THE SOCIALIST REPUBLIC OF VIETNAM
THE OFFICE OF GOVERNMENT
THE COMMUNIST PARTY OF VIETNAM

DATA COLLECTION SURVEY ON E-GOVERNMENT IN VIETNAM

FINAL REPORT

JUNE 2019

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

FUJITSU RESEARCH INSTITUTE

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This report was prepared based on the information collected in Viet Nam and Japan from March to June 2019.
The recommendations are suggested by the survey team and do not represent JICA's official cooperation strategy for the particular sector or country.

Abstract

The Government of Vietnam (GOV) has promoting e-Government Policy for many years to streamline the government business process and reforming government service in line with development and popularization of information and communication technologies (ICT). Recently, the Office of Government (OOG) requested GOJ for supporting their project of development of the National Information Reporting System (NIRS) and the Command and Operation Center (COC). On the other hand, the Central Committee of Organization of the Communist Party of Vietnam (CCOP) also requested GOJ to support their project of development of the Database system of organizations, staffing quota, cadres, civil servant and public employees of the whole political system (Officials Database:ODB).

In response to the above mentioned requests, Data Collection Survey on E-Government in Vietnam aims to collect information on the current situation, issues and needs of the Government of Vietnam especially for NIRS-COC and ODB in order to consider what kind of Japan's support is possible.

This report identified current status and issues of GOV's e-government policy, requirements and needs for NIRS-COC and ODB and pointed out recommendation for supporting OOG and CCOP by the Government of Japan (GOJ) based on Japan's experience on e-Government policy.

The content of each chapter in this report is shown below.

Chapter 1. Introduction

This chapter describes the background, objectives, targets, survey period, general work flow chart, schedule, and project organization of this survey. The survey team of Fujitsu Research Institute conducted the field survey for three times in March, April and June, 2019 and collected data from OOG, CCOP and other relevant authorities by interviewing and reviewing documents of GOV and GOJ with above mentioned aims.

Chapter 2. Current Status and Issues of e-Government Policy Plan in Vietnam

This chapter describes the survey result of GOV's e-Government policy plan.

Despite E-Government Development Index (EGDI) of UN is evaluated as relatively high level, especially in Online Services Index (OSI), at United Nations Survey, GOV's ranking has not risen among the member states due to low level Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI). And in Waseda University's digital government survey, compared to the average score of Asia-Pacific Countries, Vietnam has lower score in many digital government policy areas.

The survey team reviewed the latest e-Government policy plan of GOV, "Resolution No.17/2019/NQ-CP" with the evaluation framework of above mentioned Waseda University Survey and found that the Resolution No.17 contains comprehensive policies. However, there are remaining issues below to promote those policies.

- Development of legal documents for further promotion of digital government including measures such as promotion of data utilization among public and private sectors

- Popularization and promotion of National ID (Reconsideration of the position of personal identification numbers in each existing system)
- Network and data exchange environment especially in localities of rural area

GOV has signed a memorandum of cooperation in the field of e-government with major e-government developed countries, and various donors is supporting formulation of legal framework and development of specific e-Government systems such as e-Cabinet, e-Service Portal and e-Consultation by sending experts.

Chapter 3. Requirements and Needs for NIRS and COC

The requirements, needs and issues regarding development of NIRS and COC including the survey team's assumption are described in this chapter.

The development of NIRS and COC aims to digitalization of reporting process and data utilization from reports in GOV for streamlining, load reduction, and speed up of reporting and making decision. The plan of development of NIRS and COC is legally specified in Decree No.09/2019/ND-CP and Decision No. 451/QD-TTg.

NIRS is designed to consist of Government Information Reporting System (GIRS) and Line Ministries and localities Information System (LIRS). The COC is considered to include GIRS and is being designed and developed by OOG to collect, analyze and visualize data from reports and other systems. LIRS will be developed by each line ministries and provinces for collecting data from relevant parties and submitting reports to GIRS via newly developed Vietnam Data eXchange Platform (VDXP).

Software development part have been proceeded with well-known and skilled local IT Vendor and GOV requested hardware support to GOJ.

Currently, about 157,677 reports are submitted every year to OOG from line ministries and provinces estimated by OOG. Those line ministers or provinces collect and analyze data from sub-organizations such as districts and communes by conducting survey. Totally, 38,418,597 reports including reports from each companies are exchanged in Vietnam.

The issues for the development of NIRS and COC identified by the survey team are as follows.

- Technical standards for data format of reports from LIRS (data integration and sharing standards) is not developed.
- KPI setting and consideration on data analysis use-cases are not completed and relevant parties are not involved sufficiently.
- Consideration of AI, Big Data analysis use-cases is in very early stage.
- Data and security management policy is not considered enough.

Chapter 4. Requirements and Needs for ODB

The requirements, needs and issues regarding development of ODB including the survey team's assumption are described in this chapter.

The development of ODB aims to:

- Build a database of organizations, staffing quota, CBCCVC of the whole political system to facilitate the information management and searching, data compilation and statistics.

・ Develop and upgrade software to serve for management and operation of CCOP and party agencies in charge of organization and personnel of different levels.

ODB consists of the following two modules.

・ System of database of the organizations, staffing quota, cadres, civil servants and public employee of political system
・ System of electronic portal

The feasibility study of ODB will be conducted from February to August of 2020 and development of ODB will be started from September 2020 and will be completed by December 2020.

The issues for the development of ODB identified by the survey team are as follows.

・ Data synchronization with the personnel database system of the ministries which will be developed by Ministry of Home Affairs (MOHA) will be needed but MOHA is also in early preparation stage and not discussed yet.
・ Data migration from other agencies including the People's Committee of all level will be difficult task because data contents and formats are not standardized in those units.
・ There should be promotion polices for using newly developed ODB in other units including the People's Committee of all level. The staffs of those units may have no enough skills and are unfamiliar with using systems.

Chapter 5. Japan's experience regarding e-Government policy Issues

Based on the issues the survey team mentioned in Chapter 2 and Chapter 3, Japan's experience regarding those issues are described in this chapter.

・ Legal framework for further development of digital government policies such as data utilization in public and private sector
・ Development and promotion of National ID System and integration of existing IDs,
・ Development of network environment in localities, and
・ Policy making with various data.

Chapter 6. Recommendations on Japan's Support

In this chapter, recommended Japan's support considered by the survey team are described.

The survey team assumed the sufficient scale, hardware configuration from the requirements and needs which are described in Chapter 2 and 3 for hardware support for NIRS-COC project and ODB project.

Regarding NIRS-COC, the survey team recommended to develop from utilize reports currently receiving from line ministries and provinces and continue studies to find out the Use-Case in step-by-step process. The survey team explained the recommendation on Japan's hardware support to OOG and CCOP, and selected appropriate hardware set based on the result of the consultation.

The survey team also suggested other cooperation options including technical assistances such as survey and proof of concept (PoC). The technical assistances for GOV apart from hardware support are recommended for GOJ when GOV gradually expand the functions and data scope of COC.

Acronyms and Abbreviations

AI	Artificial Intelligence
AITA	Authority of Information Technology Application, Ministry of Information and Communications
BI	Business Intelligence
CBCCVC	Cán Bộ, Công Chức, Viên Chức (cadres, civil servants and public employees)
CCOP	Central Committee of Organization and Personnel, the Communist Party of Vietnam
COC	Command and Operation Center
CP-NET	Chính phủ (Government)-Network
DF/R	Draft Final Report
EBPM	Evidence-Based Policy Making
EGDI	E-Government Development Index
ETL	Extract, Transform and Load
F/R	Final Report
GIRS	Government Information Reporting System
GOJ	The Government of Japan
GOV	The Government of Vietnam
GSO	General Statistics Office, Ministry of Planning and Investment
HCI	Human Capital Index
IC/R	Inception Report
ICT	Information Communication Technology
JICA	Japan International Cooperation Agency
KPI	Key Performance Indicator
LIRS	Line ministries and Localities Information Reporting System
MIC	Ministry of Information and Communications
MOF	Ministry of Finance
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
MOIT	Ministry of Industry and Trade
MPI	Ministry of Planning and Investment
MOT	Ministry of Transport
NIRS	National Information Reporting System
ODB	Officials Database (Database of Organizations, Staffing Quota, Cadres, Civil Servant and Public Employee of the Whole Political System)

OLAP	Online Analytical Processing
OOG	The Office of Government
OSI	Online Service Index
TII	Telecommunication Infrastructure Index
UNDESA	United Nations Department of Economic and Social Affairs
VDXP	Vietnam Data Exchange Platform
VEAP	Vietnam e-Government Application Platform
VEDB	Vietnam e-Government Database
VEDH	Vietnam e-Government Data Hub
VEMCS	Vietnam e-Government Monitoring and Control System
VNI	Vietnam Initiative
VNPT	Vietnam Posts and Telecommunications Group
WAN	Wide Area Network

Table of Contents

List of Figures

List of Tables

Chapter 1 Introduction

1.1. Background of the Survey

The Government of Vietnam (GOV) placed realization of E-government as an important issue in the Master Program on Pubic Administration Reform (hereinafter referred to as "the Master Program") for the period 2010 – 2020 and promulgated Resolution on E-government on 2015 for the state ministries and local authorities. Due to the slow progress of the tasks on e-government of the Master Program, Prime Minister Nguyen Xuan Phuc established "the National Committee for e-government" on August 28th, 2018 in order to improve the productivity of the public sector, to improve the business environment through simplification of administrative procedures, and to eradicate fraud and corruption. While taking office as chairman, the Prime Minister appointed Deputy Prime Minister Vu Duc Dam as Deputy Chairman and Minister-Chairman of the Office of Government Mai Tien Dung as General Secretary (The Office of Government (OOG) is the secretary office). The Minister of Public Security, the Minister of Information and Communications, the Minister of Finance, and the Minister of Planning and Investment, as well as the Chairman of the Armed Forces Telecommunications Group (Vettel), the Chairman of the Vietnam Post and Telecommunications Group (VNPT), the Chairman of the Members' Councils of the Vietnam Post (VNPost), and the Chairman of the Board of Directors of FPT as the leading ICT vendor has been appointed as the committee members.

In this context, GOV is planning to enact the "e-Government Act" around 2020 to 2021. And prior to this activity, GOV is also planning to introduce the "National Information Reporting System" (NIRS) and "Command and Operation Center" (COC). To promote policy operation and decision making with latest data and visualize socio-economic analytical data in dashboard at COC, NIRS is planned to collect reports from line ministries and Provincial level Peoples' committee, and also NIRS is planned to connect National Databases of line ministries to retrieve up-to-date data. OOG aims to promote e-government activities by mobilize the domestic and foreign resources. As part of that, OOG showed their intention to learn both e-government policy and technology based on Japan's experience. GOV requested to the Government of Japan (GOJ) for supporting realization of e-government at the Japan-Vietnam Summit in October 2018.

In addition to those activities on e-government lead by OOG, the Communist Party of Vietnam placed the promotion of public authorities' reform as priority issue, and planning to conduct structural reform in the Party and state government, and reducing personnel. To tackle this issue, it is important to identify who belongs to which organization accurately, and the Party requested GOJ for supporting development of the "Database system of structure of organization, staffing quota, cadres, civil servant and public employees of the whole political system" (Officials Database:ODB) which is planned to manage personnel information of government officials and all the members of the Party.

1.2. Objectives and Targets of the Survey

Based on the above background, this survey by Japan International Cooperation Agency (JICA) intended to collect detailed information on the needs of GOV and the Party for the purpose of considering what kind of Japan's support is possible based on the past Japan's efforts on e-government.

The targets of this survey were set as the following items:

- E-Government Policy
  Collect data on the current state of major e-Government policies in Vietnam, especially on IT application in government agencies, and related Japan's experience. (See Chapter 2 and Chapter 5)
- NIRS and COC
  Collect data on current status of considering requirements and issues of development of NIRS and COC which OOG is considering introduction. (See Chapter 3)
- ODB
  Collect data on current status of considering requirements and issues of development of ODB of which the Central Committee of Organization (CCOP) of the Party is in charge. (See Chapter 4)

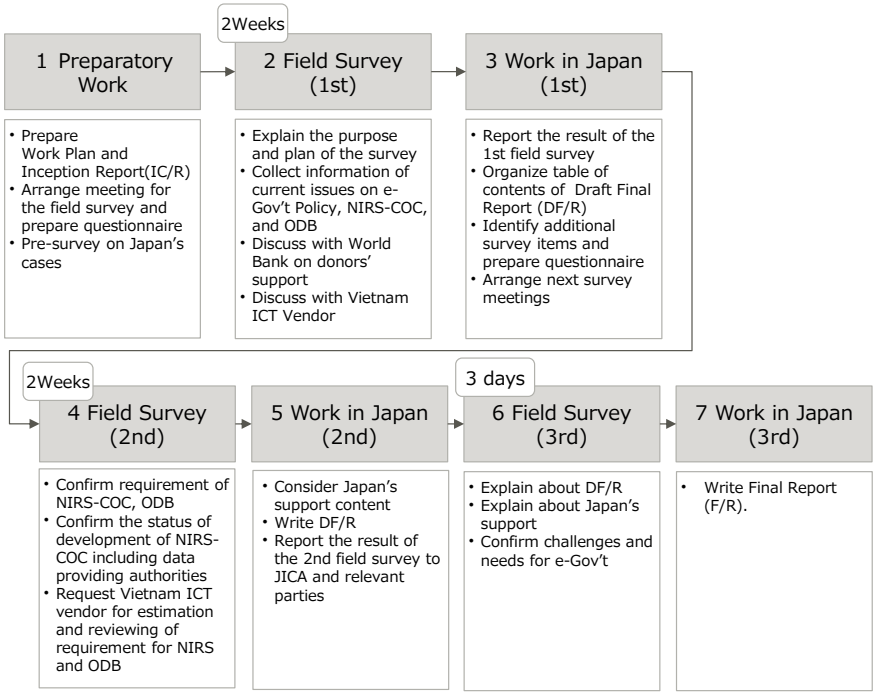
The survey team organized the cooperation needs for e-government in Vietnam, especially on NIRS-COC and ODB based on the current status and challenges and the collected e-government case examples of GOJ. Also, based on these results, the survey team possible Japan's support. (See Chapter 6)

1.3. Survey Period

The Survey starts from early March, 2019 and to be completed in the end of June, 2019 (4 months).

1.4. General Work Flow Chart and Schedule of the Survey

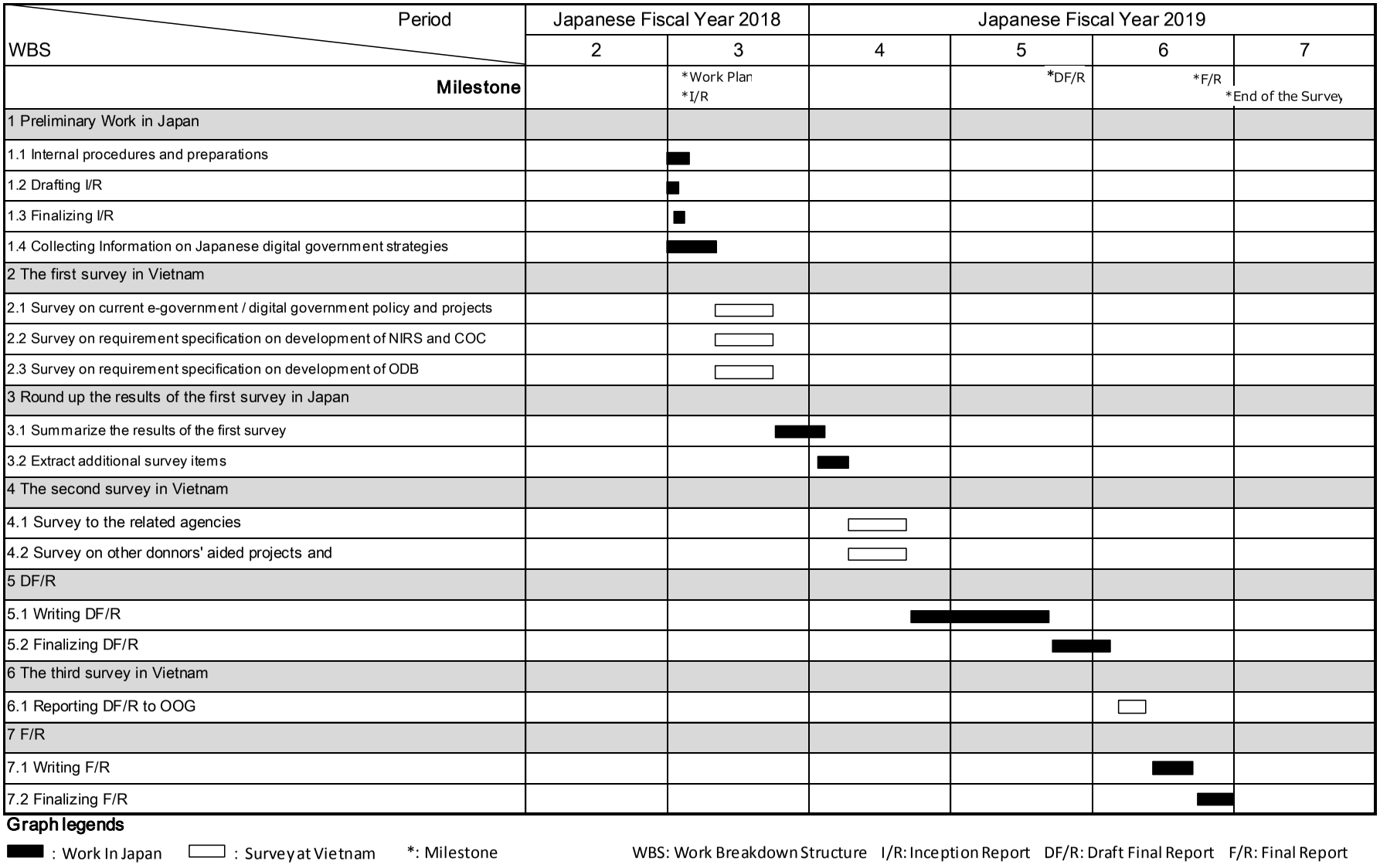
The survey process was conducted under the work flow as show in Fig. 1.



Source: JICA survey team

Fig. 1 General Work Flow Chart

The work schedule is shown in Fig. 2.



Source: JICA survey team

Fig. 2 Work Schedule of the Survey

1.5. Project Organization

1.5.1. The Survey Team Members

Tasks of each project team members are shown in Table 1.

Table 1 Tasks of Each Project Team Members

Name of Members	Position	Tasks
YUKAWA, Kyosuke	Team Leader / E-government policy1	- Project Management - Overall survey design - Introduce the survey plan at the meeting with major counterparts in Japan and Vietnam
MIZUNO, Narufumi	E-government policy2	- Design the survey content on E-government policy and conduct data collection survey to OOG - Conduct data collection on NIRS and ODB
FUJIMOTO, Kotaro	E-government policy support	- Conduct data collection survey to donors and support survey tasks of other members
MORIYA, Yutaka	E-government Technology (Hardware)	- Design the survey content regarding the needs for NIRS and COC of OOG and ODB of CCOP especially on hardware/middleware. - Consider about the configuration of hardware and middleware and estimate the cost for NIRS and COC of OOG and ODB. Of CCOP.
SAKAMOTO, Risako	E-government Technology (System)	- Design the survey content regarding feasibility of software development of NIRS and COC of OOG and ODB of CCOP by Vietnam IT Vendors. - Consider about suggestions for development plan of NIRS and COC of OOG and ODB of CCOP.

Source: JICA survey team

1.5.2. Counterparts of the Survey

The counterparts whom the survey team conducted interviews with is shown in Table 2.

Table 2 Counterparts in the Survey

Theme	Interview Counterpart
✓ E-Government policy plan and management ✓ Development plan and requirements of NIRS and COC	- OOG - VNPT - Vietnam Initiative (VNI)

Theme	Interview Counterpart
✓ E-Government policy (technical standards, guidelines, network, security) ✓ Guidelines, standards for system development regarding	- Authority of Information Technology Application (AITA), Ministry of Information and Communications (MIC)
✓ Requirement and data provider of Key Performance Indicators(KPIs) for the Dashboard of COC	- General Statistics Office (GSO), - Ministry of Planning and Investment (MPI)
✓ Ministries and Municipalities planned to participate in the test of NIRS and COC	- Ministry of Finance (MOF) - Ministry of Industry and Trade (MOIT) - MPI - Ha Noi City
✓ Development plan and requirements for ODB	- CCOP
✓ E-Government policy plan and support as donor's position	- World Bank Vietnam Office

Source: JICA survey team

Chapter 2 Current Status and Issues of e-Government Policy Plan in Vietnam

2.1. Evaluation in the World e-Government Ranking

2.1.1. The definition of e-Government

In general, the definition of Electronic Government (e-Government) has been changing affected by increased use of internet and other information communication technologies (ICT) as shown Table 3.

Table 3 Definitions and Understandings of E-Government

Source	Definition or Understandings
UN E-Government Survey 2014: E-Government for the Future We Want (United Nations Department of Economic and Social Affairs: UNDESA, 2014)	E-government can be referred to as the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people.
Organisation for Economic Co-operation and Development (OECD)	E-government is defined as 'the use of information and communications technologies (ICTs), and particularly the Internet, to achieve better government'.
World Bank (WB, 2015)	E-government refers to government agencies' use of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth and/or cost reductions.
Resolution on e-Government (No.36a/2015/NQ-CP) dated October 14, 2015	Application of IT to management and provision of online public services

Source: JICA survey team

The target of use and application of ICT in government sector is usually classified as follows:

Table 4 E-Government Classification

Relationship	Aim of e-Government policy measures
Government to Government (G2G)	Promotion of data sharing and communication among government agencies to increase efficiency and quicken or improve decision-making.
Government to Citizen (G2C)	Promotion of online access to information and services of government agencies.
Government to Business (G2B)	Ease of doing business with government agencies by providing single window (one-stop) service.
Government to Employee (G2E)	Improvement of working process and environment to increase employee satisfaction and retention.

Source: JICA survey team

In recent years, digital transformation measures in government agencies as well as in the private sector has been adopted as e-Government policies in the name of "digital government" policy.

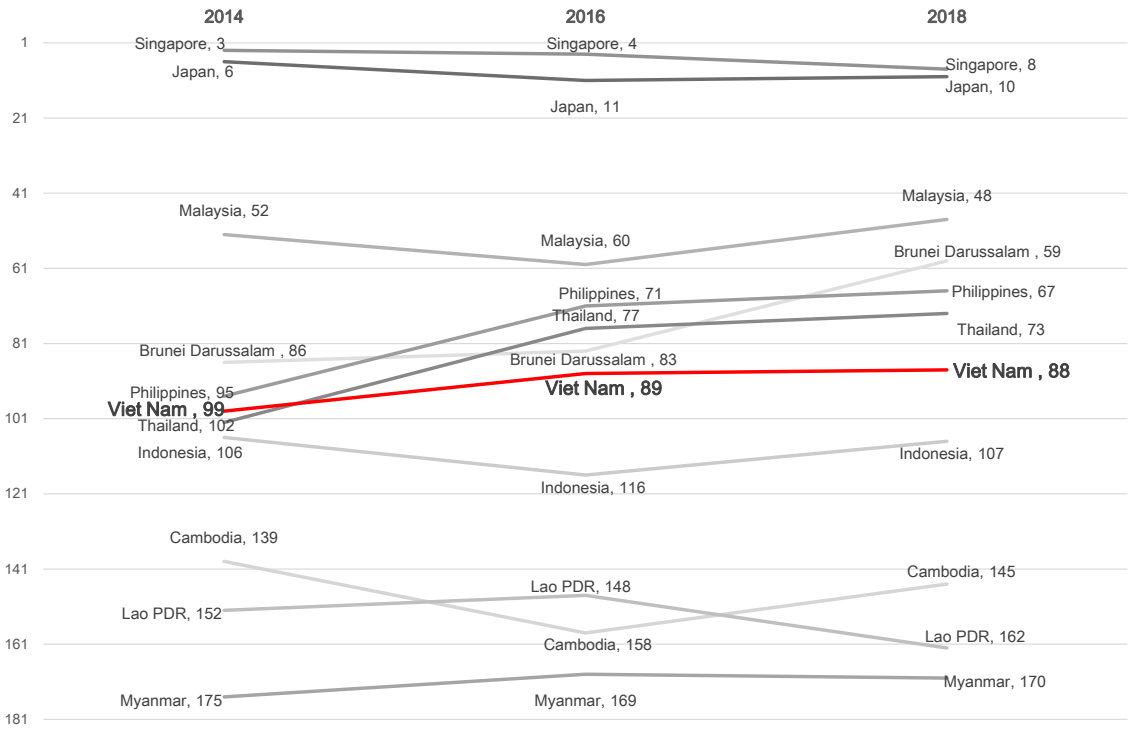
Gartner defines “Digital Government” as:

“Digital government is government designed and operated to take advantage of digital data in optimizing, transforming and creating government services”.

