NDC) to assist central and local governments to develop Smart Government in No.3603 Cabinet Meeting on June 7, 2018. The NDC then, following the instructions of Premier Lai, commenced planning the Smart Government development strategy; interdepartmental coordination meetings were held and ministries/agencies requested to, with resolving problems in people’s lives as the starting point, actively plan smart government-related actions to serve the public, enterprises and government. Moreover, domestic representatives and experts from industry, academia and youth were invited to discussion meetings to acquire a better understanding of and provide suggestions about Smart Government. The policy of “Smart Government” along with its

goals, promotion strategies and support system were established based on the interdepartmental discussions and opinions collected from various fields.

II. Digital development trends in advanced countries

Most advanced countries are promoting Smart Government; however, the definitions of “Smart government” differ country to country. Generally speaking, the concept of “Smart Government” refers to improvements in government service provided to the people and enterprises. Based on “data” and related innovative technologies such as Internet of things and blockchain, “Smart Government” brings government closer to the people; and combining with the AI and cloud computing, the quality of policy making can be optimized.

In response to new Internet industry activities and lifestyles, most advanced countries have promoted Smart Government-related development plans; the common trends include: “added-value application of government data”, “policy making

optimization by data analysis”, and “popularization of innovative technologies in public services”. The following are Estonia and Singapore as examples to illustrate the promotion of Smart Government:

1. Estonia

Estonia is recognized as the country with the highest degree of digitization in government operations in the world. According to the statistics, over 90% of government services in Estonia can be completed via the Internet; such an impressive result relies on the government's operational priority to provide government services digitally. “Digital Agenda 2020 for Estonia” was the plan for the goal, and the content is listed below:

(1) Establish a national identity verification mechanism based on the eID.

(2) Build “X-Road”, a data sharing platform for public

and private sectors. Data can be accessed through the Internet.

(3) Build “EESTI.ee” as a unified portal for people to access government services and information.

(4) Promote end-to-end online government services, so that people can complete government service applications using computers and mobile phones.

(5) Government data and its application should be open and transparent, meanwhile establish a supervision mechanism on data usage to lower the risk of privacy being invaded.

(6) E-Residency registration is open for foreigners, so that people outside Estonia can use the digital services provided by Estonia via internet.

2. Singapore

Singapore launched the Smart Nation Singapore 2025 plan in 2016; there are three pillars of this plan, including: “Digital economic structure” to accelerate the digitization of industry, and maintain competitiveness; “Digital readiness blueprint” to ensure the digital knowledge and skills degree of citizens in Singapore to allow them to adapt to the social impact brought by national digitization; “Digital government blueprint” to plan the use of digital technologies to change the way government offers public services. The key points of promotion include:

- (1) Establish “SingPass”, a digital identity verification mechanisms for residents and businesses, which allows people in Singapore to utilize the data systems of both public and private sectors via a consistent, convenient and secure identity

verification mechanism.

(2) Build “CODEX”, a cross-agency data sharing platform that allows government data systems to connect through the platform interdepartmentally.

(3) Build “Moment of Life”, a One-Stop platform for government services such as birth, marriage, employment, that allows people to get government information and services.

(4) E-Payment, a national electronic payment infrastructure for people, enterprises, government and retailers, with a national unified electronic payment mechanism.

(5) Build a national sensing platform to allow citizens to receive smart initiative services in daily life.

- (6) Digital transportation and surrounding services connecting public transport information, providing services such as bus timetables, e-tickets and smart road network to the people.

Generally speaking, Estonia and Singapore share the same priority of enhancing digital identity verification and accelerating “government data circulation”, to “maximize the value of data”, and ultimately provide “convenient digital service” to the people.

III. Key strategies that Taiwan can borrow

Taiwan began promoting government digitization in 1998, and has achieved many achievements such as e-Taxation, e-invoice, e-document, cloud medical records, and open data; these achievements have been recognized in international e-government evaluations.