2.1.2. The Evaluation and Rank of Vietnam’s e-Government policies in United Nations Survey

The Communist Party of Vietnam and GOV have made great efforts in promoting e-government policies. The results are shown in the United Nations (UN) e-Government survey (see Fig. 3). Based on the UN’s report on e-Government, Vietnam’s E-Government Development Index (EGDI), which is the total relative performance rating of national governments of UN member states, was ranked No. 99 out of 193 countries and categorized as High-EGDI[1]. Vietnam’s rank have rose steadily up to No.88 in the survey of 2018.

[1] 65 countries scored in the range of 0.5 to less than 0.75 in EGDI are labeled as "High EGDI” in UN survey and 40 countries scored “Very-High” with EGDI values in the range of 0.75 to 1.0. The average world EGDI is 0.55 in 2018 which is increased from 0.47 in 2014 due to the continuous improvement of its subcomponents indices.



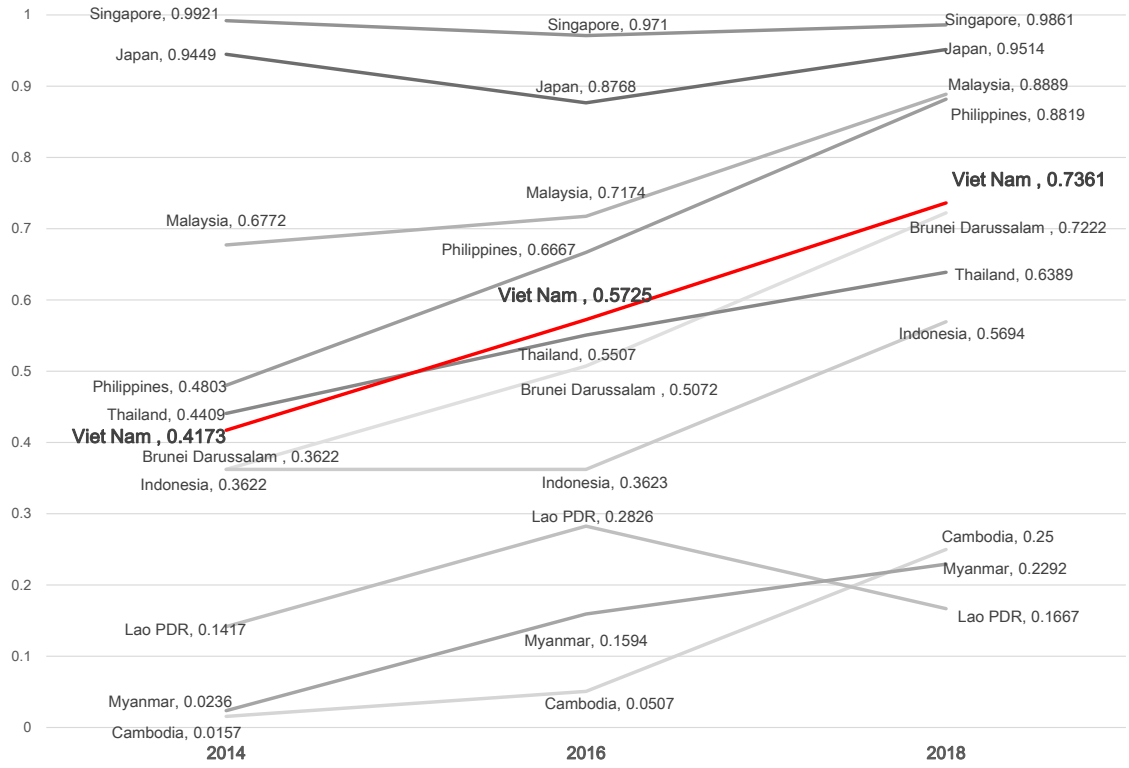
Source: JICA survey team based on UN E-GOVERNMENT SURVEY 2018: Gearing e-Government to support transformation towards sustainable and resilient societies (UNDESA, 2018)

Fig. 3 Transition of EGDI Ranking of ASEAN Countries and Japan in UN E-Government Survey

EGDI is derived by taking the arithmetic average of the following three component indices:

- The Online Service Index (OSI): the scope and quality of online services score derived on the basis on an Online Service Questionnaire.
- The Telecommunication Infrastructure Index (TII): the status of the development of telecommunication infrastructure composed of Individuals using internet(% population), Fixed (wired)-broadband subscriptions (per 100), Wireless broadband subscriptions (per 100), Fixed-telephone subscription (per 100) and Mobile-cellular subscriptions (per 100) with data provided by International Telecommunications Union (ITU)
- The Human Capital Index (HCI): The inherent human capital score consists of (i) adult literacy rate; (ii) the combined primary, secondary and tertiary gross enrolment ratio; (iii) expected years of schooling; and (iv) average years of schooling with data provided by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Especially, OSI of Vietnam has been greatly progressed in recent years as shown in Fig. 4. OSI of Vietnam is scored 0.4173 at 2014 survey. And in 2018, Vietnam's efforts to digitize and online procedures were recognized as scored 0.7361 which is far exceeding the global average, 0.57.



Source: JICA survey team based on UN E-GOVERNMENT SURVEY 2018: Gearing e-Government to support transformation towards sustainable and resilient societies (UNDESA, 2018)

Fig. 4 Transition of OSI of ASEAN Countries and Japan

On the other hand, TII and HCI were still relatively scored low in UN Report on e-Government as shown in Table 5. The reason of low TII is that although mobile phones is widely used, penetration rate of broadband connection lines is relatively low. And For HCI, based on the data from UNESCO and United Nations Development Programme (UNDP), Gross Enrollment Ratio (as of 2014), Expected Year of Schooling and Mean Year of Schooling (as of 2015) was relatively low. TII and HCI require more strategic investments than OSI not only for ICT investment.

Table 5 Score of EDGI, OSI, TII and HCI of ASEAN Countries and Japan at UN Survey of 2018

Countries	EGDI Level	EGDI Rank	EGDI	OSI	TII	HCI
Vietnam	High EGDI	88	0.5931	0.7361	0.3890	0.6543
Brunei Darussalam	High EGDI	59	0.6923	0.7222	0.6066	0.7480
Cambodia	Middle EGDI	145	0.3753	0.2500	0.3132	0.5626
Indonesia	High EGDI	107	0.5258	0.5694	0.3222	0.6857
Lao PDR	Middle EGDI	162	0.3056	0.1667	0.2246	0.5254
Malaysia	High EGDI	48	0.7174	0.8889	0.5647	0.6987

Countries	EGDI Level	EGDI Rank	EGDI	OSI	TII	HCI
Myanmar	Middle EGDI	157	0.3328	0.2292	0.2565	0.5127
Philippines	High EGDI	75	0.6512	0.8819	0.3547	0.7100
Singapore	Very High EGDI	7	0.8812	0.9861	0.8019	0.8557
Thailand	High EGDI	73	0.6543	0.6389	0.5338	0.7903
Japan	Very High EGDI	10	0.8783	0.9514	0.8406	0.8428

Source: UN E-GOVERNMENT SURVEY 2018: Gearing e-Government to support transformation towards sustainable and resilient societies (UNDESA, 2018)

In order to understand more specific issues on digital government policies in Vietnam, especially on ICT application in G2G, G2C services, the survey team referred to the framework of the survey of the International Digital Government Rankings 2018 Report of Waseda University and International Academy of CIO (IAC) in addition to the UN survey results,.

The framework of the ranking score of Waseda University ranking is shown in Table 6.

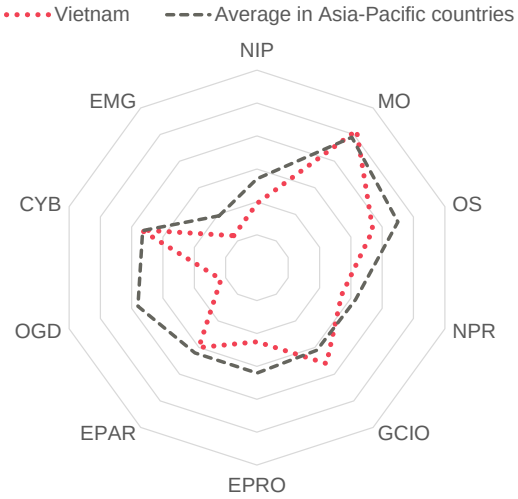
Table 6 The Main Indicators and Sub-Indicators of the Waseda University's e-Government Survey

Indicators	Sub-indicators
1. Network Preparedness/Infrastructure (NIP)	1-1 Internet Users 1-2 Broadband Subscribers 1-3 Mobile Cellular Subscribers
2. Management Optimization/ Efficiency (MO)	2-1 Optimization Awareness 2-2 Integrated Enterprise Architecture 2-3 Administrative and Budgetary Systems
3. Online Services / Functioning Applications (OS)	3-1 E-Procurement 3-2 E-Tax Systems 3-3 E-Custom Systems 3-4 E-Health System 3-5 One-stop service
4. National Portal/Homepage (NPR)	4-1 Navigation 4-2 Interactivity 4-3 Interface 4-4 Technical Aspects
5. Government CIO (GCIO)	5-1 GCIO Presence 5-2 GCIO Mandate 5-3 CIO Organizations 5-4 CIO Development Programs
6. Digital Government Promotion (EPRO)	6-1 Legal Mechanism 6-2 Enabling Mechanism 6-3 Support Mechanism 6-4 Assessment Mechanism
7. E-Participation/Digital Inclusion (EPAR)	7-1 E-Information Mechanisms 7-2 Consultation 7-3 Decision-Making

Indicators	Sub-indicators
8. Open Government (OGD)	8-1 Legal Framework 8-2 Society 8-3 Organization
9. Cyber Security (CYB)	9-1 Legal Framework 9-2 Cyber Crime Countermeasure 9-3 Internet Security Organization
10. The use of Emerging ICT (EMG)	10-1 The use of Cloud Computing 10-2 The use of Internet of Things 10-3 The use of Big Data

Source: The institute of Digital Government, Waseda University

Compared to the average score of Asia-Pacific Countries, Vietnam has lower score in Network Preparedness/Infrastructure (NIP), Online Services / Functioning Applications (OS), National Portal/Homepage (NPR), Digital Government Promotion (EPRO), Open Government (OGD), and The use of Emerging ICT (EMG) as shown in Fig. 5.



Source: The 14th Waseda – IAC International Digital Government Rankings 2018 Report (October, 2018, The institute of Digital Government, Waseda University)

Fig. 5 The Score Chart of Vietnam in the Waseda University E-Government Survey 2018 Result

The survey team conducted interviewed OOG for current progress and challenges for those indicators and the result are shown below.

2.2. Plans for E-Government Policies in Vietnam

E-Government policies have been placed high priority in GOV. In 2011, GOV introduced the Master Program to promote using e-Government policies, especially on online services, and in 2015, Resolution No.36a/2015/NQ-CP dated October 2015 has been issued to promulgated tasks and projects on e-Government.

GOV approved "Resolution on a number of tasks and solution for development of electronic government in the period of 2019-2020, operation to 2025" (Resolution No.17/2019/NQ-CP) on March 7, 2019 to accelerate e-Government policies. In the Resolution No. 17/2019/NQ-CP, e-Government development is not only for improvement of effectiveness and efficiency in the government sector, but also for digital transformation in both government side and private sector.

2.3. Major Tasks and Issues Related to e-Government Policies in Vietnam

To understand the current progress and issues in e-Government policies of GOV, the survey team confirmed current plan or efforts of tasks and solutions of the Resolution No. 17/2019/NQ-CP based on Waseda University's framework by interviewing OOG and AITA, MIC.

As a result of the interview survey, e-Government policy measures were comprehensively planned and proceeding.

The current tasks and challenges for each indicators of Waseda University's survey are shown in Table 7.

Table 7 Current Tasks, Efforts and Remaining Issues in Resolution No.17/2019/NQ-CP

Related Indicators	View point	Tasks or solutions in Resolution No.17/2019/NQ-CP	Current efforts and Issues
Network Preparedness/ Infrastructure (NIP)	Inter-government agencies network environment	No task or project is listed in the Resolution No.17.	・ Already developed CP-WAN among state ministries. ・ In some localities of rural area, there is no network connection environment and officials in those localities have to submit reports in form of paper documents via postal service.
	Network infrastructure for citizens and companies	To research and propose supporting solutions for telecommunication enterprises including development of 5G network (MIC)	・ 5G test demonstration experiment is planned in Ha Noi City in 2019 ・ No issues confirmed.
Management Optimization/ Efficiency (MO)	Development of Business systems / National Databases	Development projects (including additional development) are listed: ✓ Population (Ministry Public Security) ✓ Business registration(MPI) ✓ Insurance(Ministry of Labor,	・ Currently improving the National Database on Population, Insurance, and Business registration. ・ Development of other National Databases are currently proceeding.

Related Indicators	View point	Tasks or solutions in Resolution No.17/2019/NQ-CP	Current efforts and Issues
		Invalids and Social Affairs) ✓ Social security(The Ministry of Labor, Invalids and Social Affairs) ✓ Land(Ministry of Natura Resources and Environment) ✓ Geography(Ministry of Natura Resources and Environment) ✓ Civil status(Ministry of Justice) ✓ Taxation(MOF) ✓ Customs(MOF) ✓ Treasury(MOF) ✓ Natural resources and environment(Ministry of Natura Resources and Environment) ✓ Vehicles(MOT) ✓ Planning(MPI) ✓ Investment(MPI) ✓ National bid network system(MPI) ✓ Database of state agents, staffs and officials(Ministry of Home Affairs: MOHA) ✓ Drug management(Ministry of Health: MOH) ✓ Electronic Health Record(MOH)	・ No issues confirmed.
	Development of paperless meeting system	To development E-Cabinet (OOG)	No issues confirmed (Under development)
	Development of inter-government data exchange platform	Development task of national data integration and sharing platform is listed	・ The initial phase of development of Vietnam Data Exchange Platform (VDXP) and the Document management system has been completed in March, 2019. ・ Legal documents have approved in OOG using the systems above. ・ No issues confirmed.
Online Services / Functioning Applications (OS) and National Portal	Development of one-stop service	To develop E-Service Portal (one-stop service) (OOG)	・ National Portal of Vietnam (chinhphu.vn) has been developed. ・ No issues confirmed.

Related Indicators	View point	Tasks or solutions in Resolution No.17/2019/NQ-CP	Current efforts and Issues
/Homepage (NPR)			
Government CIO (GCIO)	E-Government Policy Management	Established National Committee on E-government (OOG)	No issues confirmed (Under operation)
E-Participation/ Digital Inclusion (EPAR)	Promoting utilization of online services / digital divide	Developing E-Consultation system (OOG)	No issues confirmed (Under development)
Open Government (OGD)	Open data Open API	Planning to provide open data and development of open API (No.II-13 and No. V-5 of the list of tasks and projects) (OOG)	No issues confirmed (Under development)
Cyber Security (CYB)	Authentication, Reform in Government platform	Development of Digital signature authentication(MIC) Development of Cyber-attack handling system(MIC)	・ There is a mission team in MIC for anti-Cyberattacks and developed system to manage security incidents. ・ The issue for this part is popularization of National ID card.
The use of Emerging ICT (EMG)	Utilization of AI, Big data, IoT in government sector	To research and propose the draft law on e-government to develop e-government with modern technology AI, block chain IoT, Big Data, etc. (No.I-24) (MIC)	・ OOG has a plan to develop automated analyzing and forecasting system in NIRS to utilize data from reports from ministries, national systems or national databases. ・ The Issue for this part is clarifying concrete use-cases for utilizing Big Data and AI.

Source: JICA survey team based on the result of interview with OOG

The key features of major OOG's e-Government systems mentioned in Resolution No.17/2019/NQ-CP to improve e-Government Policies are shown in Table 8.

Table 8 Key Features of OOG's e-Government Systems

Popular Name	Official Name	Key features
E-Cabinet	Information system for meeting and handling	E-Cabinet system is an information system for meetings and handling of Government affair to realize using 100% electronic documents for the Government meetings (paperless meeting) and the contents of asking for

Popular Name	Official Name	Key features
	Government affairs	members' opinions except for the state secrets for saving time and cost Information such as documents, records, programs and content related to the meetings of GOV including the content of the Prime Minister's decisions at the meetings will be managed in E-Cabinet.
E-Service Portal	National public service portal system	E-Service Portal is a national public service portal regarding administrative procedures and public services which unify the functions for individuals and organizations such as provision of information, application acceptance, monitoring and evaluation of online as well as handling of those evaluation results. The system integrates at least 30% of essential online public services with people and businesses. E-Service Portal also provides a shared electronic authentication platform for individuals and organizations to log in only once when using online public services in one-stop information systems and other public service gates of ministries and branches, localities. E-Service Portal supports individuals and organizations in managing information, document records on the principle of information, records only need to be provided once and reused in the next online public service implementation.
E-Consultation	Consultation system for policies	E-Consultation is a system implemented in a centralized model located at OOG for drafting, consulting, commenting and supporting for draft policies under the construction and promulgation competence of the Government, the Prime Minister, ministries and branches.

Source: JICA survey team based on the document provided by OOG

In the discussion with OOG, the survey team found mainly three remaining issues to promote tasks in the Resolution No.17/2019/NQ-CP and provided related information on related Japan's experience as shown in Table 9.

Table 9 Major Issues and Related Japan's Experience

Major Issues to promote tasks	Related Japan's experience	Referential Matters
Development of legal documents for further promotion of digital government including measures such as promotion of data utilization among public and private sectors	・ The Basic Act on the Advancement of Public and Private Sector Data Utilization ・ Act on the Use of Numbers to Identify a Specific Individual in Administrative Procedures (My Number Act) ・ Act on the Protection of Personal Information ・ The Basic Act on Cybersecurity (See 5.1)	✓ The strategies to promote data utilization among public and private sector written in the legal documents. ✓ Related measures which should be taken for protecting personal information.
Popularization and promotion of	My Number Card of Japan's National ID	✓ The service coverage of My

Major Issues to promote tasks	Related Japan's experience	Referential Matters
National ID (Reconsideration of the position of personal identification numbers in each existing system)	System (My Number System) (See 5.2)	Number Card
Network and data exchange environment especially in localities of rural area	Development of G2G network and Regional Public Network. (See 5.3)	✓ Related measures taken for promoting development of network in rural side in Japan. (Subsidy Scheme, etc.)

Source: JICA survey team based on the result of interview with OOG

2.4. Current status of Donor Support for E-Government Policies in Vietnam

GOV has signed a memorandum of cooperation on e-Government with many countries.

The survey team collected information on current status of donor support for e-government policies in Vietnam as shown in Table 10 by interviewing JICA, World Bank and OOG. According to World Bank, E-Cabinet will be launched on June 2019, and E-Service Portal will be launched on November 2019.

No concrete plan of fund support for developing individual e-government system have been confirmed in non-Japanese donors except for technical support such as sending experts.

Table 10 Current Status of Donor Support for E-Government Policies in Vietnam

Donor	Supporting Area	Content of Support
GOJ and JICA	・ Development of NIRS and COC of OOG ・ Development of ODB of CCOP	Considering to provide hardware support for the projects and conducting the survey to clarify the scope of the needs (This survey).
World Bank and the Government of Australia	・ Development of Legal documents including e-Government Policy Plan ・ Development or improvement of National DBs on business registration and Land, ・ Development of E-Service Portal, E-Cabinet	Dispatch of experts for technical assistance for National Database projects, E-Service Portal, E-Cabinet, and demo-system of COC.
Asian Development Bank (ADB)	Development of E-cabinet	The foreign and local consultant was mobilized to support sub-project since the end of 2018.
The Government of France and Agence Française de Développement (AFD)	Setting up legal framework on data protection and E-Service Portal	・Conducted survey on April 2018 ・Planning to send three experts to GOV working group
United States Agency for International Development (USAID)	Not identified	Planning to conduct technical assistance
The Government of Russia	Enhancement of Cyber-security Policy	Personnel training in information technology and cyber security

Source: JICA survey team

Chapter 3 Requirements and Needs of NIRS and COC

3.1. Background of Development of NIRS and COC

3.1.1. The current reporting regime and data utilization for decision making

In Vietnam, the Prime Minister and the National Assembly utilize periodical reports based on legal basis and non-periodical irregular reports which are requested to state administrative agencies or provinces for decision making. Many of the reports of state administrative agencies are written with survey reports of branches or localities. The lower-level agencies conduct surveys under directions of higher-level agencies, and the higher-level agencies check the result of surveys and aggregate them to write reports.

The following issues on these reports are pointed out from OOG.

Table 11 Issues in the Current Reporting Regime

Issues	Outline of the issues
Burden of reporting tasks	The number of non-periodical, irregular reports accounts for nearly 50% of the total number of reports submitted by ministries, branches and localities. The time to use for reporting tasks are very large, accounting for more than 25% of the total time for the whole tasks of those agencies.
Quality of reports	・In the data collected by branches or localities, the surveyed timing and/or the answer targeted period do not match. ・Survey methods do not match among each individual agencies (e.g.: survey granularity, survey response accuracy, etc.)
Inconsistent report format	・The format of reports, especially non-periodical and irregular reports are not standardized. ・Reports from the localities which have network problem are sent via post in form of paper document. ・The reports from ministries or provinces to OOG are submitted as a document in form of paper document.
Time taken receive and analyze reports	As a result of above issues, it takes long time to receive the reports for sending paper based reports. Also it takes long time for checking and analyzing the reports.

Source: JICA survey team

3.1.2. Legal position of NIRS and COC

The Prime Minister approved Decision No. 559 "Scheme on simplification of reporting regime in the operation of state administrative agencies" (No. 559/2017/QD-TTg dated April 24, 2017) and institutionalized under OOG. The Decision No.559/2017/QD-TTg is regulating the reporting regime of state administrative agencies with the goal of "Simplifying reporting regime in operation of the state administrative agencies in order to build a synchronous, uniform national reporting system, ensuring the provision of accurate, complete and timely information, serving the effectiveness of management, direction and regulation, administration of

state administrative agencies and competent persons".

Decision No. 226/2018/QD-VCPC dated April 6, 2018 of Minister-Chairman of OOG was promulgated to implement a plan of e-Government construction tasks in the period 2018-2020.

Decree No.09/2019/ND-CP dated January 24, 2019 of GOV prescribed reporting regime of State administrative agencies. This Decree No.09 sets out not only the government reporting regime reform but also development of NIRS and COC. NIRS defined as the information system collecting, integrating, sharing data report of national administrative authorities to synthesis, analyze data for the purpose of direction and operation of the Government, the Prime Minister, national administrative authorities at all level and support for evaluating the effectiveness of carrying out mission assigned by the Government, the Prime Minister. And NIRS is defined as being composed of Government Information Reporting System (GIRS) of the GOV (OOG) which collects reports data and utilizes data to automatically generate reports or KPIs, and Line Ministries and Localities Information Reporting Systems (LIRS) which collect data and upload reports to GIRS.

And implementation plan of Decree No.09/2019/ND-CP, Decision No. 451/QD-TTg, has been issued on May 22, 2019 to carry out the action items of Decree No.09/2019/ND-CP .

3.1.3. Position in e-Government policy plan and related activities

The reporting regime under Decree No. 9 and the political measures related to the information systems for reporting regime are listed in “RESOLUTION ON A NUMBER OF TASKS AND SOLUTIONS FOR THE DEVELOPMENT OF ELECTRONIC GOVERNMENT IN THE PERIOD OF 2019-2020, ORIENTATION TO 2025” (Resolution No. 17/2019 / NQ-CP) as follows.

Table 12 Development Plan in the Resolution No. 17/2019/NQ-CQ on NIRS and COC

III	**To construct and develop e-Government to ensure a close link between the application of information technology and administrative reform, renewing the working methods and manners for residents and enterprises to carry out the national digital transformation, aiming towards digital Government, digital economy and digital society**		
No.	**Name of task, project**	**Presiding unit**	**Coordinating unit**
7	To develop the Information system for reporting to the Government and to establish the center of direction and administration of the government and the Prime Minister*1	OOG	Ministries, branches, localities
8	To develop the Information system for reporting to ministries, branches and localities, which is connected with the Information System for reporting to the Government.*2	Ministries, branches, localities	OOG

*1 description on GIRS and COC

*2 description on LIRS

Source: “LISTS OF TASKS, PROJECTS TO BE CARRIED OUT” of Resolution No. 17/2019/NQ-CQ

In addition, as a measure related to the development of NIRS, the project of data exchange platform for sharing data among government systems is also listed in Resolution No.17 as follows and initial stage of the development project have been completed on March 2019. The name of data exchange platform was announced as VDXP.

Table 13 The Development Plan for Data Exchange Platform in the Resolution No. 17/2019/NQ-CQ

II	**To develop the e-Government development technology platform in line with the development of e-Government in the world**		
No.	**Name of task, project**	**Presiding unit**	**Coordinating unit**
6	To connect information systems and databases of ministries, branches and localities in respect of sending and receiving electronic documents, online public services, reporting information and data for direction, administration, administrative procedures, electronic gazette,... with the data integration and sharing platform between information systems and databases assigned by the Government and the Prime Minister	Ministries, branches, localities	OOG, Ministry of Information and Communication

Source: "LISTS OF TASKS, PROJECTS TO BE CARRIED OUT" of Resolution No. 17/2019/NQ-CQ

VDXP is said to be used to exchange data among OOG's systems such as GIRS and COC systems, and systems of line ministries and provinces such as LIRS and various government online services, and national databases etc.

Therefore, the development of NIRS and COC will be placed on the top of the e-Government policy measures such as further enhancement of the state database and online services, and the development of VDXP. It is considered to be an ambitious and important position to further advance e-government measures.

3.2. Objectives and Basic Concept of Development of NIRS and COC

3.2.1. Objectives of development of NIRS and COC

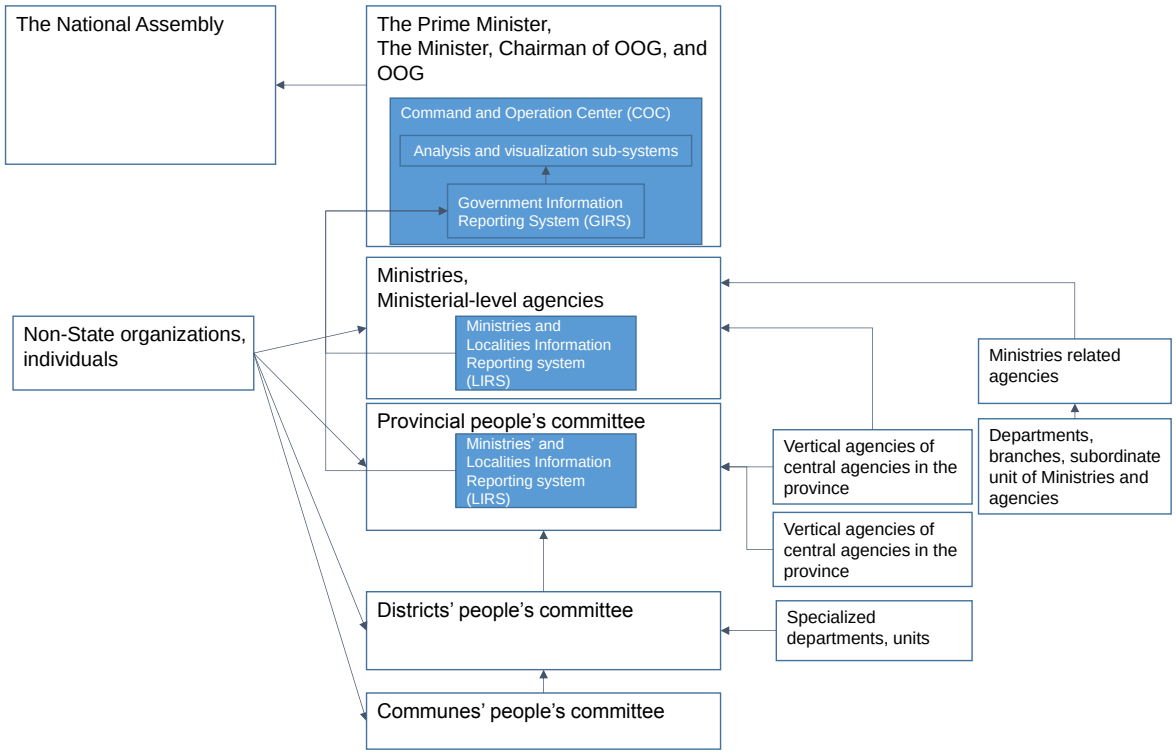
Based on the above mentioned issues, OOG is proceeding the development project of NIRS and COC for the objectives below:

- To reduce the burden of reporting process in the state administrative agencies and People's Committee of all levels
- To improve the process of decision making and direction by the Prime Minister, Minister-Chairman of the Office of the Government and officials of OOG by visualizing timely updated data

3.2.2. Basic concept of NIRS and COC

Currently, vertical reporting regime has been established. OOG receives legally prescribed reports from central ministries, ministry-level agencies and provinces periodically for decision making and policy planning for the Prime Minister or the National Assembly. In addition, those ministries or provinces have to submit irregular reports at the request from the Prime Minister or the National Assembly.

The reporting regime using NIRS and COC is shown in Fig. 6. This reporting regime will be promoted separately from the surveying and reporting methods as regulated by Statistics Law (Law No.89/2015/QH13).



Source: JICA survey team

Fig. 6 The Conceptual Model of NIRS and COC in the Reporting Regime in Vietnam

In preparing the reports, those ministries and provinces collect and aggregate data by themselves or

instruct their branches or subordinate agencies to collect data by conducting survey and aggregate them. The reports of the surveyed data are collected from the lowermost organization through the vertical reporting line, and checked by the upper organization.

All the reports are submitted to OOG and checked before submitted to the Prime Minister or the National Assembly.

Each ministries and localities. In this regime, ministries, ministerial level agencies, and provinces will submit reports via their own LIRS to GIRS of OOG and OOG will utilize the data from reports and other resources in COC system for helping decision making and direction of the Prime Minister, Minister-Chairman of OOG and OOG staffs.

The software part of GIRS and COC is currently being developed by OOG. On the other hand LIRS will be developed by line ministries and provinces with their own budget and those ministries and provinces have to issue their own action plans to develop their LIRS.

3.2.3. The current reporting regime of each line ministries and provinces

The survey team conducted interview with MOF, MOIT, MPI and People's Committee of Ha Noi City on the current reporting regime in each line ministries and provinces.

Confirmed current reporting regime is shown in Table 14.

All the counterparts pointed out that to develop NIRS is very important to enhance e-Government and showed willingness for development of their LIRS. However, there were no specific development plan of LIRS because OOG had not provided information on overall implementation plan of NIRS and technical standards at the survey period.

Table 14 Current Reporting Regime

Survey Content	Survey Responses
Major types of reports	(MOF) ・ The annual report on state budget revenues and expenditures, ・ The report on state budget estimates, ・ The medium and long-term budget plans (3 years, 5 years, 10 years), ・ The report on public debt management, ・ The stock market report, etc. (MOIT) ・ The monthly reports on production situation of specific industries (30 industries) ・ The reports on commercial industrial situation, ・ The reports on large enterprises in Vietnam, ・ The reports on export and import, etc. (MPI) ・ The reports on public investment ・ The reports on investment in Vietnam ・ The reports on investment from Vietnam to abroad

Survey Content	Survey Responses
	・ The reports on business establishment; ・ The reports on ODA, etc. …belongs to 76 legal regulations (Ha Noi City) The most popular reports from Ha Noi city to the central government (OOG) is the Report on socio-economic situation, by monthly / quarterly / yearly.
Number of Reports Submitting	(MOF) ・ Approximately,100 types per month are submitted to the Prime Minister, the National Assembly or the Party (MOIT) ・ Periodical reports: Total 206 types of reports monthly, quarterly and yearly ・ Irregular reports: Approximately 60 – 70 per month. (MPI) ・ Periodical reports: Total 245 types of monthly, quarterly, 6-month, yearly, 2.5 years and 5 years (Excluding statistical field report) (Ha Noi City) ・ Hanoi has 548 communes and wards; 30 districts. Each unit has 1-2MB of monthly report data.
Number of Reports Receiving	(MOF) 321 types of reports received from the branches, localities and enterprises *Initially, there were 443 types of reports, but after reviewing, it was proposed to reduce 122 types of reports, and to simplify the content of 86 types of reports. (MOIT) ・ Under investigation. (There is no accurate data.) (MPI) ・ Under investigation. (There is no accurate data.) (Ha Noi City) ・ Hanoi has 548 communes and wards; 30 districts. Each unit has 1-2MB of monthly report data.
Current Reporting process	(MOF) There are 244 types of reports from branches, localities and enterprises are submitted in digital format and some of them are automatically collected and aggregated through software: customs, taxes, budget revenues, etc. For example, the basic data of monthly state budget revenue and expenditure reports for the regular board meeting of the government are collected from Treasury and Budget Management Information System (TABMIS), Tax management system of General Department of Taxation and Viet Nam Automated Cargo Clearance system (VNACSS) of the General Department of Customs There are also economic reports of enterprises which will be submitted by enterprises themselves. The reports are submitted to and reviewed at OOG via paper-based format.

Survey Content	Survey Responses
	(MOIT) Mostly, reports are submitted via e-mail with soft-copy data attachment. (MPI) Same situation in MOIT. However, MPI's existing systems are opened to other ministries' officials such as MOF (state treasury), MOT, and officials in provinces such as Hue. ・ Public investment system using state capital (Circular 12/2015); ・ National information system on investment (Decree 218/2015); ・ National portal for investment evaluation (Circular 13/2016); ・ National system of business registration (Ha Noi City) The reports are submitted manually (paper based format and electric document files (doc, excel emailed)).
Typical size of the reports	(MOF) Some of the reports, such as monthly revenue and expenditure reports, have 2-3 thousand pages contain including summary of the reports and reports from all the ministries and provinces. (MOIT) About 60 ~ 70 pages/1 report in average, of which more than 40 pages is interpretation, the rest are numbers, data materials. (MPI) The Reports submitted to OOG are based on summarized data received from branches or localities. It is possible to provide original data of localities for OOG if required. However, in terms of IT, it depends on attachment file, data size, transmission line, etc. Current report typical size as shown below. ・ Periodic (most often political economic reports): ~100 pages ・ Irregular reports: ~20-30 pages ・ Specific Topics (using both data from thematic reports and additional investigations depending on each subject): ~100pages (Ha Noi City) Each monthly report is about 3-5 MB of data.
Issues and needs on the reporting regime	(MOF) Since, many reports are still not based on quantitative data, MOF is considering to change the format of reports of them. (MOIT) ・ Many of the reports from localities are still sent by manual method (sending mail; paper documents) because their reporting software is not well used (due to the change of statistics officials so there is no technology transfer; asynchronous IT layer, slow transmission, etc.) ・ Because the closing time of the quarterly report is March 15, and of the yearly report is December 10, MOIT cannot submit and treat data for the last month of the reporting period.

Survey Content	Survey Responses
	(MPI) ・ Need to change legal documents about reporting time, form, etc. when using LIRS to report. ・ To simplify reporting regime takes time and in the future, omitted reports not used in the system anymore, it is very wasteful. ・ Refer to the National Bidding System, transaction data size should be 20MB. ・ MPI need hardware budget support for LIRS. (Ha Noi City) Ha Noi City need hardware budget support for LIRS.

Source: JICA survey team based on the result of interviews with respective ministries and municipality

3.3. Use Cases and Users of NIRS and COC

As shown in Fig. 6 of 3.2.2, report data will be collected to and aggregated in LIRS of each ministries or provinces and submitted to GIRS. The reports data will be submitted to the Prime Minister or the National Assembly after checking process of OOG in GIRS and also the data in reports will be utilized for analysis and visualization in COC.

The use-case and users of NIRS and COC is as follows:

Table 15 Use Cases and Users of NIRS and COC

System	No.	Use Case	Users	Remarks
GIRS	1	Examination of the content of the submitted reports	OOG staff	All the reports has to be examined by OOG staff before submitting to the Prime Minister or the National Assembly. GIRS is no planned to use for submission of the examined reports to the National Assembly, so far.
	2	Other individual use of the content of reports	OOG staff	-
	3	Report data submission	Staffs of Ministries, Ministerial-level agencies and provincial people's committee	Report data will be basically submitted from LIRS to GIRS. For a transition period, web uploader web site will be developed in GIRS.
COC	4	Visualization of the data from the submitted reports and other resources (Dashboard)	The Prime Minister, The Minister-Chairman of OOG, OOG staff	-
	5	Data analytics and forecasting from the	The Prime Minister, The Minister-	-

System	No.	Use Case	Users	Remarks
		submitted reports and other resources	Chairman of OOG, OOG staff	

Source: JICA survey team based on the material provided by OOG

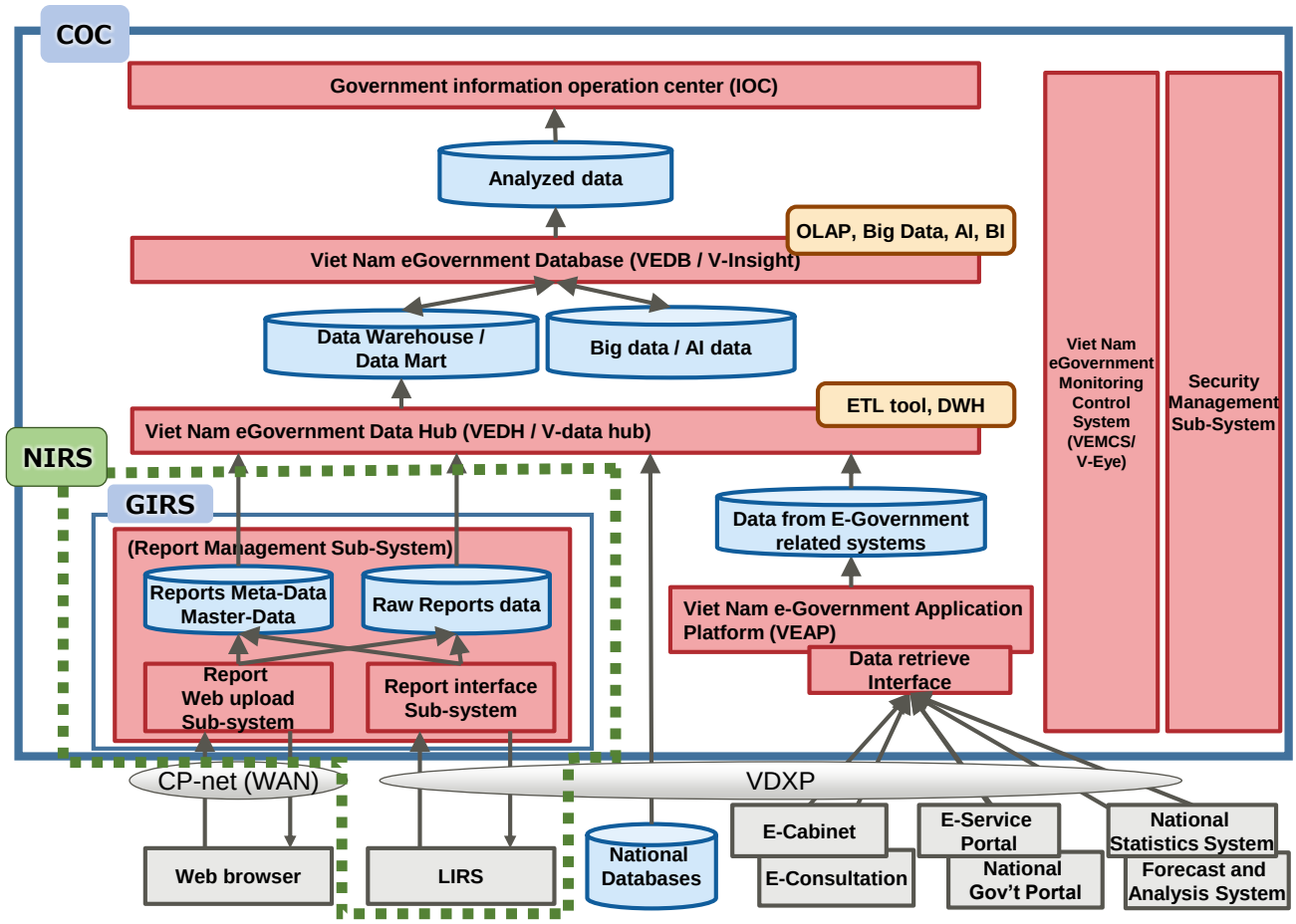
3.4. Functional Requirements of GIRS and COC

3.4.1. Basic functional composition and data flow image of GIRS and COC

NIRS consists of GIRS and LIRS. GIRS is a system for computerizing the reporting process of collecting, searching, checking, and generating reports to be submitted to the Prime Minister and the National Assembly.

At the same time, GIRS is a subsystem of COC for visualizing national data.

The basic functional composition and data flow image of NIRS and COC is as shown below.



Source: JICA survey team

Fig. 7 Basic Functional Composition and Data Flow Image of NIRS and COC

Functions in OOG's systems can be roughly divided into three groups:

a. GIRS

b. Data Analysis and Management Platform

(Vietnam e-Government Application Platform (**VEAP**), Vietnam e-Government Data Hub (**VEDH**), Vietnam e-Government Database (**VEDB**), Vietnam e-Government Monitoring and Control System (**VEMCS**) and Security Management Sub-System)

c. Dashboard System (Online data presentation and exploitation system)

3.4.2. Function list of COC including GIRS

The requirements for each function in COC including GIRS are as shown in Table 16 below.

The functional requirements of LIRS are not clearly defined at the time of the survey because technical standards are not defined, and the amount of report data of individual ministries is not clear. Each ministries or provinces will consider the functional requirements of their LIRS based on the technical standards which will be indicated by OOG.

Table 16 Basic Functional Requirements of COC including GIRS

No.	Name of the sub-system	Basic function requirements
1	Report Management Sub-system (GIRS)	[Report interface and management functions] ・ Assign reports to Ministries or Provincial People's Committees (assign/cancel) ・ Design norms and attributes of reports ・ Submit/Accept of reports (accept/withdraw) ・ Examine of reports (approved/reject) ・ Search and confirmation of reports ・ Generate report document for the Prime Minister or the National Assembly ・ Generate summary of the submitted reports ・ Disclose of report format ・ Transfer report data to Vietnam E-Government Data Hub (VEDH / V-data hub) ・ Notify and warn via Email/SMS for assignment, deadline, approval/refusal of submitted reports, etc. [Report web upload site functions] ・ Receiving reports (accept/withdraw) ・ History of reporting data sending and receipt ・ Disclosure of report format ・ WEB user management (register, update and delete)
2	Vietnam E-Government Data Hub (VEDH / V-data hub)	・ Collect registered reports, data from National Databases and other resources ・ Extract relevant data, transform and load data with Extract-Transform-Load (ETL) tools, and load the data to Data Ware House (DWH) ・ Data search, read, delete in DWH ・ Link data with Vietnam E-Government Database (VEDB / V-Insight)
3	Vietnam E-Government Application Platform (VEAP)	・ Access to administrative business systems (including e-Cabinet, e-Service Portal and e-Consultation which are currently in developing phase and planned to start operation by the end of 2019) to retrieve data according to the data needs ・ store retrieved data (data will be overwrite)
4	Vietnam E-Government Database (VEDB / V-Insight)	・ Convert data format ・ Aggregate and analyze data (with statistical analysis program including big data / AI technologies)

No.	Name of the sub-system	Basic function requirements
		・ Create forecast data
5	Government Information Operation Center (IOC)	・ Convert data format for visualization ・ Visualize data (Dashboard) with Business Intelligence (BI) tools
6	Vietnam Monitoring and Control System (VEMCS/V-Eye)	・ Manage and monitor the system operation status ・ Users account and user group management and access control
7	Security Management Sub-System	・ Manage and monitor the security status

Source: JICA survey team based on OOG materials

Format standardization for report format is needed for the two purpose below:

- To submit as a document for the Prime Minister or the National Assembly
- To utilize for data analyzing, visualization

Basic data format of reports should be light volume and machine readable, such as excel, xml, etc.

Initial visualization targeted data are shown in Table 17 below.

Table 17 Targeted Data for Management and Visualization in COC

Category	Targeted Data	
Economic growth	1	Growth of gross domestic product (GDP)
	2	GDP at current price
	3	GDP at comparative price
	4	RGDP in the central provinces/cities at current price
	5	RGDP in the central provinces/cities at comparative price
	6	Growth of RGDP in the Central provinces/cities
	7	Gross National Income (GNI)
	8	Quantity of visitors
	9	Revenue from travel services
	10	Total commodity retail and consumption service revenue (excluding the price)
	11	Growth of total commodity retail and consumption service revenue (excluding the price)
	12	Industrial production index (IIP)
	13	Index of inventory in the processing and manufacturing sector
	14	Total export value (excluding the price)
	15	Growth of total export value (excluding the price)
	16	Export value of agricultural, forestry and aquatic products
	17	Export value of domestic and overseas economic sectors
	18	Total import value (excluding the price)
	19	Growth of total import value (excluding the price)
	20	Import value of domestic and overseas economic sectors
	21	Export value of net services

Category	Targeted Data	
	22	Ratio of commodity and service import / export value per GDP
	23	Commercial balance / total export value
	24	Commodity over-export, over-import by markets
	25	Ratio of social development investment / GDP
	26	Ratio of private sector investment / Social development investment
	27	Ratio of overseas investment / Social development investment
	28	Ratio of ODA disbursement
	29	Foreign direct investment
	30	Incremental capital output ratio (ICOR)
	31	Growth of social labor productivity
	32	Contribution of total factor productivity (TFP) to GDP growth
Macro-economic stability	33	Growth of CPI
	34	Basic inflation
	35	Exchange rate declared by the State Bank, inter-bank exchange rate, free-market exchange rate
	36	Interest rate of deposit
	37	Interest rate of loan
	38	Growth of credit
	39	Growth of total payment instruments
	40	Price of crude oil in the world
Public finance	41	Collection for state budget
	42	Spending from state budget
	43	Collection for State Budget / Estimated Collection for State Budget
	44	Collection for State budget
	45	Spending from state budget
	46	Ratio of tax debt (excluding overdue temporary collection tax for clear custom statement)/total collection for State Budget
	47	Ratio of development investment / Total Spending from State Budget
	48	Ratio of capital disbursement from the state budget
	49	Ratio of direct debt obligation of the Government/ Collection for State Budget
	50	Ratio of regular spending / Total Spending from State Budget
	51	Ratio of overspending of State Budget / GDP
	52	Ratio of public debt / GDP
	53	Ratio of Government debt / GDP
	54	Ratio of national foreign debt / GDP
Business environment	55	Quantity of new enterprises
	56	Quantity of existing enterprises
	57	Quantity of enterprises fulfilling dissolution procedures
	58	Quantity of enterprises registering temporary stop
	59	Quantity of enterprises operating again
	60	Hours for tax payment by enterprises

Category	Targeted Data	
	61	Hours for social insurance payment
	62	Average hours for commodity custom clearance
	63	Average registered capital / new enterprises
	64	Ratio of answered and processed petitions per total petition received via the Enterprise - Government Information Portal
E-Government	65	Ratio of public services realized at level-3 online application
	66	Ratio of public services realized at level-4 online application
	67	Ratio which documents are processed at level-3 public service mechanism
	68	Ratio which documents are processed at level-4 public service mechanism
	69	Satisfaction Index of Public Administrative Services (SIPAS) at provincial level
	70	Ratio of answered and processed petitions per total petition received via the Citizen - Government Information Portal
Labor, job	71	Ratio of unemployment at urban areas
	72	Structure of employed employees divided into 03 economic sectors: Agriculture, industry and services
	73	Workforce in level-1 sectors
	74	Ratio of workforce paying social insurance
	75	Ratio of employed workforce in the official sectors
	76	Average income of paid employees
	77	Quantity of labor-age people
Social issues	78	Ratio of poor households under the multi-dimensional poverty standard
	79	Ratio of citizen paying medical insurance
	80	Quantity of patient beds/ten thousand residents (excluding beds of medical stations)
	81	Quantity of doctors/ten thousand residents
	82	Quantity of food poisoning cases and quantity of death
	83	Quantity of traffic accidents; quantity of death; quantity of injured people;
	84	Quantity of fire, explosion cases; damage.
	85	In-patient satisfaction index
	86	Poverty reduction ratio
	87	Ratio of reduction in special-disadvantageous hamlets, communes
	88	Quantity of communes meeting the new rural standards
	89	Ratio which residents are accessible to clean and hygienic water
	90	Ratio of pupils accessible to schools
	91	Ratio of pupils accessible to primary school at right age
	92	Ratio of pupils accessible to high schools
	93	Quantity of communes, wards, townships meeting the law accessibility standard
	94	Ratio of urbanization
Environment	95	Ratio of forest coverage
	96	Area of forest damaged
	97	Natural disasters (storm, flood, drought, etc.) and damage

Category	Targeted Data	
	98	Ratio which the centralized sewage treatment system meeting the environmental standards is available at urban areas, industrial zones and processing-export sectors
	99	Ratio which hazardous waste is collected and processed meeting the targeted standards
	100	Ratio which living waste is collected and processed
	101	Ratio which medical units treat their medical wastes as regulated
	102	Ratio which living solid waste is collected and processed in urban areas
	103	Ratio which living solid waste is collected and processed in rural areas
Performance of the Administrative Structure	104	Total workforce paid by the state budget
	105	Total officers paid by the state budget
	106	Ratio of downsizing officers paid by the state budget
	107	Quantity of business workforce paid by the state budget
	108	Ratio of downsizing business workforce paid by the state budget
	109	Ratio of self-control public business units / Total public business units
Infrastructure, science and technology	110	Total km of high way
	111	Quantity of households with Internet / 100 households
	112	Ratio of non-stop traffic toll station
	113	Quantity of mobile phone subscribers / 1000 residents
	114	Quantity of mobile phone subscribers with internet / 1000 residents
	115	Quantity of people working in scientific research and technological development sectors
	116	Quantity of patents with protection certificates

Source: The material provided by OOG

3.5. Non-Functional Requirements of GIRS and COC

3.5.1. Basic requirements for performance and scalability

(1) Preconditions for assuming basic requirements for performance and scalability for GIRS

Since, COC including GIRS will mainly be used by limited OOG staffs and the use-case of data analysis including big data and AI is not clear at the survey period, the survey team derived performance and scalability requirements from the work process volume of reporting in GIRS.