Regarding these international experiences, government should, with a people-first approach, rethink how to continue to

refine government services in the most cost-efficient way. With the precondition of meeting the public's requirements, the digitization degree that has been should be used to simplify the government services and pain spots in communication between people and the government identified using a problem-oriented approach, to build Smart Government and meet people's needs in daily life. Summarizing the development priorities in Estonia and Singapore, there are four key strategies to promote Smart Government in Taiwan.

1. Establish a secure and convenient digital identity verification mechanism

Digital identity is the core of digital services; Estonia and Singapore have adopted eID along with a nationally unified digital identity verification mechanism as the key for people to access government services. In the tide of digital economic and transformation, it is necessary for Taiwan to establish digital identity at national level and

actively promote digital government services, to make people government feel that government services are easily accessible, effective and provided 24-7 all year round.

2. Cross-agency data sharing and interfacing mechanism

Data is the core of “Smart government”; in next-stage government digitized services, it is essential to effectively use data to refine service quality and government decision-making quality. To enhance government data circulation, Estonia and Singapore have their own national data exchanging and interfacing systems; Taiwan should make use of a backbone network to connect government databases at all levels, with the aim of supporting livelihood-oriented data application and industrial upgrading and transformation, and increase development of the domestic information service industry in the direction of high added-value.

3. Strengthen cyber security

Ever since Internet spread to all levels of public life, the balance between internet security and convenience has always been an issue of attention and discussion. Smart Government puts emphasis on information communication technology application such as mobilization and cloudization to customize services, which makes cyber security issues even more important. To ensure the security of digital services, Estonia uses the latest cyber security technology, blockchain, to raise security awareness while also reducing internal risks; Singapore, on the other hand, with regard the regulatory aspect, carried out National Cyber Security Program, successfully establishing Cybersecurity Act that requires implementation of cyber security work by the government. The practices of Estonia and Singapore offer great examples to elevate cyber security by technology and legal means for Taiwan.

4. End-to-end online government services

“Use the Internet more, roads less” is the slogan of promoting e-government, to gradually transform application for government services by the public from “onsite” to “online”. The development directions of public services in all countries of the world is the same as in Taiwan. Taking Estonia as an example, e more than 90% of national government services can be completed online, and Singapore is also expected to achieve 90% in 2023. Taiwan’s promotion of e-government so far has resulted in highly digitized government operations; however, according to a survey by the NDC, there are only 30% of the services offered by the Executive Yuan’s subordinate agencies can be provided online, so there is still considerable room for improvement.

Table: Key strategies Taiwan can borrow

Key strategy	Progress in Estonia	Progress in Singapore	Promotion direction for Taiwan
Digital identity verification mechanism	Issue national eID	National digital identity (NDI) and SingPass(National identity verification platform)	Plan and issue new eID for digital identity verification
Cross-Agency data sharing and interfacing mechanism	X-Road, connecting national public and private sector information systems	Activate CODEX platform to connect government databases	Connect government ministry/agency database systems through T-Road
Strengthen cyber security	Utilizing the most advanced network technology such as blockchain, raise security awareness and reduce internal risks	Carrying out National Cyber Security Program, successfully established the Cybersecurity Act	Implement the Cyber Security Management Act
End-to-end online government services	An one-stop platform (www.eesti.ee) that allows 99% of government services to be processed online from end to end	Activating Moment of Life portal; it is expected that the portal can allow 90% of government services to be processed online from end to end by 2023	Transform the existed portal(www.gov.tw) into an integrated one-stop platform for access to all government services

Source: NDC

IV. Planning for Smart Government development

With the aim to promote Smart Government transformation in line with advanced countries, and to cultivate digital competitiveness, Taiwan has adopted “Full issue of New eID” and “Establish a secure and trusted data exchange system” as two outlines, and drawn up three goals and three support measures. With data as the backbone, applying AI and blockchain to deliver the government services they need to the people, the aim is optimize the quality of decision making, establish a public-private governance model for the next stage Smart Government, and eventually achieve the goal of Smart Government, “Convenient, efficient, 24/7 service”.

Goals : Convenient, efficient, 24/7 services

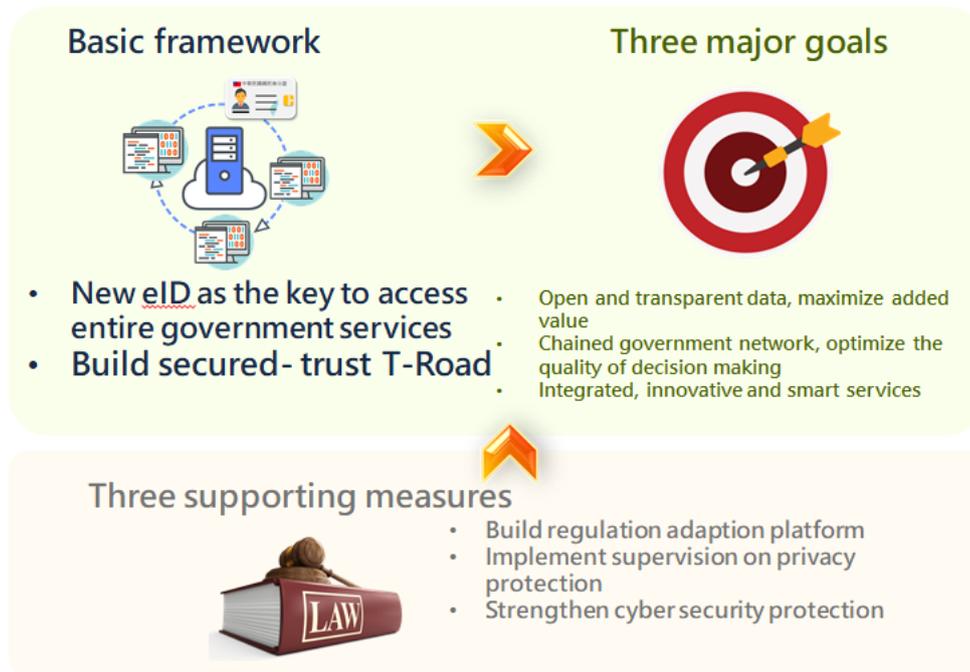


Figure: A framework for Smart Government planning

1. Fundamental framework

The fundamental framework for Smart Government includes “Full Issue of New eID” and “Establish a secure and trusted data exchange system”, to establish a secure, convenient and reliable digital environment for identity verification and data connecting and circulating.

(1) Full issue of New eID

According to the research of Acuity Market Intelligence, 128 countries had launched eID by 2017. Following international trends, Taiwan's Ministry of the Interior is planning to replace the old-type national identity card with "Digital identity card" that combines ID card and citizen certificate, with built-in digital signature and has the highest level of identity verification. The main function of eID is personal identification (identity verification); it works as the key for people to access digital government services, not a device for personal data saving.

(2) Establish a secure and trusted data exchange system (T-Road)

The data economy is a focus around the world; promoting digitization so far, Taiwan's government has collected a considerable amount of data in all kinds of operational fields; how to make good use of data and

unearth data value, while also reaching a balance with privacy protection, to improve governance efficiency is the issue that countries in the world are continually studying and discussing.

To speed up the integration of government databases, building a secure and trusted mechanism for government data exchanging is the first priority for Smart Government. GSN, the government network will be used as the backbone to connect to databases of government agencies at all levels, and innovative technologies like blockchain used to guarantee the data security from being tampered. On the other hand, “Digital identity card” is the key to access the databases of all departments; once identity verification is authorized by the user, the government can read the information of the person and proactively provide digital services.