The assumed number of reports based on the OOG's survey is shown in the table below. According to OOG's survey, the number of reports are assumed to be total 38,418,997 per year including all the reports submitted from commune level, and non-state organizations to ministry-level or provinces and municipalities. The number of reports which will be submitted to GIRS from LIRS are assumed to be 157,677 per year.

Table 18 Assumed Number of Reports

No.	Group	Organization	The Number of Organizations	The Number Of Reports	Sub-total of the Number of Reports		
1	Government	State ministries	30	20,400	**157,677**	**3,873,997**	**38,418,997**
2		Province-level	63	137,277			
3		District-level	713	501,952	-		
4		Commune-level	11,161	3,214,368	-		
5	Non-Government	Companies	690,000	34,500,000	-	-	
6		Associations	7,000	35,000	-	-	
7		Religious organizations	500	10,000	-	-	

Source: JICA survey team based on OOG materials

The experts of VNPT who have been supporting this project assumed that District-level and Commune-level will also submit directly reports in accordance with requests from OOG until completion of LIRS development and about 12,000 agencies assumed to submit 50 reports monthly. In this assumption, approximately 7,200,000 reports per year will be submitted to GIRS.

In order to consider the necessary performance, the following two conditions were assumed.

- The reports will be submitted on deadline of limited date in every month. Therefore, the submission of the reports is assumed to be concentrated on those specific days.
  It is assumed that reports will be concentrated on the 10 days of each month.
- The data size of each report is assumed as average 10 MB based on the survey of OOG.

(2) Assumed basic requirements for performance and scalability for GIRS

The survey team considered three patterns below for estimation of scalability requirements for GIRS.

- Pattern 1: The reports from ministries and province-level people's committee, and basic data for the reports collected from all level of the People's Committee and non-government entities

- Pattern 2: The reports from ministries and province-level People's Committee
- Pattern 3: The reports from ministries and People's Committee of all-level (VNPT's assumption)

The estimation results are shown in Table 19.

Table 19 Basic Requirements for Performance and Scalability for GIRS

Estimation Items	Estimated performance and scalability requirements		
	Pattern 1	Pattern 2	Pattern 3
The number of reports	38,418,597	157,677	7,200,000
The number of reports per day	512,248	2,102	28,235
The number of reports per an hour	76,837	315.4	12,000
The number of reports per one second	21.3	0.1	4
Data volume at one second (MB)	213.4	1.8	40
Network transaction volume (Mbps)	1,707.5	14	320

Source: JICA survey team

The survey team evaluate that the pattern 1 is unrealistic to treat 38 million reports which includes whole of the basic data supporting the description of the reports due to the following reasons.

- This number of reports is almost similar to the number of applications treated in Japan's "Online National Tax Return, Tax Payment System" (e-tax) which currently has 36 million applications. According to Ministry of Finance of Japan[2], even in realizing 20 million applications, the cost of development and operation for 6 years reached 78.4 billion JPY in e-tax system, while 37.8% of the total cost (29.6 billion JPY) has been spent for hardware. Therefore, the required processing capacity and scalability requirements to treat 38 million reports will be too huge to be realized.
- At the same time, KPIs and use-cases are not clearly defined so that basic data supporting the description of the reports would not be fully utilized.

The Pattern 2 is reasonable to assume the number of reports from ministries and province-level People's Committee submitted to OOG and it is recommended to adopt this requirement for GIRS.

Regarding the Pattern 3, because there is network problem in rural area as mentioned in 2.3 and basically reports are currently submitted from line ministries and provinces as mentioned in 3.2.2, this assumption will be excessive, but it is considerable as future scope.

(3) Assumed basic requirements for performance and scalability for Data Analysis and Management Platform

According to OOG, OOG will utilize data from E-Cabinet, E-Service Portal and E-Consultation. Those systems will be start operation within 2019 and OOG will have to analyze users and utilization status. VNPT assumed that there will be 100 transactions for each system every day and each system will send 1 MB in each transaction.

[2] Ministry of Finance of Japan, "Expenditure Review Sheet of Online National Tax Return, Tax Payment System" (FY 2010)

3.5.2. Basic requirements for availability and security

(1) Availability requirements

According to OOG, GIRS may treat data defined as national secrets in reports. Accordingly, availability and security level of NIRS and COC should be subject to requirement of class 4 based on the regulations on information security in Vietnam, therefore, there should be as follows:

- High Availability (HA) mode servers,
- Disaster Recovery (DR) site at mode 1+1.

The classification of security level class 4 is defined in Article 21 of the Law on Network Information Security (Law No.86/2015/QH13) dated November 19, 2015 as follows.

Level 4 is the level that when an information system is sabotage, it will extremely damage public benefits, social order or damage safety, or severely damage national defense or security

The survey team assumed there is no need to have DR site at mode 1 + 1 but it is strongly recommended to have data back up because the basic requirements for this level of class is defined in ANNEX 4 of Circular No.03/2017/TT-BTTTT of MIC dated April 24, 2017 as follows.

d) Data security:

- Check the integrity of the data, detect and warn when there are changes;

- Sort and manage stored data by type/group using different labels;

- Use a fault-tolerant backup system to ensure data recovery when a problem occurs;

(2)Security requirements

Since reports data may contains national secrets, datacenter where the servers and other related devices for GIRS and COC will be installed and COC room for display monitors and control systems for "Data visualization Sub-system (Dashboard)" need to meet the following security requirements.

- The servers and other equipment should be protected by individual locks on each rack and machine room entry control such as biometric authentication and constant video surveillance.
- The use of two factor authentication mechanisms (e.g., token and passphrase, biometric and token, or biometric and passphrase) is need for PC login.
- PC should be protected for data leaks with limitation of use of interfaces and introducing log management software for PC operations.
- Local Area Network (LAN) should be protected with detection/rejection technologies for unauthorized PC and unauthorized data communications.
- Transparent encryption of data in Database and data communication

3.5.3. Other requirements

NIRS and COC has been designed to connect other administrative business systems as Microservice Architecture via VDXP and modern software development method is adopted in order to facilitate future upgradation and expansion in short system development lifecycle without service interruption.

For this reason, CI/CD tool[3] is required for development of NIRS and COC.

[3] CI/CD stands for Continuous Integration/Continuous Delivery or Continuous Deployment. CI/CD tool enables multiple developers to contribute and collaborate in a shared code base at a rapid pace by providing functions of source control version management, automated testing, build automation, and automated deployments.

3.6. Project Implementation

3.6.1. Requirements for software development skills and past experience in Vietnam

The basic concept of NIRS and COC that to integrate, manage and visualize data from reports and administrative business systems of all line ministries and localities in OOG is very unique in the world. There is no such system in Japan. However, the technologies for realizing each modules are not new in Vietnam.

For development of NIRS and COC, the following skills and experiences are assumed to be required for the ICT Vendor.

- Development of large scale system for government-wide use in modern software development methodologies of continuous iteration of development and of testing in the short software development life cycle
- Development of APIs for data exchange as Microservice architecture
- Development of software for data analysis and visualization environment; Analytics environment using ETL and DWH, and Dashboard in BI tools
- Development of software for data analysis and forecasting with AI and big data technologies (Hadoop)

According to the local experts in Vietnam Software and IT Service Association (VINASA) and VINASA Science and Technology Institute (VSTI), there are similar projects in central government (such as MOF, MOH, etc.) and localities. And Vietnam major local ICT vendors have skills and experiences for development of data utilization solutions using DWH, OLAP and BI as well as big data technologies such as Hadoop, MapReduce, etc. for analysis of semi and unstructured data.

The characteristics of the similar project in MOH is shown in Table 20. In this project, MOH have developed analysis system using technologies of OLAP, BI (Dashboard), Big Data and even AI.

Table 20 Characteristics of Similar Project of NIRS and COC in Vietnam (MOH)

Survey Item	Content
The name of the system	Statistical Analysis system for Medical Information System
Outline of the system	・ Based on EHR[4] system, etc. the system provides health statistics and analytics tools. ・ DWH is developed to serve all analytical works such as OLAP, BI, and Big Data. ・ R[5] Sever is developed for AI and Advanced Analytics
Points of similarity	・ Geographical coverage and hierarchy levels (EHR of MOH covers major hospitals in whole Vietnam). ・ Reporting functionality, analysis of semi and unstructured data
Project Timeline	・ Planning Phase: (Started Month, Year) 01/2018 - (Ended Month, Year)12/2018 ・ Designing Phase: (Start) 01/2018 - (End) 05/2018 ・ Development Phase: (Start) 04/2018 - (End) 10/2018 ・ Operation Phase: (Start) 11/2018 – now
Total amount of costs	Software Development Cost: 99,940,690,292 VND

[4] Electric Health Record (EHR): An automated, paperless and online medical record for which patient medical data is entered by eligible providers, such as nurses and physicians.
[5] R: A free open source programming language used for data analytics and statistical analysis

Survey Item	Content
	Hardware Development Cost: 138,014,309,708 VND

Source: JICA survey team based on the material provided by VSTI

The differences between the NIRS and COC projects and the MOH projects are as follows, rather than differences in technical difficulty.

- The scope of data and the analysis theme (Use-Cases) to handle is not limited to the medical field, and it can be assumed innumerably, but it has not been decided clearly
- There are various themes and contents of reports to be handled, and the format of individual data is not decided like EHR.

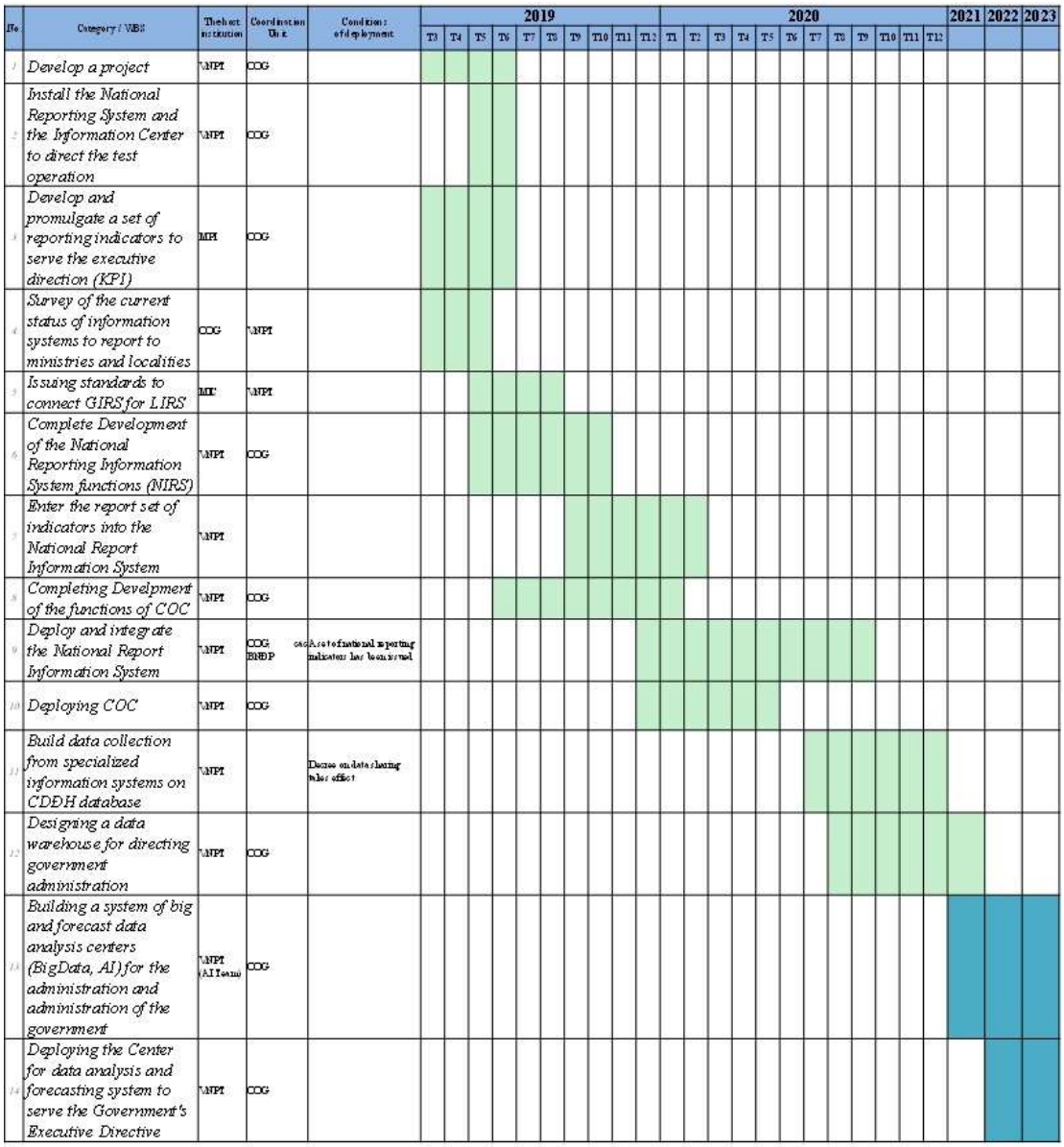
3.6.2. Current activities in development team

The development project of NIRS and COC is owned by OOG and OOG formed a team consists of members from Administrative Procedures Management Department and engineers from VNPT, a major ICT vendor in Vietnam, with support of experts from Vietnam Initiative. The team already developed demo system of Dashboard System and the team is currently developing GIRS and other analytical tools in Data Analysis and Management Platform.

OOG also started to organized coordination meetings with relevant agencies and exchanging ideas for development of NIRS and COC. OOG started discussion with 6 ministries (MOF, MOIT, MPI, MIC, MOT and MOH) and 5 municipalities (Ha Noi, Ho Chi Minh, Hai Phong, Da Nang, and Can Tho) for testing.

3.7. Development Schedule and Roadmap

The schedule of development of NIRS and COC planned by OOG was shown in Fig. 8 below.



Source: The material provided by OOG

Fig. 8 Development and Deployment Schedule of NIRS and COC

In July to September of 2019, OOG is planning to conduct initial test of GIRS and COC with 6 ministries (MOF, MOIT, MPI, MIC, MOT and MOH) and 5 municipalities (Ha Noi, Ho Chi Minh, Hai Phong, Da Nang, and Can Tho) as mentioned above.

According to Decree No.09/2019/ND-CP and Decision No. 451/QD-TTg, LIRS should be developed by March, 2020 with technical standards which will be issued by OOG. However, to develop LIRS may have difficulties for ministries or provinces, OOG will collect reports data by submitting via web browser.

Connecting with National Statistics System and Forecast Analysis System will be completed in early 2020.

3.8. Technical and Operational Issues

The survey team found technical issues shown in Table 21 to realize overall concept of NIRS and COC through interview with OOG.

Table 21 Technical and Operational issues to develop COC Systems including GIRS

No.	Issues Category	Content of issues
1	Data Format of reports from LIRS (Data integration and Sharing standards)	To utilize data of the reports for analysis and visualization, data format should be machine-readable. And there should be consistent format and data item standards. Also there should be unified vocabulary dictionary. There will be many tasks to change format of reports such as amendments of legal documents and development of those platform. However, in the early stage, to change format is difficult, data of reports and contained data should be submitted separately. Data format standards should be shown to line ministries and provinces as soon as possible.
2	KPI setting and Data Analysis Use-Case	Currently, planned data items to be managed in VEDB as shown in Table 17 are mostly Macro socio-economic indices. To utilize data from reports and visualize KPIs in COC, use-cases should be considered among each line-ministries and GSO.
3	AI, Big Data analysis Use-Case	There is no concrete plan to utilize AI, Big data analysis of data from e-government systems or other line ministries' administrative business systems. Use-cases should be considered with needs of OOG or each ministries.
4	Security management	Since, some of the reports may contain secret data, network and physical servers of LIRS, GIRS and COC should be isolated with Internet to prevent from cyber-attacks and protected from illegal access or intrusion.

Source: JICA survey team based on OOG interview

Chapter 4 Requirements and Needs of ODB

4.1. Background of Development of ODB

4.1.1. Back ground and necessity of ODB project

4.1.1.1. Current situation in the current data management of organization and personnel information

Currently, organizational mechanism and personnel information of government officials and party members have managed in each agencies separately.

Many of the central ministries introduced individually optimized database of cadres, civil servants and public employees (Cán Bộ, Công Chức, Viên Chức: CBCCVC)[6] with the latest ICT and software. Data items, data format, and contents of those databases are not unified among the ministries to follow formats promulgated by MOHA.

And local governments also have developed database system individually or utilizing other localities' software. However, there still have quality or performance issues in those systems.

4.1.1.2. Consideration for applying existing software in CCOP

CCOP received some software to figure out if it will ease the personnel staffs in ministries and local governments for their operation, work control and management. However, such software was built separately on various platforms and it is unable to connect and synchronize data and information, thereby CCOP could not evaluate those software as meeting current requirements.

4.1.2. Legal position and current status of ODB

In order to promote ICT for personnel administration, the Politburo decided to unify the information on CBCCVC and organization of the entire political system mentioned above into one database (the Officials Database / ODB) under CCOP in the Politburo's Conclusion No. 17-KL/TW dated September 11, 2017.

CCOP is currently in the progress of preparing investment policy report for submission to competent authority for approval.

4.1.3. Official Name of ODB

Database of organizations, staffing quota, cadres, civil servants and public employees of the whole political system.

[6] The word of "Public Employees" is translated from "Viên Chức". This word has different legal basis from the words of Cadres (Cán Bộ) and Civil Servants (Công Chức). "Public Employees" means officials working in public non-business units which established by the party, ministries as an independent entity. Please see "Law on Cadres and Civil Servants (No.22/2008/QH12)" as well as "Law on public employees (No.58/2010/QH12).

4.2. Objectives of Development of ODB

Based on the above mentioned issues, CCOP is planning to develop ODB for the objectives below:

- To build a database of organizations, staffing quota, CBCCVC of the whole political system to facilitate the information management and searching, data compilation and statistics.
- To develop and upgrade software to serve for management and operation of CCOP and party agencies in charge of organization and personnel of different levels.

4.3. Use Cases and Users of ODB

The use cases and users of ODB is shown in Table 22.

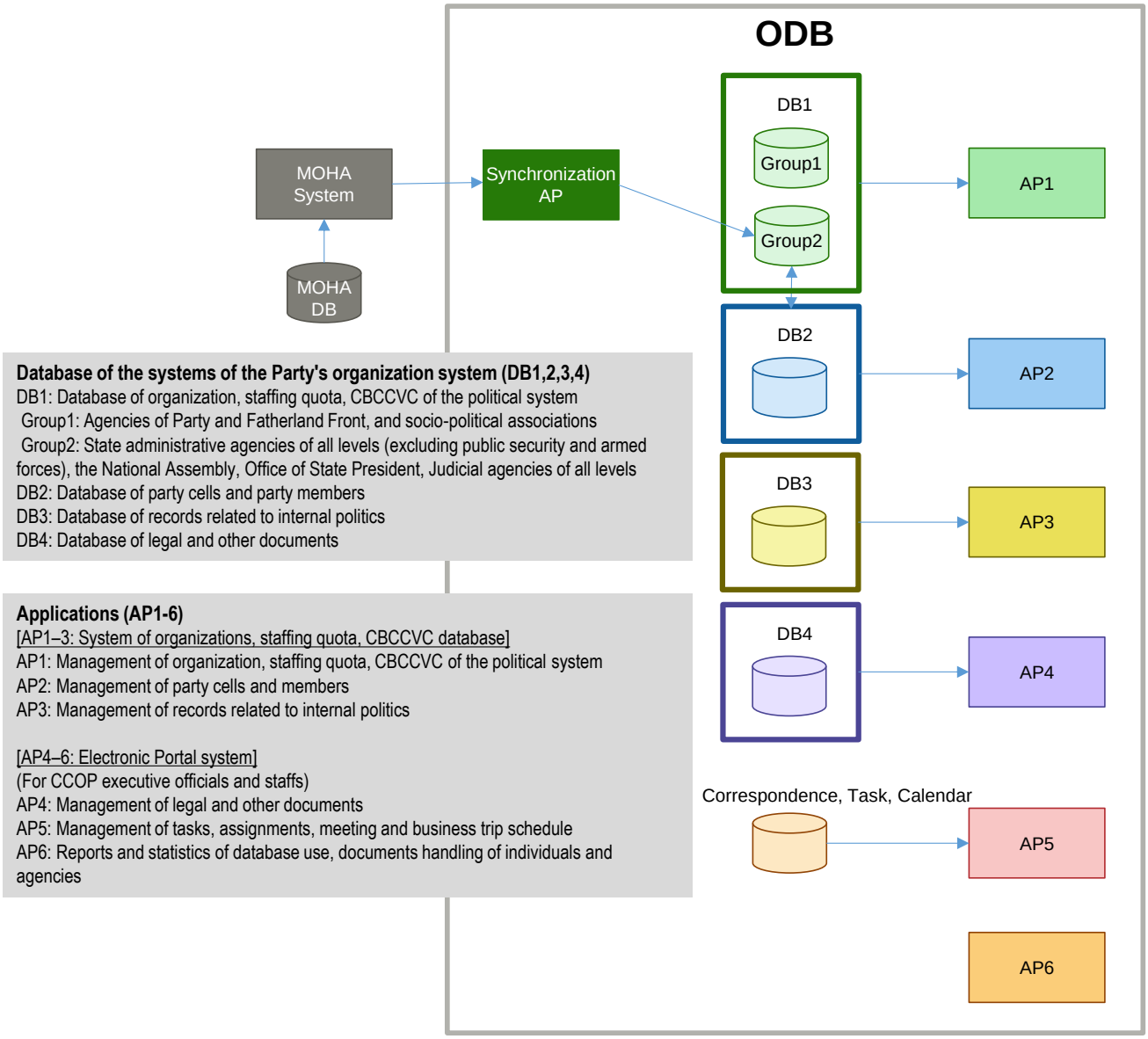
Table 22 Use Cases and Users of ODB

No.	Use Case	Users
1	Data management of the organizations, staffing quota and CBCCVC	・ CCOP manage all information and directly manage information of the Party, Vietnam Fatherland Front and political organizations ・ MOHA plays the role of focal point to manage information of all-level administrative agencies (excluding Public Security and Armed Forces), all-level judicial agencies, Office of State President and the National Assembly. MOHA is responsible for regular synchronization of data with CCOP's ODB
2	Data Management of the Party organizations, members, statistics, organizations, staffing quota, and CBCCVC	Users in CCOP, province-level of People's Committees (Party committees of centrally run provinces and cities, and Party committees under central party committee), and district-level People's Committees (Party committees of urban and rural districts, Party committees under provincial party committee) will manage within the scope of responsibility. Communal or ward level Party Committees which meet requirements on facilities and security may apply to use ODB.
3	Management of correspondences, tasks, calendars, and meeting room booking, etc.	Users in CCOP

Source: JICA survey team based on the document provided by CCOP

4.4. Functional Requirements

An Image of ODB which derived from Use-Cases in Table 22 is shown in Fig. 9.



Source: JICA survey team based on the document provided by CCOP

Fig. 9 Basic Function and Data Flow Image of ODB

4.4.1. Assumed functional requirements and inputs/ outputs of the ODB

The functional requirements for AP1 to AP6 shown in Fig. 9 of ODB based on the materials of CCOP are shown in Table 23.

Table 23 Functional Requirements for ODB

No.	Function Name	Functional requirements	Input	Output
1	Management of organization, staffing quota and profile of CBCCVC	・ Conduct operations on organization and staffing quota management. ・ Conduct operations of staffing ・ Seek and search information by various criteria. ・ Provide report and statistical data	・ Information on the s organization and staffing quota. ・ Information on CBCCVC	・ Information seeking/ searching results ・ Templates of reports and statistical reports
2	Management of party cells and members	・ Conduct operations of Party organization and management. ・ Conduct operations of party member ・ Seek and search information by various criteria. ・ Provide report and statistical data	・ Information on the Party organization and members.	・ Information seeking/ searching results ・ Templates of reports and statistical reports
3	Management of records related to internal politics	・ Conduct operations related to the internal political protection. ・ Seek and search information by various criteria. ・ Provide report and statistical data	・ Information on dossiers relating to the internal political protection.	・ Information seeking/ searching results ・ Templates of reports and statistical reports
4	Management of legal and other documents	・ Manage incoming and outgoing correspondences and working documents, etc. ・ Seek and search information by various criteria. ・ Provide report and statistical data	・ Information on achievements of assigned tasks, number of incoming and outgoing correspondences, etc.	・ Information seeking/ searching results ・ Templates of reports and statistical reports
5	Management of tasks, assignments, meeting and business trips schedule	・ Manage calendars, meeting schedule, etc. ・ Seek and search information by various criteria. ・ Provide report and statistical data	・ Information on work calendar and meeting schedule, etc.	・ Work calendar, meetings schedule and meeting room occupancy, etc. ・ Information seeking/ searching results ・ Templates of reports and statistical reports

No.	Function Name	Functional requirements	Input	Output
6	Report and statistics	・ Provide statistical data on system usage status, etc. ・ Notice outstanding contents such as Correspondences required to be handled, and correspondences on due date to be handled, etc. ・ Seek and search information by various criteria. ・ Provide report and statistical data		・ Reports and statistical reports as required

Source: JICA survey team based on the document provided by CCOP

4.4.2. Assumed DB configuration and data items

The assumed database configuration of ODB are shown in Table 24.

Table 24 Database Contents of ODB

	Name of Database	Content of Database	Remarks
DB1	Database of organization, staffing quota, CBCCVC of the political system	Consists of organizational and personnel information of the following 2 groups Group 1: Agencies of Party and Fatherland Front, and socio-political associations Group 2: State administrative agencies of all levels (excluding public security and armed forces), the National Assembly, Office of State President, Judicial agencies of all levels	-Group1: Each organization update the data -Group2: Data will be updated with the data from MOHA's ODB
DB2	Database of party cells and party members	Information of the Party organization and the members	Party committee of all level will manage the data
DB3	Database of records related to internal politics	Politically sensitive data on personnel management	-
DB4	Database of legal and other documents	Correspondences and working documents including legal documents or internal rules in CCOP	-

Source: JICA survey team based on the document provided by CCOP

Assumed data items of organizations and staffing quota for DB 1 is shown in Table 25.

Table 25 Assumed data items of Information on Organizations and Staffing quota

No.	Data Item Name	Remarks
1	Agency or department code	-
2	Agency or department name	-
3	Abbreviation	-
4	Agency or department level	-
5	Code of executive agency	-
6	Code of Upper Administrative Agency	-
7	Agency or department number	-
8	Code of predecessor agency	-
9	Current Status	e.g. active, dismantling, joint venture, merger, equity conversion, etc.
10	Agency type	-
11	Agency level	-
12	Account settlement method	-
13	Address	-
14	Phone number	-
15	Tax code	-
16	Social insurance payment department	-
17	Bank account number	-
18	Establishment date, establishment decision	-
19	Dismantling day, dismantling decision	-
20	Assigned number of regular personnel	-
21	Current number of regular personnel	-
22	Name of party organization	-
23	Type of party organization	-
24	Number of affiliated party organizations	-
25	Number of party members	-
26	Award (professional work, party related work)	-
27	Discipline (professional work, party related work)	-

Source: The document provided by CCOP

Assumed data items for each profiles of CBCCVC of DB 1 and DB2 are shown in Table 26 and data items for general information by category of each profiles of CBCCVC are shown in Table 27.

Table 26 Profiles of CBCCVC

No.	Data Item Name	Data Name in DB(Technical)	Remarks
1	Document type	PhanLoaiHoSo MaDonVi TenDonVi MaDonviSuDung TenDonViSuDung MaDonViQuanLy TenDonViQuanLy SoHieuCBCCVC	-
2	Agency managing CBCCVC		Format 2C-BNV/2008, Format 2C/TCTW-98
3	Agency using CBCCVC		Format 2C-BNV/2008, Format 2C/TCTW-98
4	Centrally run province or city		-
5	Urban, rural district, town and city under province		-
6	Commune, ward, town		-
7	CBCCVC code		Format 2C-BNV/2008, Format 2C/TCTW-98
I. GENERAL INFORMATION			
8	Name of birth certificate	HoVaTen	Format 2C-BNV/2008, Format 2C/TCTW-98
9	Other name	HoVaTenKhac	
10	Sex	GioiTinh	Format 2C-BNV/2008, Format 2C/TCTW-98
11	Birthday	NgaySinh	Format 2C-BNV/2008, Format 2C/TCTW-98
12	People's certificate number / identification card number (issue date, place of issue)	SoCMND	Format 2C-BNV/2008, Format 2C/TCTW-98
13	Personal identification code	SoDinhDanhCaNhan	-
14	Social insurance book number	SoSoBaoHiemXaHoi	Format 2C-BNV/2008
15	Ethnic group	DanToc	Format 2C-BNV/2008, Format 2C/TCTW-98
16	Religion	TonGiao	Format 2C-BNV/2008, Format 2C/TCTW-98
17	Hometown	QueQuan	-
18	Birthplace	NoiSinh	-
19	Current address	NoiOHienNay	-
II. RECRUITMENT / CAREER INFORMATION			
20	Date of first recruitment	NgayTuyemDungLanDau	Format 2C-BNV/2008, Format 2C/TCTW-98
21	Recruiting agency	MaCoQuan TenCoQuan	Format 2C-BNV/2008, Format 2C/TCTW-98

No.	Data Item Name	Data Name in DB(Technical)	Remarks
22	Recruiting position	ViTriTuyenDung	Format 2C-BNV/2008, Format 2C/TCTW-98
23	Date of entering the current agency	NgayVaoCoQuanHienNay	Format 2C-BNV/2008, Format 2C/TCTW-98
24	Major duties	ViTriViecLam	Format 2C-BNV/2008, Format 2C/TCTW-98
III. INFORMATION ON WAGES, ALLOWANCES AND POSITIONS			
25	Career background	TuNgay DenNgay MaCoQuan TenCoQuan ViTriViecLam	Format 2C-BNV/2008, Format 2C/TCTW-98
26	Rank code or job title	MaNgachChucDanh	Format 2C-BNV/2008, Format 2C/TCTW-98
27	Date of assignment to the current rank	TuNgay	-
28	Salary level	BacLuong	Format 2C-BNV/2008, Format 2C/TCTW-98
29	Salary rate	HeSoLuong	Format 2C-BNV/2008, Format 2C/TCTW-98
30	Salary level start date	TuNgay	Format 2C-BNV/2008, Format 2C/TCTW-98
31	Out-of-frame seniority benefit	PhuCapThamNienVK	-
32	Next salary increase date	DenNgay	Management of salary increase before due term
33	Current position (or position)	ChucVu	Format 2C-BNV/2008, Format 2C/TCTW-98
34	First appointment date	NgayBoNhiemLanDau	-
35	Re-appointment date	NgayBoNhiemLai	-
36	Assignment term of full time position	NhiemKyCanBoChuyenTrach	-
37	Concurrent post (or job title)	ChucVuChucDanhKiemNhiem	-
38	Various allowances	TuNgay DenNgay LoaiPhuCap HeSo PhanTramHuongPhuCap Giatri HinhThucHuong	Format 2C-BNV/2008
39	Salary history	TuNgay DenNgay NgachBacLuong HeSoLuong	Format 2C-BNV/2008, Format 2C/TCTW-98

No.	Data Item Name	Data Name in DB(Technical)	Remarks
		PhanTramHuong	
IV. EDUCATION BACKGROUND, TRAINING, REFRESHER TRAINING INFORMATION			
40	General education level	HocVanPhoThong	Format 2C-BNV/2008, Format 2C/TCTW-98
41	Expertise level	TrinhDoChuyenMon	Format 2C-BNV/2008, Format 2C/TCTW-98
42	Foreign language	MaNgoaiNgu TrinhDo	Format 2C-BNV/2008, Format 2C/TCTW-98
43	IT	TrinhDoTinHoc	Format 2C-BNV/2008
44	Political level	TrinhDoLyLuanChinhTri	Format 2C-BNV/2008, Format 2C/TCTW-98
45	State management level	TrinhDoQuanLyNhaNuoc	Format 2C-BNV/2008
46	Defense security training	BoiDuongQuocPhongAnNinh	-
47	Minority language	TiengDanTocThieuSo	-
48	Science title	MaChucDanhKhoaHoc	Format 2C/TCTW-98
49	Title award date	NgayPhongChucDanh	-
50	Degree code	MaHocVi	Format 2C/TCTW-98
51	Degree award date	NgayQuyetDinhHocVi	-
52	Degree specialty	-	-
53	Professional, business, political theory, foreign language, IT, certificate of professional training completion, certificate according to job title standard	TuNgay DenNgay ChuyenNganhDaoTao TrinhDoDaoTao CoSoDaoTao XepLoaiTotNghiep NuocDaoTao	Format 2C-BNV/2008, Format 2C/TCTW-98 (Politics and foreign languages only)
V. INFORMATION REGARDING THE PARTY			
54	Admission date	NgayVaoDang	Format 2C-BNV/2008, Format 2C/TCTW-98
55	Official admission date	NgayVaoDangChinhThuc	Format 2C-BNV/2008, Format 2C/TCTW-98
56	Party ID number	SoTheDang	The party member DB of CCOP
57	Position in the party	ChucVuDang	Format 2C/TCTW-98
VI. EVALUATION AND CLASSIFICATION RESULTS			
58	Evaluation and classification results (evaluation year, evaluation and	KetQuaDanhGia Nam	-

No.	Data Item Name	Data Name in DB(Technical)	Remarks
	classification results, organization to which evaluation authority belongs)	ThamQuyenDanhGia	
VII. REWARD AWARD, DISCIPLINE			
59	Reward	-	-
60	Discipline	-	-
VIII. PROPERTY, INCOME			
61	Property	-	-
62	Income	-	-

Source: The document provided by CCOP

Table 27 General Information by Category

No.	Information
Quality of CBCCVC categorized by	
1	Ranking scale of cadre, civil servant and public employee
2	Academic rank, degree, and qualification
3	Political level
4	Age
Data on structure of organization and staffing quota categorized by	
1	Central-level party authorities and organizations
2	Local-level party authorities, fatherland front and social and political organizations

Source: The document provided by CCOP

4.5. Non-functional Requirements

4.5.1. Assumed basic requirements for scalability

4.5.1.1. Assumed number of users

The number of users of ODB for each function is assumed by the survey team as follows.

- AP1, 2 and 3: People's Committee of all levels (a few staffs of 14,000 institutions)
- AP 4 to 6: Cadres and public officials of CCOP only (about 220 people)

4.5.1.2. Assumed number of records

The number of records of ODB for each database is assumed by the survey team as follows.

- CBCCVC of all-level administrative units excluding Public Securities and Arm Force (DB1): Approximately 2.6 million records
- Total members of the Party (DB2): nearly 5 million members

4.5.2. Basic requirements for availability

The requirements for availability of ODB are as follows.

- Back up site is assumed to be required.
- Storage is made redundant by RAID (Redundant Arrays of Inexpensive Disks) configuration and media backup is possible with tape device

4.5.3. Basic requirements for security

ODB should follow current regulations developed and carried out by the Government Committee for Cipher such as Measures to ensure safety and security for the system such as server protection, server room, unauthorized access refusal, prevention of stealing information via network, etc.

The assumed requirements for security of ODB are as follows.

- The servers and other equipment should be protected by individual locks on each rack and machine room entry control such as biometric authentication and constant video surveillance.
- The use of two factor authentication mechanisms (e.g., token and passphrase, biometric and token, or biometric and passphrase) is need for PC login.
- PC should be protected for data leaks with limitation of use of interfaces and introducing log management software for PC operations.
- Local Area Network (LAN) should be protected with detection/rejection technologies for unauthorized PC and unauthorized data communications.
- Transparent encryption of data in Database and data communication

4.6. Project Implementation

4.6.1. Requirements for software development skills and past experience in Vietnam

ODB is designed to have basically two major function groups; personnel information management functions and collaborative software such as groupware.

ICT vendors should have the following skills and experience to develop ODB.

- Development of large scale system for government-wide use
- Development of APIs for data exchange to connect with MOHA
- Development of various personnel information management in public sector
- Development of general collaborative software such as groupware

As described in 4.1.1.1, many government agencies have experienced development of personnel information system. According to the local experts in Vietnam Software and IT Service Association (VINASA) and VINASA Science and Technology Institute (VSTI), there were many projects of groupware using commercial software or open source software, and these kinds of software (groupware customized development and personnel management system) are not complicated and difficult to develop.

However, business knowledge on structure of organization of the whole political system will be required for ICT Vendor.

4.6.2. Current activities in development team

Currently, CCOP is not decided to formulate development team.

4.7. Development Schedule

Development schedule of ODB is shown in Source: JICA survey team based on the document provided by CCOP

Fig. 10.

No.	Category / WBS	2019										2020												2021	2022	2023
		3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
1	*Prepare, appraise and approve the investment policy report*																									
2	*Prepare, appraise and approve Feasibility Study report*																									
3	*Design and Development*																									
4	*Operationalization*																									

Source: JICA survey team based on the document provided by CCOP

Fig. 10 Development Schedule of ODB

4.8. Technical Issues

The survey team found issues shown in Table 28 to realize overall NIRS and COC systems and operation.

Table 28 Technical and Operational Issues to Develop ODB

No.	Issues Category	Content of issues
1	Synchronize with MOHA's ODB	The actual development schedule for MOHA's ODB is not settled. There are no regulation and mechanism for synchronization of MOHA's ODB with CCOP's ODB.
2	Data migration from database of other agencies	Currently, data contents and formats are not standardized. Each agency develop their database system in different way so that data migration is very difficult. It is necessary to investigate for the insufficient and lacking data in all level of organizations.
3	Current use of database in other agencies	Officers in charge lack skills or habit to use software for management.

Source: JICA survey team based on the result of interview with CCOP

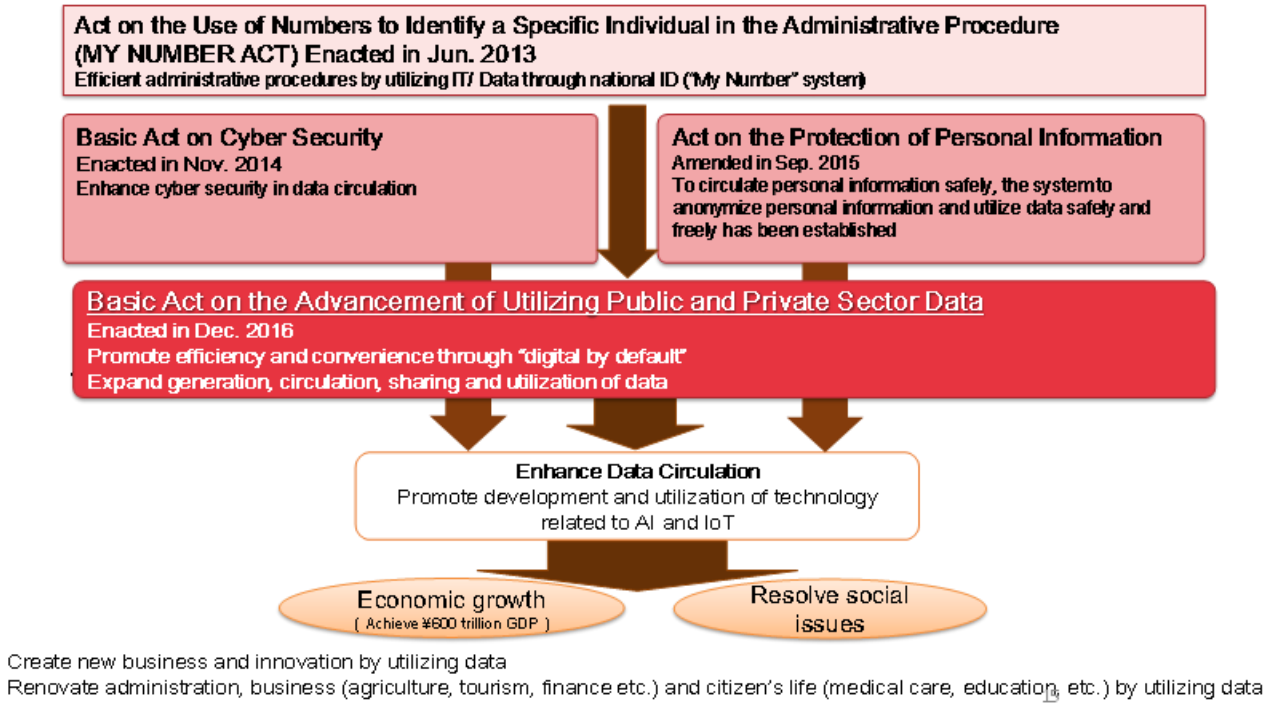
Chapter 5 Japan's experience regarding e-Government policy Issues

5.1. Development of legal basis for E-Government Policies

As mentioned in Table 9 of 2.3, GOV has reaming issue on development of legal documents to further promotion of digital government including measures such as promotion of data utilization among public and private sectors. And at the same time, protection of personal information is important issue. For reference, the legal system of public-private data utilization in Japan is useful. The measures which GOJ have taken are shown below.

Digital transformation measures toward "digital government" have become the core concept of e-Government policies in many countries recent years as described in 2.1.1. Both digital innovation and digital economy have become the key to economic growth and challenges in line with the target of Digital Government.

GOJ have enacted "Basic act on the advancement of utilizing public and private sector data" in 2016 as the basic act for the next generation e-government policy. The e-Government laws in Japan recently issued or amended are shown in Fig. 11.



Source: JICA survey team

Fig. 11 An Image of Recent E-Government Laws in Japan

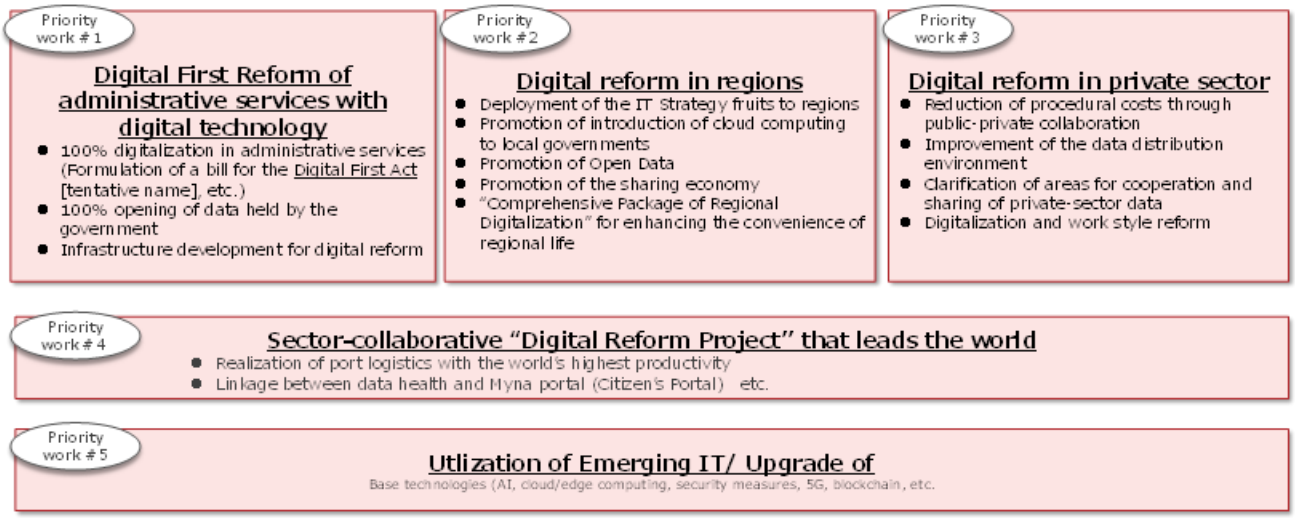
GOJ issued "Declaration to Be the World's Most Advanced IT Nation: Basic Plan for the Advancement of Public and Private Sector Data Utilization" as Japan's National ICT strategy in 2017 to promote digital transformation in both public and private sector.

In the latest version of Japan's national ICT strategy update on 2018, "Digital First" reform in administrative

services are placed No.1 priority work as shown in Fig. 12. GOJ placed the goal of "Digital First" reform as 100% digitalization in administrative services and showed three principles below:

- Digital First (Administrative procedures will be completed digitally)
- Once Only (Information submitted once will not be required to be resubmitted)
- Connected One-Stop (Multiple procedures will be completed in one place)

In the Japan's national IT Strategy, Evidence-Based Policy Making (EBPM) policy by utilizing data from public and private sector is positioned as one of the basic policies for promotion.



Source: Declaration to Be the World's Most Advanced IT Nation: Basic Plan for the Advancement of Public and Private Sector Data Utilization (June 15, 2018)

Fig. 12 Priority Work of the Latest Japan's National ICT strategy

Based on the three principles of Japan's national ICT strategy, GOJ also issued "Digital Government Strategy" in 2017 and "Digital government action plan" in 2018 to promote digital government policies in central government and local government in Japan. The strategies of the policies are as shown in Table 29.

Table 29 Digital Government Strategy of GOJ

Basic strategies	Sub strategies	Key Concept
Strategy 1 User-centered administrative service reforms that fully utilize digital technology	[Strategy 1-1] Promoting business process re-engineering (BPR) based on service design thinking [Strategy 1-2] Revising approaches to providing information to adapt to digital technology	✓ Once only policy ✓ Digital by Default ✓ Mash-up, Collaboration ✓ Citizen experience ✓ Community support
Strategy 2 Platforms for public-private partnerships	[Strategy 2-1] Developing an environment that encourages data circulation [Strategy 2-2] Developing an interface for utilizing public and private sector data [Strategy 2-3] Sharing platforms and utilizing private sector services	✓ Data driven, data utilization ✓ Mobile, sensor ✓ Data quality ✓ Tagging ✓ Interoperability, transaction

Basic strategies	Sub strategies	Key Concept
Strategy 3 IT governance that creates value	[Strategy 3-1] Developing promotion systems tailored to service reforms [Strategy 3-2] Ensuring thorough IT management and maximizing the effect of investment	✓ Team to promote cross-cutting reforms. ✓ Benefit management ✓ Program management

Source: JICA survey team based on Japan's Digital government Strategy (2017, Prime Minister's Office)

In Digital government action plan, GOJ showed 12 principles of service design which is essential to provide user-centered administrative services and to lead projects to success.

Table 30 12 Principles of Service Design

1. Start with user needs	7. Be integrated with user's daily experiences
2. Grasp each fact deeply	8. Don't create only by yourself
3. Think End-to-End	9. Create services openly
4. Pay attention to all stakeholders	10. Iterate many times
5. Make services simple	11. Do consistently, not all at once
6. Utilize digital technologies thoroughly	12. Build services, not systems

Source: Digital government action plan (January 2018)

In Japan's National ICT strategy and Digital government action plan, GOJ planned to collect data for grasp fact and conduct "Proof of Concept" (PoC) in order to promote each tasks and projects gradually based on No.2 and No.11 of the 12 principles above.

The survey team provided English Tentative translation document of laws below as reference case.