2. Three major goals

“Data governance” is the core of planning Smart Government; data will drive the government to continually improve its public services; with public and private sectors working together, plus knowledge and experience from people, greater public governance power will be achieved. The three major goals are: “Open and transparent data, maximized added value”, “Chained governance network, optimize quality of decision making”, “Integrated services functions, create innovative smart services”; The following are the seven strategies for these three major goals:

- (1) “Open and transparent data, maximize added value

Smart Government is the integration of digital and open government. The government will be transformed into a platform for public and private information circulating and exchanging, make the

governance and civil-participated government decision-making transparent through data circulation, information flow and data analysis, and bring public services to a new level.

Strategy1. Maximize the added value of government open data

With the effort made by public and private sectors, Taiwan's transparency of government data has been ranked no.1 in the world twice, a notable achievement. The next stage of government open data is to expand the open data and maximize the cooperation of government and people based on the Freedom of Government Information Act

- (1) Free accesses to data (provide the information proactively or based on duty of authority)

Data and information will be provided proactively in open format, free, regardless of the purpose, location and time, and be irrevocable once provided.

(2) Provide information by application (restrict information provided)

Ministries and agencies will provide data or information in open format after receiving applications from people, and release it on the government open data platform.

Meanwhile, ministries and agencies should deepen the application of government information de-identification and establish standards for normalization, classification and data formats by categories, in order to prepare for forming a data economy ecological

sphere gradually, to boost economic development and improve the quality of public services.

Strategy2. Encourage citizen participation and social innovation

Transparent, open government information and data is the foundation for encouraging citizen participation. The policy issues the government is facing mainly involve complicated and cross-area governances, therefore it is necessary that government-public interaction is enhanced and all issues, proposals and details are transparent and discussed with citizens; ministries and agencies should think outside the box and hold an open attitude, actively develop partnerships with people via the Internet, and unite the power and the wisdom of the public in decision making, to make policies and implementation meet people's needs, and make interaction with the people more transparent and

trusted.

In addition, open data plus innovation competition will encourage business startups; its meaning on a deep level is solving the problems in life by citizens' power. Expanding open government data not only boost citizens; power, it also stimulates new economic momentum. Ministries and agencies should share and optimize their data by shared services and open source tools, make government departments and data users participate in deeper discussion and cooperation by themes, improve service flow, and revitalize government data utilization, to let people make the best use of government open data, apply it services and product development, promoting social innovation

(2) Chained governance network, optimize quality of decision making

In response to various governance circumstances, utilizing public and private data, connecting people's needs to the interdepartmental governance network, establishing a decision-making system and optimizing its quality are the goals of Smart Government.

Strategy1. Based on data-oriented computation and analysis to optimize the quality of decision making

The government in the past had to deal with a huge amount of digital data with complex formats and diverse sources, and couldn't make the most of it due to limited collecting and analyzing capacity. In recent years, the progress of analysis methods and technologies on data exploration, semantic analysis, image interpretation, machine learning, has made data analysis an efficient tool for government to improve its service quality. On 20 June, 2018, amendment of statistics law was approved, and one of the key points

was “Improve the statistical function of the administrative data processing system”. Ministries and agencies were requested to utilize integrated public statistics and optimize governance decisions while complying with personal data protection law. Government agencies at all levels should make good use of government data, Big data of private-sector, and innovative technologies such as AI; master the gap between knowledge and practice and apply to governance issues such as house vacant rate, timely prosperity; and provide reference for decision making through data analysis.

Strategy2. National Geographic Information System (NGIS) as reference for decision making

Taiwan has been promoting the National Geographic Information System(NGIS) since the 1980s.Essential maps for national land planning, such

as nationwide electronic maps, national numerical terrain models, and aerial imagery are set up; the database of national land information system, data operational standards regulation were established, making NGIS an important tool for governance and decision making. NGIS is the foundation of Smart Government; ministries and agencies should put priority on the speeding up the opening and application of national base map, setting the standards of 3D data, promoting 3D pipeline management, 3D NGIS development, NGIS value-added application, and industry development, to accelerate the improvement of national competitiveness.