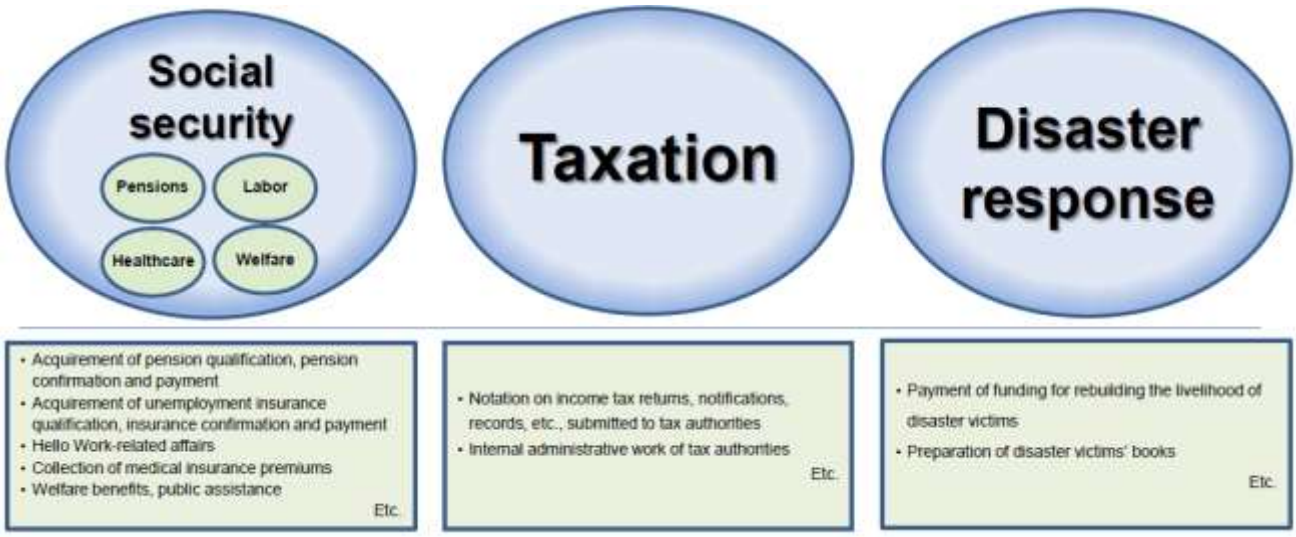
- The Basic Act on the Advancement of Public and Private Sector Data Utilization (Act No. 103 of December 14, 2016)
- Act on the Use of Numbers to Identify a Specific Individual in Administrative Procedures (Act No. 27 of May 31, 2013) (My Number Act)
- Act on the Protection of Personal Information (Act No. 57 of May 30, 2003)
- The Basic Act on Cybersecurity (Act No. 104 of November 12, 2014)

5.2. National ID System

As mentioned in Table 9 of Chapter 12.3, GOV has reaming issue on popularization and promotion of National ID. For reference, the legal system of National ID system in Japan is useful. The measures which GOJ have taken are shown below.

As described in 5.1, My Number System is a basis or social system platform to conduct measures in "the Basic Act on the Advancement of Public and Private Sector Data Utilization" in Japan.

The Social Security and Tax Number System (My Number System) aims to develop social infrastructure to improve administrative efficiency, enhance public convenience, and realize a fairer and more just society. The system have enacted in January, 2016. The individual number (My Number) is required for the administrative procedures of social security, taxation and disaster response instead of existing numbers or certification as shown in Fig. 13.



Source: My Number Promotion Office, Cabinet Secretariat of Japan

Fig. 13 Public Services and Internal Procedures in Government Applied for "My Number System"

The characteristics of My Number is as follows:

- A 12-digit number designated and notified to each and every resident in Japan
- Only used in administrative procedures in the areas of social security, taxation and disaster response stipulated by the My Number Act

In My Number system, individual number card (My Number Card) is also introduced for universal identification card. After the notification of My Numbers, My Number Card is issued at the request of resident. The characteristics of My Number Card is as follows:

- It is a plastic card containing an ID photograph of the individual.
- Individuals can verify their My Numbers and identification only with this My Number Card.
- The IC chip contains an electronic feature for authenticating the card bearer (electronic certificate). My Number is not used when using the electronic certificate of the My Number Card.

The key features of My Number Card is shown in Fig. 14

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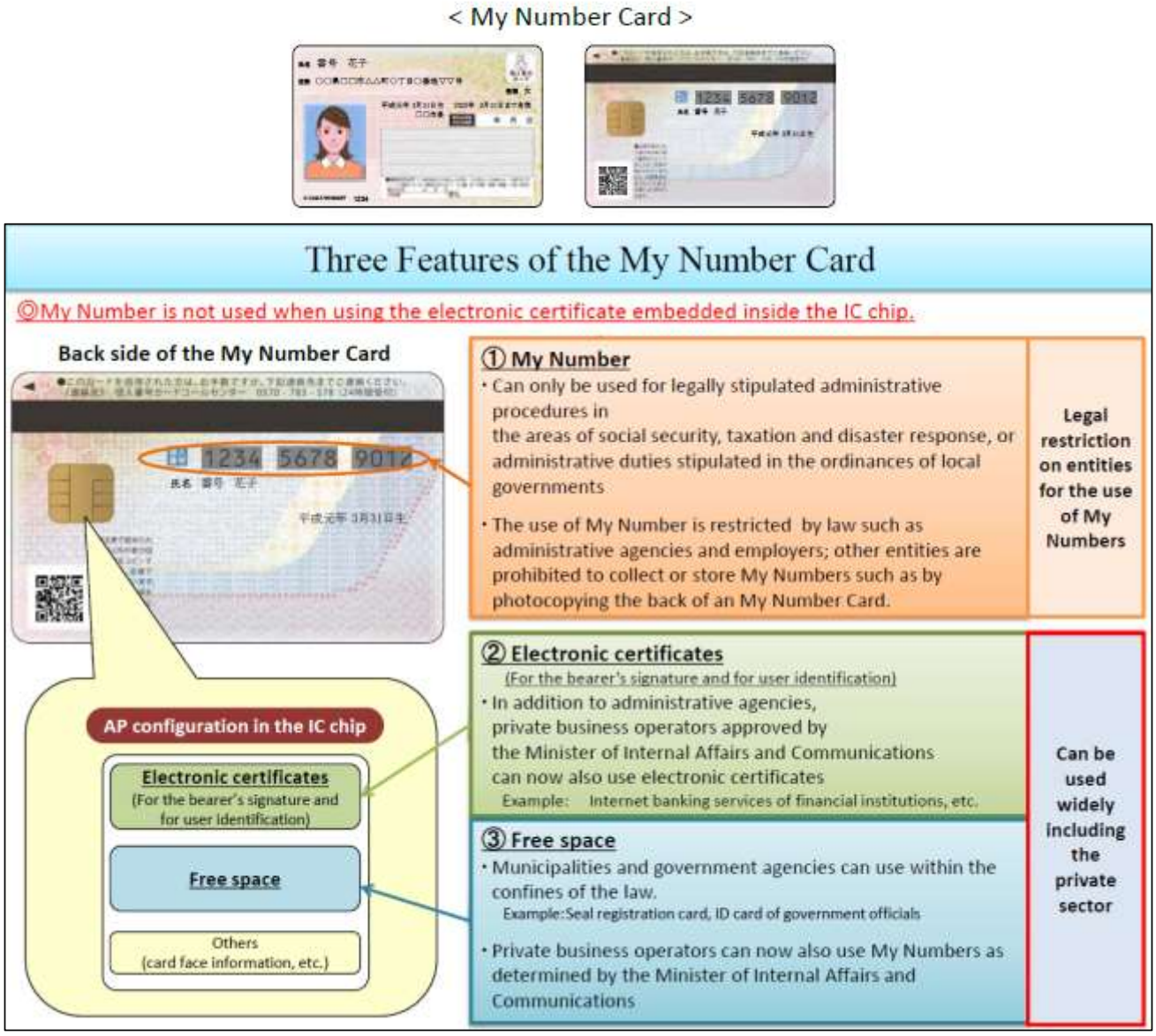


Source: My Number Promotion Office, Cabinet Secretariat of Japan

Fig. 14 Key Features of My Number Card

Existing ID's such as basic pension number, ID of health insurance are still managed in each authorities, but My Number is used procedures for identification and GOJ is preparing for expansion of areas where My Number and My Number Card can be utilized. From March 2021, My Number Card will be used for medical qualification confirmation of Health Insurance at medical institutions instead of ID of health insurance.

The functions of existing ID cards are considered to be unified in My Number Cards, in the future.

5.3. Network Environment of Local Government

As mentioned in Table 9 of Chapter 12.3, GOV has reaming issue on developing network and data exchange environment especially in localities of rural area.

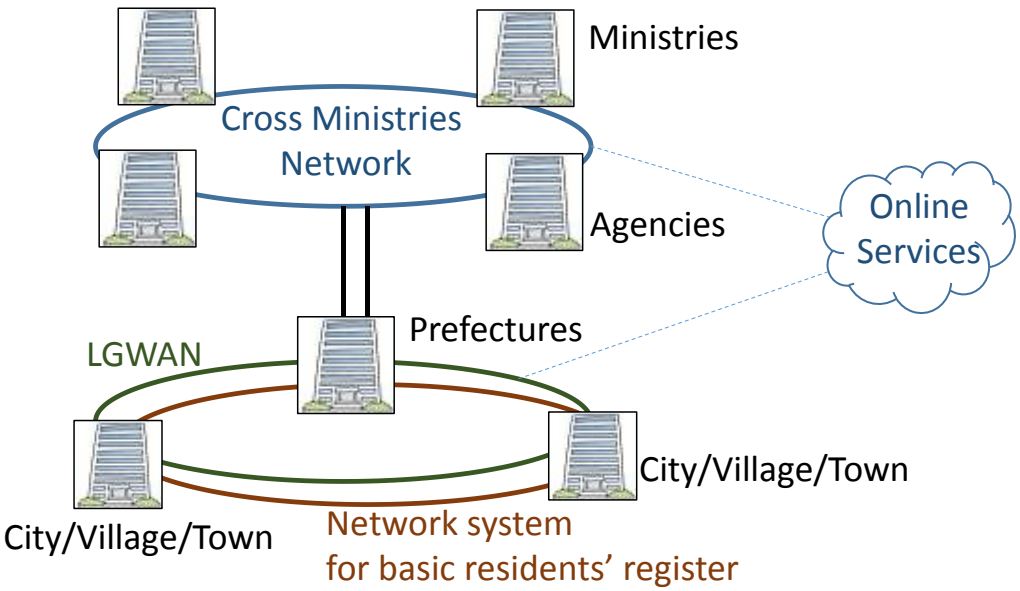
For reference, Japan's experience on development of network among local government is useful. The measures which GOJ have taken are shown below.

5.3.1. G2G network

In Japan, all the Local governments are connected each other with the Local Government Wide Area Network (LGWAN) and the Network system for basic residents' register. LGWAN and Network system for basic residents' register has developed with national budget placed priority project in Japan's "e-Japan Priority Policy Program" (2000).

By use of this internal network linking local government bodies, high-level transmission of information, facilitating smooth communication between one local government and another in closed secured network environment have realized. With the objective of facilitating high-level information usage through the sharing of information, the system began to be partially implemented in 2001, and all municipalities were connected to it by 2003. In 2002, LGWAN has also connected with central government WAN.

The Network system for basic residents' register has developed in August, 2002 as a first stage and the full-scale launch was started from August, 2003. Also all the local governments have connected to the Network system for basic residents' register.

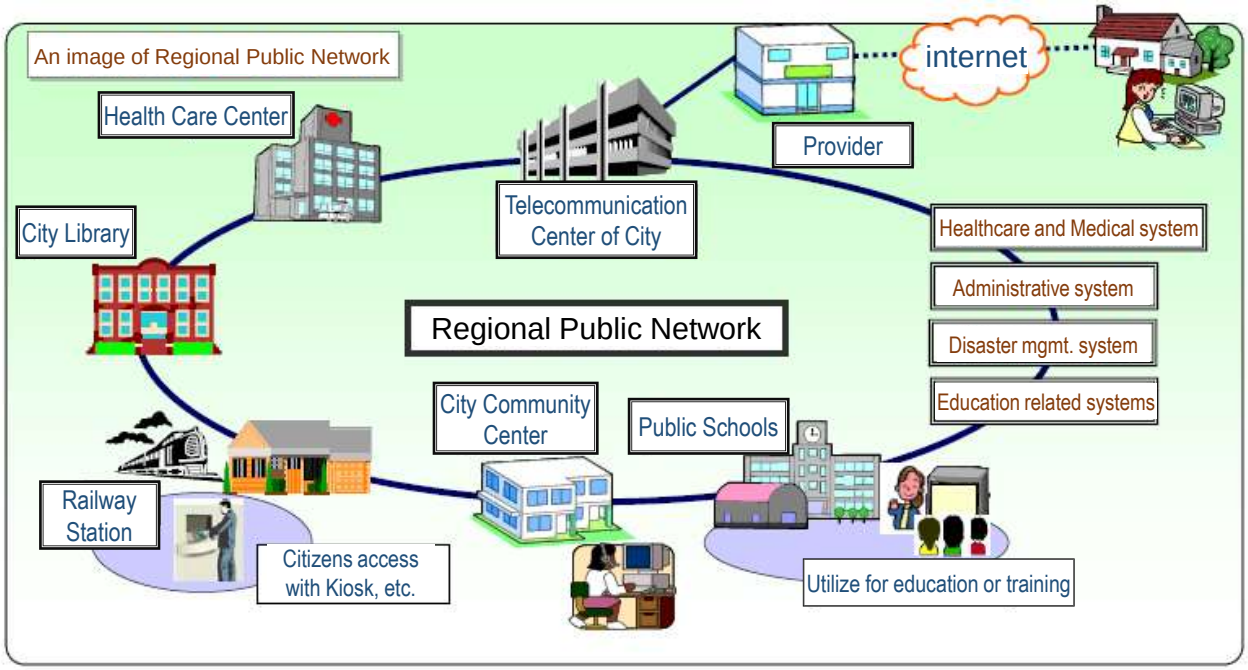


Source: JICA survey team based on the material of Ministry of Internal Affairs and Communications of Japan

Fig. 15 Image of LGWAN and Network System for Basic Residents' Register

5.3.2. Regional Public Network

For the purpose of improving the lives of local residents and revitalizing the local economy by correcting disparities of telecommunication environment among regions (digital divide), GOJ supported local government to development of communication infrastructure according to local characteristics called “Regional Public Network" from 2003. An image of Regional Public Network is shown in Fig. 16.



Source: Ministry of Internal Affairs and Communications in Japan

Fig. 16 An image of Regional Public Network in Japan

To promote development of regional public network, GOJ supported organizations as shown in Table 31 by granting subsidies and providing useful information such as technical standards.

Table 31 Content of Subsidy regarding Regional Public Network

・ Target Organization: Cooperation between prefectures, municipalities, public-private joint venture and multiple local public entities ・ Target of expenses: Facility / Equipment expenses (Center facility, video library device, transmitting / receiving device, local transmission line, bidirectional image transmission device, transmission) ・ Support rate of total cost: - Isolated islands: 2/3 - Prefectures, municipalities alone, or cooperative entities consisting of multiple prefectures, ordinance-designated cities, core cities: 1/3

- Cooperation entities other than 2 and merged municipalities (limited to the merger year and one year following this), Okinawa Prefecture, and municipalities in Okinawa prefecture: 1/2
- Public-private joint venture: 1/4

Source: Ministry of Internal Affairs and Communications in Japan

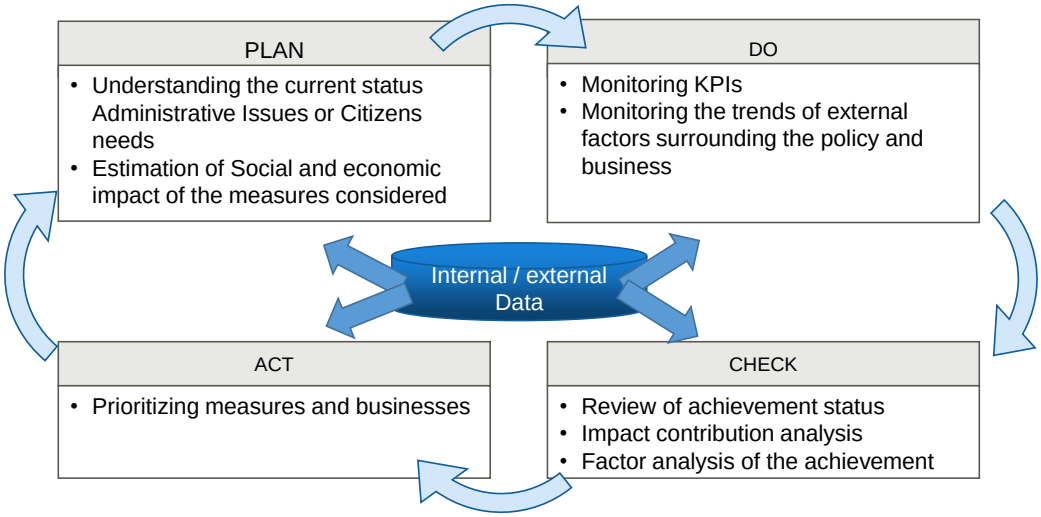
5.4. Policymaking Based on Data

According to OOG, NIRS and COC will be utilize data from state ministries and localities for policy making and decision making of the Prime Minister by visualizing as described in Chapter 3. Based on Japan's experience and current efforts as shown in below, it will be necessary to continuously consider about concrete data utilization use cases among involved parties in the future regarding.

5.4.1. Evidence-Based Policy Making

In Japan, it has been said that to grasp facts is very important for policy making, and policy evaluation system has been introduced based on quantitative KPIs under "the Government Policy Evaluations Act" (Act No. 86 of 2001).

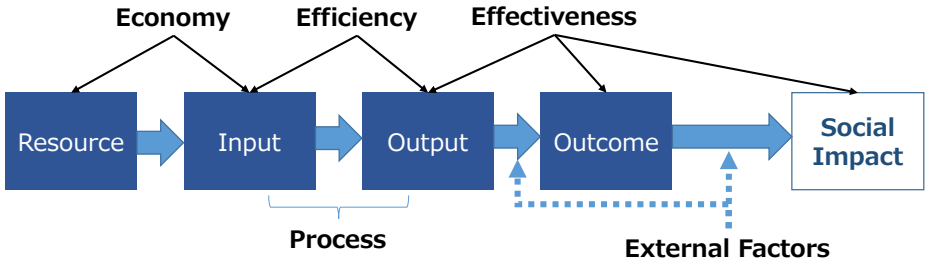
Based on the trend of digital transformation in recent years, all the government agencies are required to promote data utilization and EBPM in the PDCA cycle of policy making: planning, decision making, monitoring, and evaluating policy measures instead of government staff's intuition or experience as described in 5.1.



Source: JICA survey team

Fig. 17 Data Utilization Model as EBPM

Not only central ministries, but also local governments are aware of its importance of EBPM, because in the past, KPIs are partially monitored in the viewpoint of performance measurement or program evaluation, and this methodology cannot cover all the indicators to evaluate whole production process of policy as shown in Fig. 18.

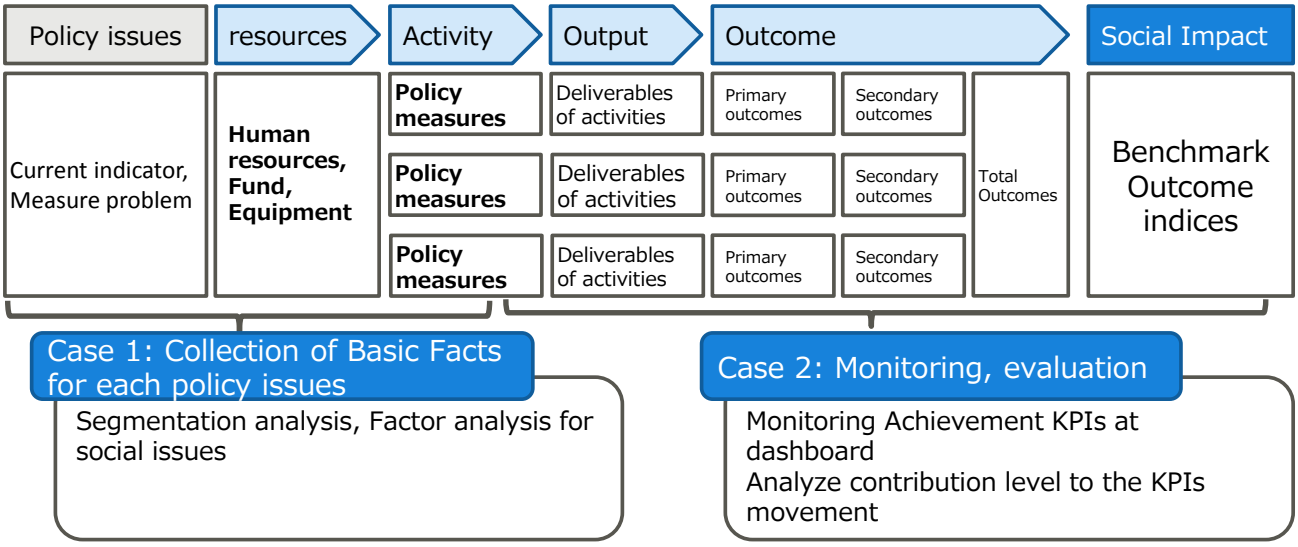


Source: JICA survey team based on Professor TANAKA, Hideaki (Meiji University, 2018)

Fig. 18 An Image of Production Process of Policy

In 1970s, Dr. Joseph S. Wholey developed the "Logic Model" as a basic tool for promoting EBPM. To evaluate policy is to test the hypothesis. "The logic model" is designed to illustrate the route (causal relationship) for realizing the change / effect that the policy or organization ultimately aims for. The Logic Model can be utilize to set Key Goal Indicator (KGI) as outcome indicator and KPIs to measure and to consider what kind of data should be analyzed for policy effect analysis (causal relationship analysis) and for fact analysis in policy making.

The image of Logic Mode is shown in Fig. 19



Source: JICA survey team

Fig. 19 An Image of "Logic Model" and Utilization of data for EBPM

In 2017, Evidence-Based Policymaking (EBPM) Promotion Committee has been launched in (Headquarters for the Promotion of Administrative reform, Cabinet Secretariat and promoting EBPM with the following measures.

- Each ministries developed "EBPM approach policy 2018"
- Each ministries opened "statistics data section" for EBPM
- Promoted to create "Logic Models" for each policy
- Issued policy document on securing and developing human resources to promote EBPM

- Operating Regional Economy Society Analyzing System (RESAS) and holding Policymaking workshops, policy idea contests, RESAS apps contest (Application using open data of RESAS)
  * RESAS is operated by Ministry of Economy, Trade and Industries and Cabinet Secretariat and provides many information to analyze regional economy and society. (Population, Industry and Trade Statistics) RESAS is utilized by officials in local government, etc. for effective policy making and evaluation.

Source: Ministry of Economy, Trade and Industry, GOJ translated by JICA survey team

Fig. 20 An Image of RESAS

5.4.2. Data analytics utilizing for policy making with big data

(1)Characteristics of Big Data

There is no single definition of "Big Data" generally accepted and it is ever-changing concept.

The characteristics of big data usually pointed out are follows:

- Treat "high volume" of data mainly captured in private sector
- From "high variety" of sources (multiplicity)
- Generate or update data in "high velocity" / "high frequency"

Big Data are utilized for analysis of activities, behaviors and interaction of Human, Society or Economy.

Examples of data source of Big Data in private sector are follows:

- POS (Point Of Sales) related companies
- E-Commerce related companies
- Credit Card related companies
- Point service related companies
- E-money related companies
- Mobile Phone related companies
- Logistics related companies
- Search Engine (Search Keywords Trends) etc.

(2) Economic – Price movement Analysis using Big Data

The trends of analysis using big data in Japan are as follows.

i. Analysis with "Search History Data"
Household budget activities analysis with search frequency data provided by search servicer.

ii. Analysis with "Scan Data"
Consumption - trends of the market unit price Analysis with scan data from POS data, etc.

iii. Analysis with "Text Data"
Analysis of Financial Market, Company – House hold with text data of SNS, online distributed public document, IR(Investor relation) materials, articles, etc.

Currently, Cabinet Office Ministry of Internal Affairs and Communications (MIC), Ministry of Economy, Trade and Industry (METI), and Bank of Japan are utilizing big data for development of socio-economic indicators.

Table 32 Case Examples of Utilizing Big Data for Development of Socio-Economic Indicators

Government Agencies	Analysis Case Examples
Cabinet Office	Analysis of economic trends after consumption tax rate hike used Weekly POS data (Electronics Retail Stores, Supermarkets) (April - Sept. 2014)

Government Agencies	Analysis Case Examples
Ministry of Internal Affairs and Communications (MIC)	Study group on comprehensive timely updated consumption related indices using POS data held 6 times chaired by Minister of Internal Affairs and Communications. (Sept. 2016 -) Discussed on utilization of big data such as POS data. →Currently utilized for CPI(Consumer Price Index) of PC(Desktop), PC(Laptop), and Camera are updated
Cabinet Office	National Accounts Stats are produced by using disclosure documents (annual reports, quarter financial reports of the stock companies) DI(Diffusion Index) is produced by using private sector data (Nikkei Commodity Index, Tokyo Stock Price Index (TOPIX), Newly issued government bond yields, Outlook for sales of small and medium-sized enterprises DI)
Ministry of Economy, Trade and Industry (METI)	New Indices development project using big data (Sept. 2016 -) - Developed more high frequent indices that complement existing indices - Developed rules on utilization of big data for statistical work
Bank of Japan	Developed analytical methodology using big data. Nowcasting of monthly GDP by using many timely-updated economic indices.