(3) Integrated services functions, create innovative smart services

With a people-oriented approach, analyze the cross-area data of various ministries and agencies and,

with public participation and suggestions, proactively sense and select people who need service and the service content they need, to provide better information and better choice, to reach the goal of integrated service functions and innovative smart services.

Strategy1. Introduce innovative technologies to customized livelihood service.

With the popularity of technology applications such as cloud computation, Big data analysis, IoT, and AI, applying innovative technologies to public services has is the direction many countries are making an effort in; utilizing new technology to promote government services' transformation and upgrading not only can enhance Taiwan's digital competitiveness, combining it with social innovative services it can improve the quality of people's lives. Taking AI as an example, the

Ministry of Health and Welfare has collaborated with the NDC in applying AI technology on a trial basis to interpretation of tomography, colonoscopy and other imagery data, as well as trial operations such as image report disease information extraction.

Ministries and agencies should focus on "innovate, connect, and overturn" as features, and apply new technologies like AI and blockchain to livelihood services - food, medical, housing, transport, education, child-raising which make government administration and people in daily life enjoy the benefits brought by technology innovation. Ministries and agencies should give priority to the following innovative services:

(1) Serve the people

- Directly transfer subsidies or allowances to citizens' accounts through digital identity verification and internet system

- Interpretation of cloud medical images of the National Health Insurance Scheme by AI
- IoT sensors for remote care
- UAV for agricultural damage investigation
- Smart monitoring for environment, resources and weather
- AR/VR/XR Immersive teaching and training courses
- Practical training such as machine maintenance by Digital Twins computer simulation
- Blockchain for the traceability of school group meals foodstuffs
- Blockchain digital diploma to prevent counterfeiting

(2) Serve enterprises

- Blockchain management of cross-border

cargo

- AI for patent review
- AI for review of National Health Insurance Scheme applications
- UAV to cut down the logistics costs of the last mile
- Self-driving car for rural transportation network

(3) Serve the government

- Blockchain management of government human resource
- AI management for government file sorting, interpretation and review

Strategy2. Mobilized, digitalized end-to-end online services

Mobile devices are widely used nowadays; people

are used to handling all kinds of things big and small through their smart phones in daily life, for example: traffic inquiry, community interaction, financial transactions, online shopping; according to 2018 Digital opportunity survey by the NDC, in Taiwan the mobile device Internet use rate of people over the age of 12 reached 84.9%, and time connected by mobile phone to the Internet reached 211 minutes a day. The trend of internet use via mobile devices has changed the behavior of people significantly , and it's becoming more and more intertwined with digital networks; in response to the new life style, it is necessary for government to expand its services to mobile devices; ministries and agencies should actively increase end-to-end online government services, and put priority on matters closely relate to people's lives, for example:

- End-to-end online land administration and household registration services
- Proactive services for employment

matchmaking and emergency aid

- End-to-end online assistive device application and long-term service
- End-to-end online labor injury and disability benefit application
- Agreement and record of campus flu vaccinations

Strategy 3. Once-for-all data input

The Ministry of Health and Welfare has launched “My Health Bank” for people to download their National Medical Insurance Scheme medical information; meanwhile NDC has designed MyData, a customized data self-application mechanism, and has collaborated with the Ministry of Health and Welfare, Ministry of the Interior, Ministry of Education, and Ministry of Transportation and Communications to trial it. Ministries and departments should promote

acceleration of customized data download and improve proactive government services through MyData, so that documents of proof or transcriptions are no longer needed when people apply for government services. Furthermore, through the Government Service Network, linking to government data that has once been provided by people can save people repeated provision.