Source: JICA survey team based on the materials of Ministry of Internal Affairs and Communications

Chapter 6 Recommendations on Japan's Support

In this Chapter, the content of recommended support from Japan considered by the survey team based on the needs, current issues on development of NIRS-COC and ODB as described in Chapter 3 and Chapter 4 are shown below. The recommendations suggested by the survey team do not represent the official cooperation strategy of GOJ nor the decision to implement such cooperation by GOJ.

Based on the request of OOG and CCOP for provision of hardware, the recommended support from Japan regarding the provision of hardware which is considered to have high priority and effectiveness by the survey team is shown in 6.1 as well as 6.2. The matters that Vietnamese side should prepare to utilize the hardware are summarized in 6.3. In addition to the hardware support, the survey team considered on recommendation for other Japan's cooperation options which can be conducted separately as shown in 6.4.

6.1. Recommendations on Japan's Support regarding NIRS and COC

6.1.1. Recommended development process and scope of cooperation from Japan for NIRS and COC

As shown in Chapter 3, there are many remaining technical issues and operational issues to realize overall concept of NIRS and COC in OOG. In addition, according to the relevant ministries and provinces, preparations for LIRS are inadequate stage.

Therefore, based on Japan's "12 Principles of Service Design", the survey team considered an approach to take the step-by-step development process and assumed preconditions to consider the recommended development process and the scope of Japan's support as shown in Table 33.

Table 33 Preconditions for Considering Recommended Development Process and Scope of Cooperation

Category	Assumed Preconditions
The priority of tasks	・ The schedule of development of reporting regime has planned in the Decree No.09/2019/ND-CP and development of GIRS has been started in OOG, but due to the time limitation, all the ministries and provinces assumed to start submitting their reports to GIRS via web browser until being ready. ・ After GIRS prepared, the Data Analysis and Management Platform and Dashboard System should be developed to utilize data of reports from ministries and provinces (The demo system of Dashboard system has already been developed for visualizing macro socio-economic statistical indices)
The process of designing and development	・ The software especially for utilization of new KPIs and data analytics part should be developed step-by-step through the process of Proof of Concept (PoC), etc. ・ Hardware should be deployed efficiently with minimum set, and it should be configured that can be expanded in line with future needs and materialization of expanded use-cases.
Scalability, Location, and Disaster Recovery	・ The performance and scalability requirements of pattern 2 as shown in Table 19 should be applied. But at the same time, it is necessary to endure to a certain extent the case of Pattern 3 (It is unnecessary to collect all the basic data for reports before use-cases are not determined.)

Category	Assumed Preconditions
	・ The hardware set will be installed in the server room of OOG. The survey team visited the planned installation site (the project site) of the hardware for NIRS and COC and recognized that there were the following issues and should be improved by the time of installation. ・ Current installation location for server racks is sufficient for 4 racks which the Survey Team expected for recommended hardware set but not sufficient for the number of servers firstly expected by OOG and VNPT. ・ Current server racks are not fixed to the floor (foundation), but for NIRS and COC, fixation of the racks are strongly recommended. ・ Currently server room's entry management system is not working, but it is needed to control entry-exit physically, and the entrance and servers should be monitored with cameras. ・ Data should be backed up in the external site to fulfil availability requirements which is security level class 4. (e.g. Backed up to private cloud environment) Accordingly, the hardware set for DR site is excluded from recommendation.

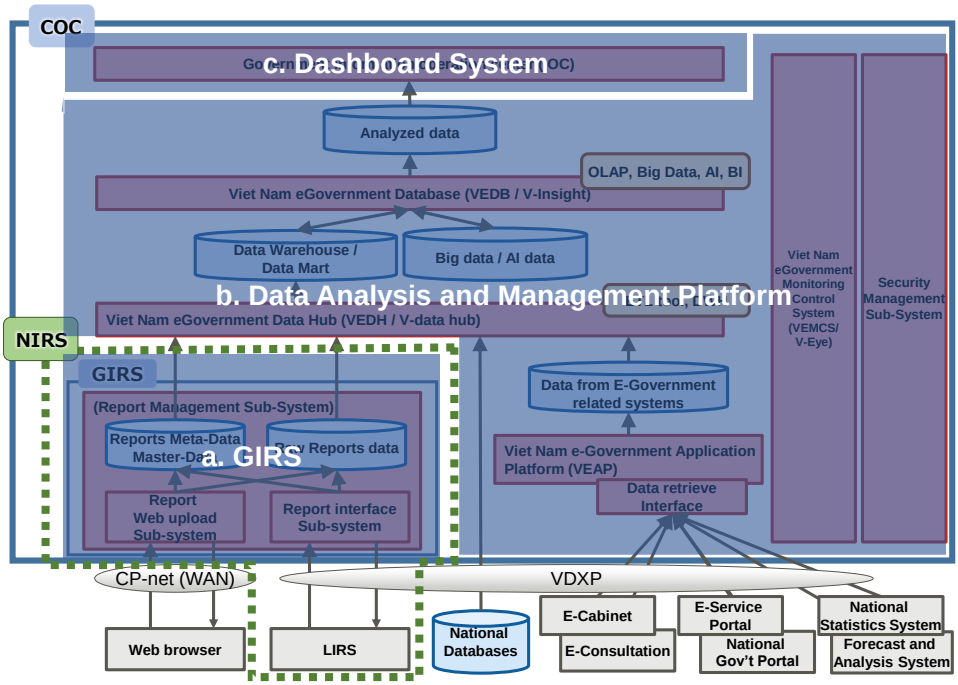
Source: JICA survey team

The functional group of COC including GIRS can be roughly divided into three groups shown in Fig. 21. The survey team considered the scope for recommended hardware set for these three groups.

a. **GIRS**

b. **Data Analysis and Management Platform**
(VEAP, VEDH, VEDB, VEMCS and Security Management Sub-System)

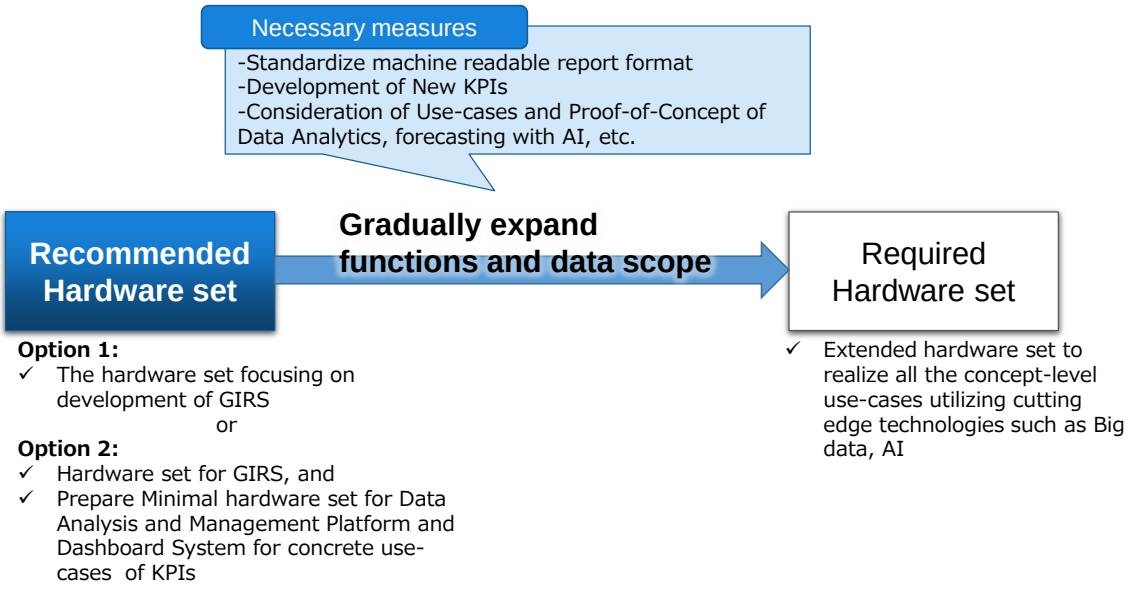
c. **Dashboard System (Government Information Operation Center (IOC))**



Source: JICA survey team based on the material provided by OOG

Fig. 21 Functional Group of COC including GIRS

The survey team derived two options of recommended hardware set with the preconditions above based on the hardware set requested from OOG as shown in Fig. 22. The required hardware set should be developed after the necessary measures were taken.



Source: JICA survey team

Fig. 22 An Image of Development Process and Scope of NIRS and COC

The comparison of two options of recommended hardware set and hardware set required from OOG is shown in Table 34. The detailed hardware set configuration of the two options is shown in 6.1.2 below.

Table 34 Comparison of the Options for Recommended Hardware Set for NIRS-COC

Options		Functional Groups	Concept of Hardware Config.	The Number of Major Hardware				
				Web/AP/ other servers	DB Server	Storage Devices	Network Devices	Displays in IOC
Recommended Hardware Set	Option 1	a. GIRS	Virtually integrate main servers	4 (Virtual Server:8)	2	1	18	0
	Option 2	a. GIRS and Minimal Scale of b. Data Analysis and Mgt and c. Dashboard	Virtually integrate main servers	4 (Virtual Server: 12)	3	1	30	12

Source: JICA survey team

Based on the plan of OOG shown below, the survey team selected Option 2 as the appropriate recommendation on Japan's support:

・ The systems which are owned OOG such as E-Cabinet, E-Service Portal and E-Consultation are scheduled

to connect COC within 2019.

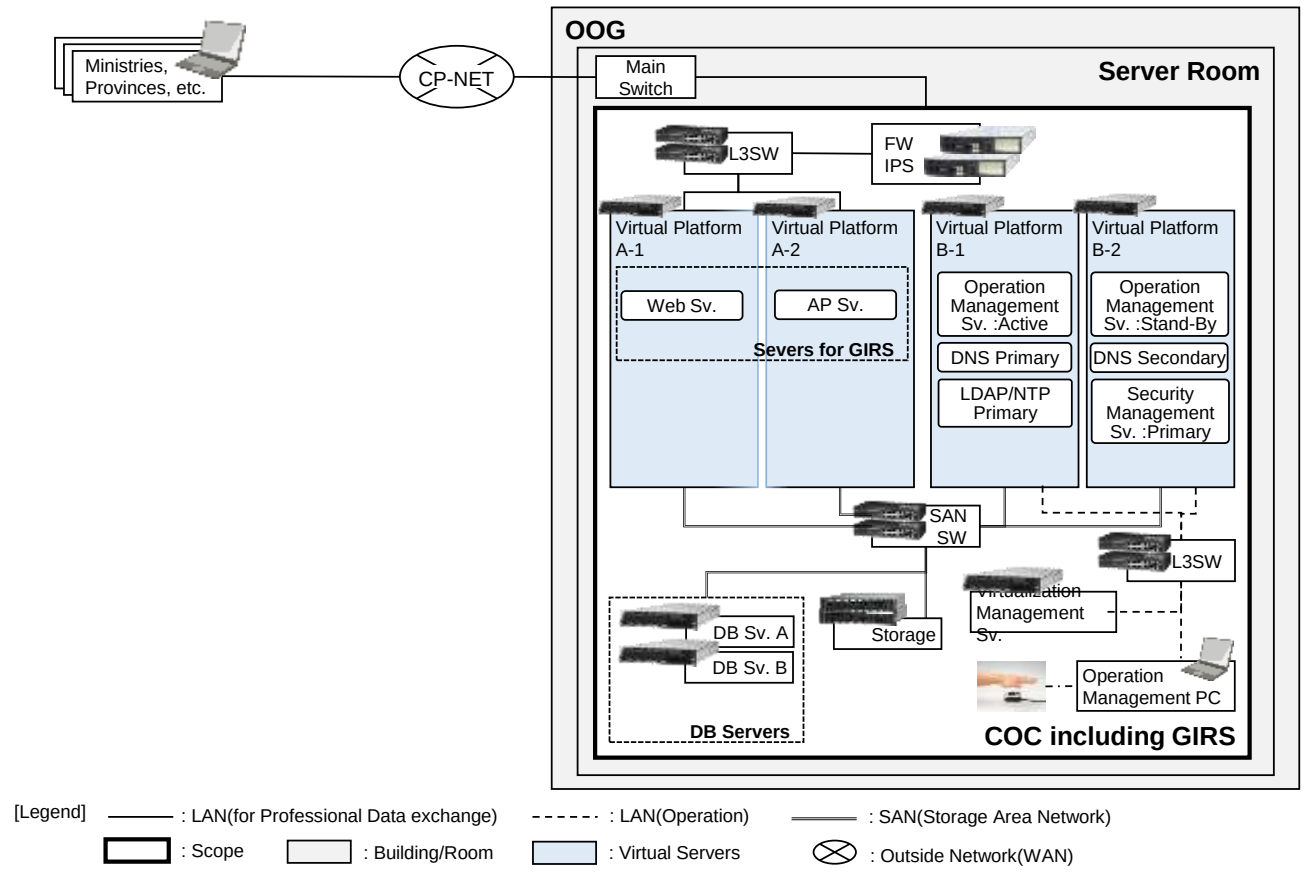
- Some Use-Cases of "b. Data Analysis and Management Platform" and "c. Dashboard System" using data from E-Cabinet, E-Service Portal and E-Consultation are already considered in OOG and VNTP (e.g. Segmentation analysis of users)

6.1.2. Recommended hardware set for COC including GIRS

Based on the preconditions for recommended hardware scope as shown in 6.1.1, the survey team configured the hardware set of COC including GIRS for both Option 1 and Option 2 of Fig. 22 as follows.

(1)Option 1

The recommended hardware composition for GIRS for Option 1 is shown in Fig. 23.



Source: JICA survey team

Fig. 23 Recommended Hardware Composition for GIRS (Option 1)

The key features of the recommended hardware set of Option 1 is shown below.

- ✓ As the format and content of the report will be reviewed in ministries and provinces, the hardware set of LIRS is excluded.
- ✓ The hardware set for operation management subsystems, VEMCS and Security Management Sub-System only for GIRS are included (see Table 16)

- ✓ The hardware configuration is considered for step-by-step development and future expansion of functions and data management scope with virtualization technologies.

The recommended hardware list for GIRS (Option 1) is assumed as shown in Table 35

Table 35 Recommended Hardware list for GIRS (Option 1)

No	Hardware Type	Name of Hardware	Number Of Hardware	Assumed Total Specification			
				CPU Cores	Virtual CPU	RAM (GB)	Hard-Drive (GB) And other specs
1	Servers w/Racks	Virtual Platform A	2	16	-	512	-
2		WEB	(1)	-	4	128	-
3		AP	(1)	-	4	128	-
8		Virtual Platform B	2	16	-	256	-
9		Operation Management	(2)	-	8	128	-
10		Security Management	(2)	-	4	48	-
11		LDAP/NTP	(1)	-	1	12	-
12		DNS	(1)	-	1	12	-
13		DB	2	16	-	512	600
14		Virtualization Management	2	8	-	64	600
15	Storage	Storage Device	1	-	-	-	Disk Type: SAS (OS), SSD (Others) Effective Capacity：1.2TB(OS), 15TB(Others) RAID Type：1(OS), 5(Others) Disk to Disk Copy： Equipped (1.2 + 15TB) Hot Spare：Equipped Fiber Channel (FC) Connection: 32GB(DB)/16GB(Virtualization)
16	Network	Firewall/Load Balancer/IPS	2	-	-	-	IPS: Anomaly Detection
17		Layer 2 Switch	12	-	-		24 ports for each
18		Layer 3 Switch	4	-	-	-	48 ports for each
19		FC Switch	2	-	-	-	16 ports for each
20	Security Monitoring	Security Sensor	1	-	-	-	Unauthorized devices detection
21	PC	Operation Management PC	2	Core i5	8	8	128GB(SSD) for each with biometric authentication

Source: JICA survey team

The survey team assumed that the following commercial middleware for GIRS should be provided

together with hardware.

Table 36 Middleware list for GIRS (Option 1)

No.		Category	The name of Middleware
1	1	Virtualization	Sever Virtualization
	2		Virtual Server Management
2	1	Database	Relational Database Management System (RDBMS)
	2		Database Encryption
3	1	Availability,	Clustering
	2	Reliability	Load balancing
4	1	Operation	Client PC resource management
	2	Management	Storage resource management
5	1	Security	E-mail security management
	2		Client security management
	3		Server security management
	4		Denial-of-service prevention
	5		Biometric authentication management
	6		Access control system (Entry and Exit)

Source: JICA survey team

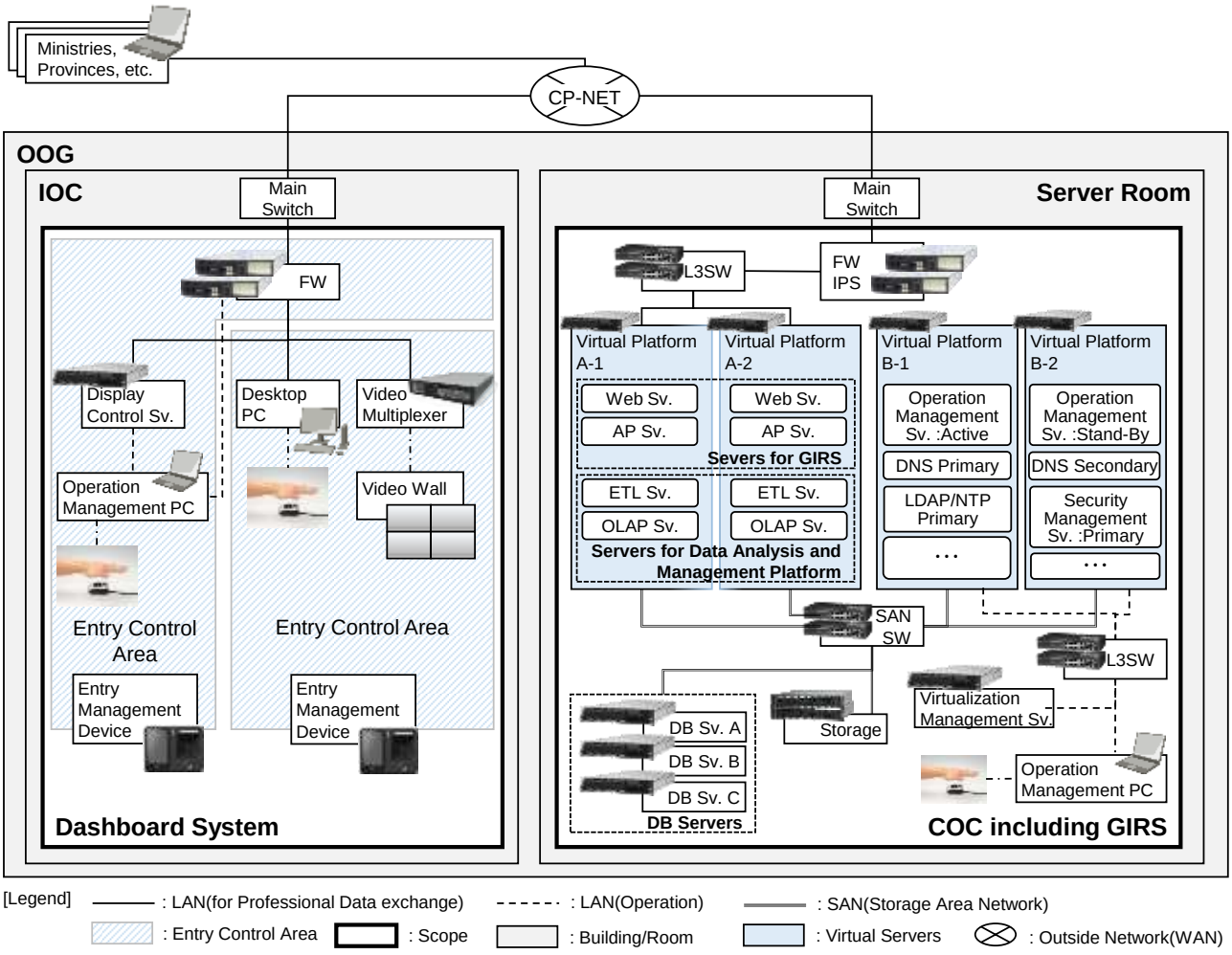
*Some of the commercial middleware may not be provided depend on software architecture developed by Vietnam

(2) Option 2

Option 2 is examined on the premise of the following.

- Data analysis methods from contents of report is clear in a certain extent, and
- The content to be displayed in the dashboard and use-case for utilization of such content is clearly defined.

The recommended hardware composition for COC including GIRS for Option 2 is shown in Fig. 24.



Source: JICA survey team

Fig. 24 Recommended Hardware Composition for COC including GIRS (Option 2)

The key features of the recommended hardware set of Option 2 is shown below.

- ✓ The hardware set supports all the functions and the data scope of a. GIRS and supports minimum set for b. Data Analysis and Management Platform and c. Dashboard System.
- ✓ As the format and content of the report will be reviewed in ministries and provinces, the hardware set of LIRS is excluded.
- ✓ The hardware set for operation management subsystems, VEMCS and Security Management Sub-System for all subsystems of COC are included (see Table 16)
- ✓ In line with the expansion of functions, the hardware for virtual server 1, virtual sever 2 and

database server in the Data Center are physically enhanced compared to Option 1.

The assumed hardware list for COC including GIRS (Option 2) is as shown in Table 37 and Table 38.

Table 37 Recommended Hardware list GIRS and Data Analysis and Management Platform (Option 2)

No	Hardware Type	Name of Hardware	Number Of Hardware	Assumed Total Specification			
				CPU Cores	Virtual CPU	RAM (GB)	Hard-Drive (GB) And other specs
1	Servers w/Racks	Virtual Platform A	2	36	-	1,800	
2		WEB	(1)	-	4	128	-
3		AP	(1)	-	4	128	-
4		ETL	(1)	-	2	64	-
5		OLAP/BI	(1)	-	2	64	-
6		Web (IOC)	(1)	-	2	64	-
7		Hadoop	(1)	-	2	64	-
8		Virtual Platform B	2	36	-	1,800	-
9		Operation Management	(2)	-	8	128	-
10		Security Management	(2)	-	4	48	-
11		LDAP/NTP	(1)	-	1	12	-
12		DNS	(1)	-	1	12	-
13		DB	3	24	-	768	900
14		Virtualization Management	2	8	-	64	600
15	Storage	Storage Device	1	-	-	-	Disk Type: SSD Effective Capacity：45TB RAID Type：1+0 Disk to Disk Copy： Equipped (45TB) Hot Spare：Equipped FC Connection: 32GB(DB)/16GB(Virtualization)
16	Network	Firewall/Load Balancer/IPS	2	-	-	-	IPS: Anomaly Detection
17		Layer 2 Switch	12	-	-		24 ports for each
18		Layer 3 Switch	4	-	-	-	48 ports for each
19		FC Switch	2	-	-	-	16 ports for each
20	Security Monitoring	Security Sensor	1	-	-	-	Unauthorized devices detection
21	PC	Operation Management PC	2	Core i5	8	8	128GB(SSD) for each with biometric authentication

Source: JICA survey team

Table 38 Recommended Hardware list Dashboard System (Option 2)

No.	Hardware Type	Name of Hardware	Number of Hardware	Assumed Total Specification		
				CPU Cores	RAM (GB)	Hard-Drive (GB) and Other Specs
1	Severs w/Racks	Display Control	4	16	384	1,200
2	Displays	Displays (55inches)	12	-	-	-
3		Video multiplexer	12	-	-	-
4	Network Devices	Firewall / Load Balancer / IPS	2	-	-	-
5		Layer 2 Switch	6	-	-	24 ports for each
6		Layer 3 Switch	2	-	-	48 ports for each
7	Security Monitoring	Security Sensor	1	-	-	Unauthorized devices detection
8	PCs in IOC room	PC for OOG Staffs	3	Core i5	8	500GB for each with biometric authentication
9	PCs	PC for OOG Staffs	3	Core i5	8	128GB(SSD) for each with biometric authentication
10		Operational management PC	2	Core i5	8	128GB(SSD) for each with biometric authentication
11	Entrance Control	Entrance Control System	1	-	-	2 Entrance gate

Source: JICA survey team

The survey team assumed to use the commercial middleware for virtualization, database and other operation management as shown in Table 39.

The middleware listed below will be provided as a part of the provision of the hardware.