3. Three supporting measures

In the digital transformation process of advanced countries, existing legal restrictions on the operation of new technologies, balance of data governance and privacy protection, and security of digital services and data are the common issues that need to be tackled. There are three supporting measures for developing Smart Government: “build a regulatory adjustment platform”, “implement supervision of privacy protection”, and “strengthen cyber security protection”.

(1) Build a regulatory adjustment platform

With the aim to solve legal restrictions pragmatically, a regulatory adjustment platform will be adopted to help startups comply with relevant laws; collecting opinions and coordinating with domestic and foreign chambers of commerce will continue. Guided by the “Everything which is not forbidden is allowed”, open approach we will help startups clarify the applicability of regulations, to make regulation flexible and able to respond to the rapid shift in digital economic trends, and create conditions conducive to the development of startups. Entrepreneurs can use the “new regulatory adjustment platform” to apply online or in writing to give suggestions, and the NDC will hold meetings for competent authorities and startup operators to communicate face to face, to clarify ambiguity about applicability of regulations.

(2) Implement supervision of privacy protection

In the era of the digital economy, application of Big data and information sharing have become an irresistible trend, and the globalized information flow also made personal data protection more vulnerable; the European Union launched General Data Protection Regulation (GDPR) in May 2018, and established a strict personal data protection legal framework which made many countries re-examine their own regulations. In Taiwan, the “Personal Data Protection Program Office” has been set up; it will focus on interdepartmental coordination and integration for GDPR, tackle the application for EU adequacy certification of all ministries and agencies together; and review the Personal Information Protection Act in a timely way, and meanwhile, reinforce the regulatory implementation and consistency of all ministries and agencies.

(3) Strengthen cyber security protection

On the regulatory side, “the Cybersecurity Management Act” was implemented on January 1, 2019; all levels of agency now, by law, have to implement every action for cyber security, and take a further step to strengthen basic cyber security to prepare defenses and emergency response capability; an information security governance maturity framework has also been established to evaluate the degree of maturity of important national information asset governance for authorities at cyber security responsibility level A to B, and react to the actual needs and result of evaluation, gradually improve the maturity of cyber security governance.

On the protection level, the focus promotion is to expand the cross-institutional and cross-area information security system, and proceed to international

information exchange, build a comprehensive information protection network step by step, from point to plane, from domestic to international cooperation; apart from the united protection network built by central government agencies, the six special municipalities should play the lead to link with county and municipal governments and research resources to build a cyber security network for local governments; also, by carrying out cross-domain sharing of cyber security resources through national level platforms, reduce risk and improve capacity for cyber security protection based on the central and local cyber security co-defense system.

V. Conclusion

While countries around the world are promoting Smart Government strategies, Taiwan needs to keep up with technological progress to drive government cross-area innovation,

and link with nongovernmental resources to create opportunities. It is necessary for all ministries and agencies, based on the goals of developing Smart Government and strategies, use forward-looking information technology and integrated application of IoT and Cloud to promote eID, and build a secure and trusted data exchange mechanism (T-Road), to allow the government in the future to plan action programs with forward-looking and innovative vision, to provide complete smart digital services, ultimately achieving the goals of Smart Government: “Convenient, efficient, 24/7 services”.

1. Methods of implementation

The resolution of the 3632nd Cabinet Meeting stated that the NDC is charged with planning the overall programs, coordinating the implementation of all ministries and agencies to achieve the goal of Smart Government. Deputy heads of ministries and agencies should take actions such as setting up steering committees, and in line with the planning of Smart Government, take concrete action such as putting

priority on allocation of resources for the end-to-end online government services etc.; moreover, cross-area service transformation based on actual needs of people should be enhanced, and the secure and trusted backbone network used for cross-agency data sharing to increase the value of the application.

2. Key milestones

Prioritize the implementation of the full issue of eID by 2020; promote all-dimensional smart services, shorten administrative procedures, and write off without attaching paper receipt; 80% of applications for government services can be completed online; and launch referendum electronic voting (not online voting).