Table 39 Middleware list for COC including GIRS (Option 2)

No.		Category	The name of Middleware
1	1	Virtualization	Sever Virtualization
	2		Virtual Server Management
2	1	Database	Relational Database Management System (RDBMS)
	2		Database Encryption
3	1	Availability,	Clustering
	2	Reliability	Load balancing
4	1	Operation	Client PC resource management
	2	Management	Storage resource management
5	1	Security	E-mail security management
	2		Client security management
	3		Server security management

No.		Category	The name of Middleware
	4		Denial-of-service prevention
	5		Biometric authentication management
	6		Access control system (Entry and Exit)

Source: JICA survey team

*Some of the commercial middleware may not be provided depend on software architecture developed by Vietnam

6.2. Assumption of Cooperation Contents about ODB

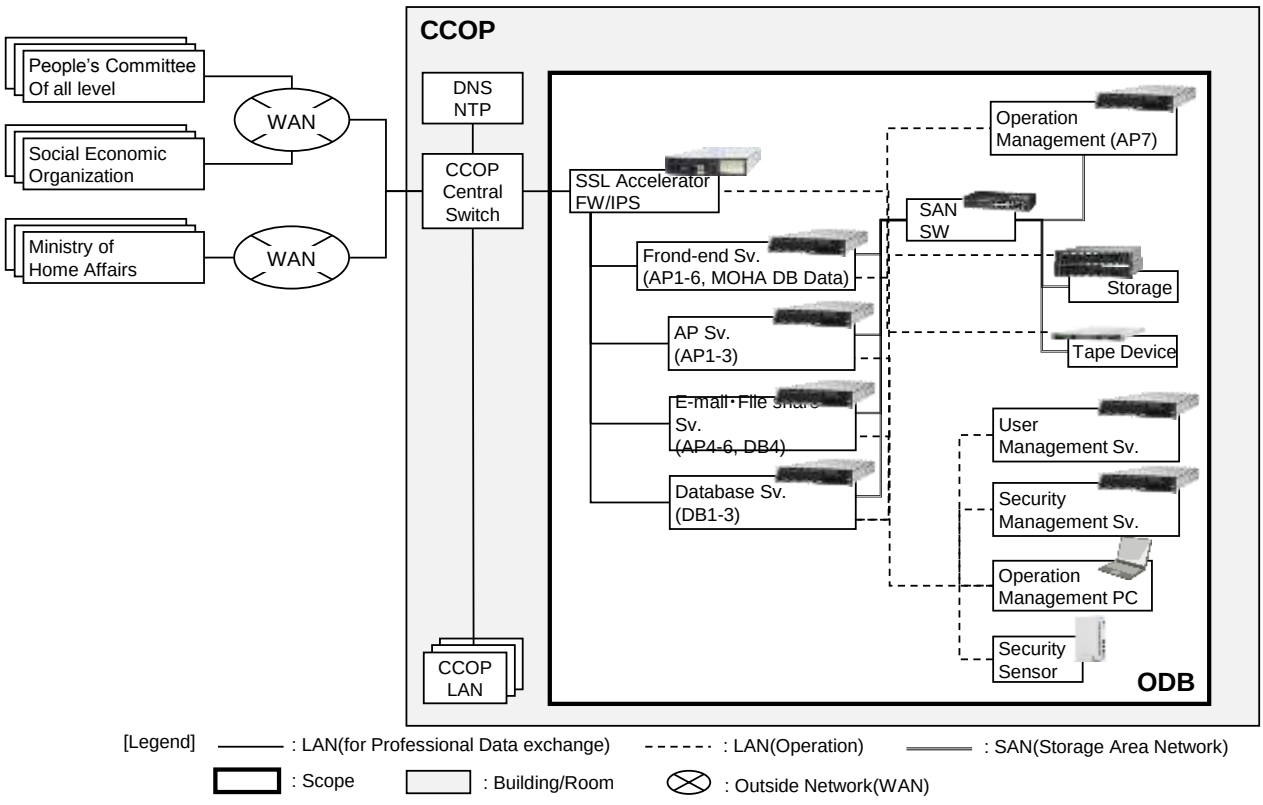
6.2.1. Preconditions for estimate hardware set as a cooperation from Japan for ODB

CCOP is currently proceeding procedures for getting investment policy approved and the feasibility study has not been conducted. Anticipations of the survey team after consultation with CCOP and GOJ are as follows:

- Estimations of required capacity and performance for hardware are to be made based on current functional and non-functional requirements.
- Depending upon actual situations and when implementing the project, CCOP will decide where to place servers. It is however planned to locate the servers in the Office of the Central Communist Party or in CCOP at first. In addition, the location of backup system is also being taken into account.
- Backup system has not been included in these estimations as location of this backup system has not been decided yet at this timing.

6.2.2. The recommended hardware set for ODB

Based on the preconditions for recommended hardware scope as shown in 6.2.1, the survey team assumed the hardware set for ODB of CCOP as shown in Fig. 25 and assumed hardware list for them as shown in Table 40.



Source: JICA survey team

Fig. 25 Recommended Hardware Composition of ODB

Table 40 Recommended Hardware list of ODB

No.	Hardware Type	Name of Hardware	Number of Hardware	Assumed Specification for each Hardware		
				CPU Cores	RAM (GB)	Hard-Drive (GB) and Other Specs
1	Severs w/Racks	Front-End	1	4	32	300
2		Application	1	4	32	300
3		Mail/File Sharing	1	4	32	300
4		Database	1	4	64	300
5		Operation Management	1	4	32	300
6		Security Management	1	4	32	300
7		User Management	1	4	32	300
8	Storage	Storage Device	1	-	-	Disk Type: SAS Effective Capacity：6.4TB RAID Type：1+0 Disk to Disk Copy：Equipped (6.4TB) Hot Standby：Equipped FC Connection:32GB
9	Network Devices	Firewall/ Intrusion Prevention System (IPS) / SSL Accelerator	2	-	-	IPS: Anomaly Detection
10		Layer 2 Switch	4	-	-	24 ports for each
11		Layer 3 Switch	2	-	-	48 ports for each
12		Fiber Channel Switch	2	-	-	16 ports for each
13	Security Monitoring	Security Sensor	1	-	-	Unauthorized devices detection
14	PCs	PCs for CCOP staffs	2	Core i5	8	128GB (SSD) for each with biometric authentication
15		Operational management PC	2	Core i5	8	128GB (SSD) for each with biometric authentication

Source: JICA survey team

Regarding the middleware for ODB, the survey team assumed to use the commercial middleware for database and other operation management as shown in Table 41.

Table 41 Middleware list for ODB

No.		Category of Middleware	The name of Middleware
1	1	Database	Relational Database Management System (RDBMS)
	2		Database Encryption
2	1	Operation Management	Client PC resource management
	2		Storage resource management
3	1	Security	E-mail security management
	2		Client security management
	3		Server security management
	4		Denial-of-service prevention
	5		Biometric authentication management
	6		Access control system (Entry and Exit)

Source: JICA survey team

*Some of the commercial middleware may not be provided depend on software architecture developed by Vietnam

6.3. Prerequisite of recommended support by Japan

In general, grant aid for the Economic and Social Development Programme which is one of the cooperation mechanisms from Japan will cover hardware provision and installation work of the hardware.

Regarding the recommended content of support on NIRS-COC as well as ODB, the following matters should be prepared by Vietnamese side to realize the cooperation from Japan as a grant aid for the Economic and Social Development Programme. The matters is shown in Table 42.

Table 42 Role and Responsibility on the Matter for Preparation to Install the Hardware

Category	Input by Vietnam	Input by Japan
Software	・ Design, develop and test the software ・ Procure and set up the commercial software related to the software developed from scratch (Such as ETL, OLAP, AI, etc.) ・ Set up the needed open source software	none
Hardware	・ Design configuration of network and hardware ・ Set up the commercial middleware including virtual servers and management, RDBMS, etc. ・ Install network which connect up to racks ・ Design and construct installation environment such as stable sufficient power supply and stable foundation for racks, cabling to the racks, etc. ・ Design and construct other equipment such as desk, arrangement of chairs etc. ・ Anything necessary not included in input by Japan	・ Procure agreed hardware set including middleware listed in separate tables ・ Deliver agreed hardware set including the middleware to the project site ・ Configure layout of hardware within the racks ・ Install the hardware to the racks (Minor services: such as cabling) ・ Test the hardware within the racks (Minor services: such as power-on tests)
Support service for hardware	・ Hardware maintenance support service contract(Including middleware) ・ Annual licensing fee of middleware (if any) ・ Anything necessary not included in input by Japan	・ First year warranty of the hardware

Source: JICA survey team

6.4. Recommendations for Other Cooperation Options

6.4.1. Recommendations for other cooperation options regarding NIRS and COC

As mentioned in 3.8, there are many fundamental issues to realize the core concept of NIRS and COC, and it is necessary to conduct additional measures to expand the functions and data utilization scope. It is important to materialize through data inventory survey, data needs survey and proof of concept (PoC) projects for the following issues:

- Standardization of report formats to be machine readable
- Development of new socio-economic KPIs for command and operation in OOG
- Development of use case for introduce data analytics and forecasting with AI, etc. to get insight for the socio-economic policy issues and decision making

To proceed these issues, it is strongly recommended to formulate data utilization team in COC of OOG including data and statistics experts from GSO of MPI, each ministries' statistics experts, liaison officer and system engineer, and those tasks should be conducted based on the experiences in Japan and other countries. The following technical assistances for GOV apart from hardware support are recommended for GOJ when GOV gradually expand the functions and data scope of COC.

Table 43 Tasks for Remaining Issues of NIRS and COC and Recommended Technical Assistances

No.	Tasks	Recommended technical assistances by Japan-side
1	Conduct inventory survey of data owned by line ministries and provinces	To provide Japan's experience of data inventory survey in central government and support analysis for data utilization possibilities.
2	Conduct survey for data needs for policy issues and matching	To conduct data needs workshops* among OOG and relevant ministries to find out data utilization use cases based on the result of data inventory survey (data list) by sending experts. (*In the workshop, it is recommended to formulate logic model for organize policy issues and find data needs/seeds.)
3	Conduct PoC projects for selected data needs	To support each phase of PoC project below by sending experts including IT specialists and data scientists [Phase 1] Team Building and Planning [Phase 2] Defining requirements for design and development [Phase 3] Collecting data for utilization and Verifying actual data [Phase 4] Develop data analysis environment or model [Phase 5] Evaluation and Verification

Source: JICA survey team

6.4.2. Recommendation for other cooperation options regarding other e-Government policy

OOG and AITA of MIC showed interests on My Number System of Japan. As measures of integrating both information systems and political systems such as development of e-service portal, national ID and VDXP are being promoted under Resolution No. 17/2019/NQ-CP, continuous advice for those agencies is recommended for GOJ.

Attachment: Field Survey Itinerary and Key notes in the interviews

1. Itinerary of the field survey

1.1 Itinerary of the first field survey

Date	Day	Time	Meeting Counterparts	Meeting Contents
4-March	Mon	9:00 - 10:00	The Embassy of Japan	Preparatory Meeting
		11:00 - 12:00	JICA Vietnam Office	
		14:00 - 16:00	OOG	Kick-Off Meeting
5-March	Tue		Documentation/Internal Meeting	-
6-March	Wed	9:00 - 11:00	CCOP	Kick-Off Meeting, Interview on the current status of project of ODB.
		14:00 - 16:00	OOG	Interview and Discussion on NIRS and COC
7-March	Thu	9:00 - 11:00	World Bank Vietnam Office	Interview on current aid from donors and challenges of e-government
8-March	Fri	14:00 - 16:00	AITA, MIC	Interview on e-government policy especially on technical standards, National Government Service Platform (NGSP), CP-NET.
11-March	Mon	9:00 - 11:00	VNI	Discussion on grand-design and roadmap of NIRS and COC
12-March	Tue	9:00 - 11:00	OOG	Discussion on grand-design and roadmap of NIRS and COC
		14:00 - 16:00	GSO, MPI	Interview on KPI in NIRS and COC, and National Statistics System.
13-March	Tue	14:00 - 16:00	Internal Meeting with Fujitsu Vietnam	Discussion on system architecture of NIRS and COC
14-March	Tue	9:30 - 10:30	JICA Vietnam Office	Discussion on the result of the 1st field survey
		11:00 - 12:00	World Bank Vietnam Office	
		14:00 - 17:00	OOG and VNPT	Discussion on the architecture of NIRS and COC
15-March	Fri	9:00 - 10:00	The Embassy of Japan	Report the result of the 1st field survey

1.2 Itinerary of the second field survey

Date	Day	Time	Meeting Counterparts	Meeting Contents
8-April	Mon	9:00 - 10:00	The Embassy of Japan	Preparatory Meeting
		11:00 - 12:00	JICA Vietnam Office	
		14:00 - 16:00	OOG	- Confirm survey target and schedule for the 2nd field survey on NIRS and COC - Sharing the survey result so far. - Discussion on E-gov't policy including data utilization at NIRS and COC
9-April	Tue	9:00 - 13:00	AITA, MIC	- Sharing the survey result so far on E-Gov't Policy - Interview on E-Gov't policy tasks and challenges in resolution No.17/2019
		14:00 - 16:00	GSO, MPI	Discussion on current plan of utilization of KPI in NIRS and COC, and data from National Statistics System of GSO
10-April	Wed	14:00 - 16:00	OOG	Discussion on system architecture and scope of hardware set
11-April	Thu	9:00 - 11:00	Department in charge of NIRS in MOF	- Confirmation of current procedure of reporting, data format of targeted reports - Confirmation of targeted business system which will be connected to NIRS via VDXP
		14:00 - 16:00	Department in charge of NIRS in MOIT	- Confirmation of current procedure of reporting, data format of targeted reports - Confirmation of targeted business system which will be connected to NIRS via VDXP
12-April	Fri	14:00 - 16:00	Department in charge of NIRS in Ha Noi City	- Confirmation of current procedure of reporting, data format of targeted reports - Confirmation of targeted business system which will be connected to NIRS via VDXP
16-April	Tue	9:00 - 11:00	CCOP	Discussion on system architecture and scope of hardware set of ODB
17-April	Wed	14:00 - 16:00	Department in charge of NIRS in MPI	- Confirmation of current procedure of reporting, data format of targeted reports - Confirmation of targeted business system which will be connected to NIRS via VDXP
18-April	Thu	-	Documentation/ Internal Meeting	
19-April	Fri	9:00 - 11:00	OOG	Report the result of the 2nd field survey
		14:00 - 15:00	JICA Vietnam Office	Report the result of the 2nd field survey
		16:00 – 17:00	The Embassy of Japan	Report the result of the 2nd field survey

1.3 Itinerary of the third field survey

Date	Day	Time	Meeting Counterparts	Meeting Contents
10-June	Mon	9:00 - 10:00	The Embassy of Japan	Preparatory Meeting
		11:00 - 12:00	JICA Vietnam Office	
11-June	Tue	9:00 - 11:30	OOG	Explanation of DF/R
		14:00 - 15:00	CCOP	Explanation of DF/R
12-June	Wed	9:00 - 12:30	OOG,VNPT	Discussion of detailed condition on hardware set and scope
13-June	Thu	9:00 - 12:00	OOG, VNPT	Discussion of detailed condition on hardware set and scope

2. Key notes of meetings with ministries/agencies

2.1 Key notes of meetings at the first field survey meetings

Counterparts	Key notes of meetings
OOG	・ NIRS and COC aims to realize the efficiency of making and registering reports as well as utilization of real-time data, instead of policy making based on the paper reporting. ・ The detail is not fixed yet. Proposal from JICA survey team is welcome in line with information and documents provided from OOG.（5 & 8 March, Mr. Dung, DDG) ・ Based on the trend of big data collection and analysis as well as AI, a proposal to support the vendor which plans and design COC is welcome. (4 March, Document by OOG) ・ Network and authentication platform is out of scope of hardware portion. (14 March, OOG) ・ NIRS will have an interface for information reporting system of ministries and localities via X-ROAD (VDXP), an uploading function by Web browser and linkage interface via VDXP with other administrative business applications. “Real-time” is required only in the linkage, and the target of the linkage will be informed to JICA team later on. (14 Mar, OOG, VNPT) ・ Regarding a roadmap of the initial stage, the scope of the NIRS will be mainly web browser interface in 4 to 6 ministries and 5 cities controlled under central government. (26th Mar, Mr. Nguyen Loi Quoc Khanh)
GSO-MPI	・ The role and responsibility of MPI in Decree No.09 is not instructed yet. Therefore, KPIs are unclear at this moment. ・ GSO of MPI ever provided the macro data for the demo system of NIRS and COC to meet with the request from VNI. Some data is included in the National Statistic System, but some not. (12th Mar, Mr. Cao Van Hoach, Deputy Director of Statistical Standards, Methodology and ICT Department)
AITA, MIC	・ NIRS will use VDXP of OOG while there is NGSP of MIC (8 Mar, answer document for questionnaire from JICA survey team) ・ Interested in “My Number” system in Japan. MIC is developing the similar system using NGSP. (8 Mar, Mr. Nguyen, Deputy Director General and Mr. Nguyen, Head of Division of Planning) ・ Refer to the relevant documents (03/2013/TT-BTTTT, No39/2017/TT-BTTTT, etc.) to consider developing NIRS (8th Mar, Mr. Nguyen, DDG）
Vietnam Initiative (VNI)	・ VNI is supporting the development of demo system, using the data of GSO. And VNI is conducting survey on the reports from IRS. Data would be around 5MB, and daily. (11th March, VNI expert) ・ Data of the report needs to be standardized. For example, data is inconsistent in organizations such as “7.08%” and “7,08%”. (11th March, VNI expert) ・ In my personal opinion, step by step development is required. A pilot of the part of IRS should begin with one province or one city. After that, the second step should be expanded such as increasing the target ministries and the display of KPI into simulation. (11th March, VNI expert)

Counterparts	Key notes of meetings
World Bank (WB)	・ WB has been conducting TA but has not considered the financing support of implementing the information system itself. (14th Mar, Ms. Huong, Leader of e-gov, project) ✓ E-Cabinet: Advisory on business process improvement and re-assessment of security (ADB and ABP also support) ✓ E-services portal: Issuance of decision document through the event of VDXP. Advisory on security, BPR, etc. (AFD also assigns an expert.) ・ Both GOV and WB are interested in not only success story but also lesson learned from failure or issues in e-government in GOJ. (7th Mar, Ms. Ha, Coordinator of e-gov. project)
CCOP	・ It is unexpected that Japan was considering the provision of equipment. ・ The project of development of ODB is at the final stage of Pre-F/S at present. The Survey Team should consider the content of Japan's support with the draft report on pre-F/S which will be provided later. The pre-F/S will be completed until June and F/S will be started by July and finished November this year. ・ ODB of CCOP will be connected with the officials' DB of central ministries and agencies which MOHA is planning to develop. (6th Mar, Mr. Binh, Deputy Chief)

2.2 Key notes of meetings at the second field survey meetings

Counterparts	Key notes of meetings
OOG	[NIRS and COC] ・ OOG is planning to finish development of GIRS and COC by March of 2020 and as in Decree 09/2019, all the each ministries and localities will submit reports with their LIRS. Toward this schedule, OOG is planning to conduct test at third quarter of 2019 (July to September) with MOF, MOIT, MPI, MIC, MOT, MOH and five municipalities (Hanoi, Ho Chi Minh, Can Tho, Da Nang, Hai Phong) as a first step. (8th Apr, Mr. Ngo Hai Phan, Director General of Administrative Procedures Management Department) ・ It is desirable to exchange note on Japan's support of hardware part at the diplomatic event on September, 2019 or November, 2019. (8th Apr, Mr. Ngo Hai Phan, Director General of Administrative Procedures Management Department) ・ GIRS is designed to consist of VEAP, VEDH, VEDB, VEMCS with security management module and operational management module. COC will be connected with E-Service Portal, Government Web Portal, e-Cabinet, e-Consultation (policy participation system) and GIRS via VDXP. (8th Apr, Mr. Vu Tuan Anh, Administrative Procedures Management Department) ・ Agreed to use Agile Process, the average size of reports as 10MB, and to consider 1+1 DR site and requested JICA survey team to consider for those newly showed application architecture. (10th Apr, Mr. Vu Tuan Anh, Administrative Procedures Management Department) ・ OOG is planning to connect with MPI's "National Statistics System" and "Forecasting analysis system" on April 2020 as the third step. This is in case MPI cannot complete step 1 as planned because they still entangles construction task KPIs. (10th Apr, Mr. Vu Tuan Anh, Administrative Procedures Management Department) ・ The number of reports will be much larger than Japan's expect, Ms. Tra Le provided the number of reports as 38,418,597 reports / year. (17th April, documents provided from OOG) ・ NIRS will collect and stock reports from state ministries and localities, and utilize the data from reports for visualization, and also submitting to the National Assembly or to the Prime Minister, but there is no plan for connecting with the system in National Assembly at this moment. (17th April, documents provided from OOG) [E-government policy] ・ There are issues for completion of whole NIRS and COC project below and hoped to provide more detailed materials / information of Japan's experience: - Limited network access environment in local entities in rural area (Experience of development of Japan's Local Government – Wide Area Network) - Development of cloud platform for central government information systems (Experience of restructure of Japan's "Government Shared Platform System") - Integration of IDs and ID cards to National ID and National ID cards (Japan's My Number System) (8th Apr, Mr. Vu Tuan Anh, Administrative Procedures Management Department)

Counterparts	Key notes of meetings
GSO-MPI	・ The status of the KPI construction and development must ask for information from MPI because GSO is only a department, not yet aware of this assignment. (8th April, Mr. Tran Tuan Hung, Director of Statistical Standards, Methodology and ICT Department) ・ OOG is developing a plan to implement decree 09 with indefinite term (in the draft that is leaving the deadline of 6/2019), after submitting to the Prime Minister for approval it will lead to ministries and ministries will assign for departments. (Ms. Nguyen Thi Tra Le, OOG) ・ SQL platform is being used in statistics. If OOG can be developed in a connection system then it is possible to exchange information automatically. (8th April, Mr. Tran Tuan Hung, Director of Statistical Standards, Methodology and ICT Department)
AITA, MIC	・ Vietnam already has a dedicated WAN for data transmission, Resolution 17 directs to improve the quality for use but not new construction. ・ Currently MIC is piloting 5G network in Ha Noi to Vietel in charge. ・ E-signature certification has 2 agencies involved in implementation and management: Vietnam government information security commission (VGISC) manages public sectors and MIC manages others ・ Network attack handling system: National cybersecurity monitoring center (NCSC) in MIC. ・ Concerning new IT fields, high application: MIC is assigned to study e-government laws, which are under construction research. Hope that Japan side will share the experience of building laws and institutions about e-Government in Japan if any. (All above was mentioned by : 9th April Mr. Nguyen Thanh Thao, Head of Division of Investment Management of IT Application) ➢ JICA survey team provided Japan's law document via e-mail.
Person in Charge (PIC) of LIRS in MOF, MOIT, MPI and Hanoi City	・ Understand the schedule for development of LIRS as written in Decree 09/2019 and have a plan develop LIRS. ・ Waiting for OOG's concrete action plan and technical standards for development of LIRS. ・ Suggested to provide severs for LIRS as Japan's support for the ministries for test phase. (11th, 12th and 17th April, All the PIC of MOF, MOIT, MPI and Hanoi City) ・ Explained the reports of budget and financial statement contains all the data of the ministries and localities, however for other social-economic reports have only statistically summarized or analyzed data and not containing specific individual statistical basic data. (11th, 12th and 17th April, All the PIC of MOF, MOIT, MPI and Hanoi City) ・ Mostly periodical reports are regulated by the ground legal documents. For other irregular reports are requested by the National Assembly or the Prime Minister. All the reports are currently submitted to OOG by sending paper media and e-mails. OOG is an audit body and checks the reports before submitting to the National Assembly or the Prime Minister. (11th April, All the PIC of MOF) ・ Each reports should be calculated average 20MB based on the experience in MPI.

Counterparts	Key notes of meetings
	(17th, PIC of IT section of MPI)
CCOP	・ The functions and the composition of databases which the survey team showed are mostly correct. ・ DB1 and DB2 as shown in the diagram which illustrated by the survey team should be managed in one database system in different tables. Each of them should be intimately connected. ・ Database of the Party's basic structure of organization and party members (DB2) will be managed by several staffs of CCOP and People's committee of every level and data of the DB2 should be protected with access control settings. ・ Electronic Portal System will be utilized by the officials in CCOP. ・ The Linkage with MOHA's ODB should be real time synchronization, because MOHA's database will be updated every time in accordance with the profile of government officials (e.g. residential address changes). (16th April, Mr. Binh, Deputy Chief)