Master Plan

Electronic Government Development & Strategy

- Assessment, Research, Strategy, Implementation Plan -

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Master Plan Project Team

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Acknowledgement

The Information and Communication Technologies (ICT) have contributed tremendously to the progress of nations in the last decade. The significant improvements in ICT are revolutionizing the way modern day governments deliver services to the citizens. The Philippines has also taken progressive steps towards e-Government transformation like other developed countries.

The "Philippine e-Government Master Plan" was developed with the initiative from National IT Industry Promotion Agency (NIPA), South Korea. The report is the result of the efforts, contributions and supports of many experts, citizens and stakeholders from various agencies. The report consists of e-readiness, needs and policy assessment, vision, mission, strategies, priority projects, legal framework, organizational structure and roadmap for the next four years.

The working committee in this project consisting of experts from NIPA and NCC were involved in the preparation of this report. The experts from NIPA were involved and contributed a lot during the project. Likewise, many experts from the Philippines including government officials and staff have also been tapped for inputs in drafting this Master Plan. Foremost is the involvement of Ms. Juli Ana E. Sudario, who is the Philippine Counterpart for the e-Gov M/P Project and is the Deputy Managing Director of National Computer Center (NCC) under the Information and Communications Technology Office (ICTO). Her staffs from the E-Government Fund Management Office (EGFMO) have been invaluable in facilitating the online survey and in coordinating various critical meetings, site visits and the one-day Maturity Assessment, Vision and Strategy Set-up Workshop of key Philippine government officials held last July 3, 2012. We would also like to acknowledge the assistance given by NCC's Lorna M. Sales (Director, Plans Review and Monitoring Office), Teresita B. Roberto (Director, Consulting Services Office) and Raul N. Nilo (Director, Policy and Standards Office) in reviewing the Project Reference Information and in prioritizing projects. Most importantly, we would like to recognize the vital support and contribution given by Undersecretary Richard E. Moya (Undersecretary and Chief Information Officer of the Department of Budget and Management), Undersecretary Louis Napoleon C. Casambre (Executive Director of ICTO), and Director General Denis F. Villorente (Officer-In-Charge of NCC).

We would like to take the opportunity to extend our sincere thanks to Dr. Chang-hak Choi (Project Manager) for his contribution and guidance. We also extend our gratitude to Dr. Manish Pokharel, Mr. Sahng-yoon Kim and Mr. Seung-beom Sohn for their big efforts and hard work.

Executive Summary

The e-Government is one of the prime areas in Philippines. Philippines has already made significant progress in the area of e-Government as per the UN reports in 2008, 2010 and 2012. However, the maturity level in e-Government still remains relatively low especially due to its modest level of ICT infrastructure such as low PC penetration rate, low Internet access and existing backbone. Given the current status in Philippines in respect to e-Government, the country will no doubt benefit from e-Government system as a whole that unambiguously addresses most of the current development needs and requirements.

NIPA (National IT Promotion Agency) took the initiative to build e-Government master plan for Philippines. The master plan was built with the mutual cooperation and collaboration between NIPA consulting team and NCC (National Computer Center) team. During the first half of the project, the consulting team investigated and analyzed the "As-Is" status of Philippines in different required areas. In the second half of the project, vision and mission for the e-Government in Philippines was found with the help of many stakeholders and NCC in Philippines. Finally, the action plans for prioritized projects were developed.

The Chapter I in this report described the overview of the project and analysis of e-Government environment was explained in Chapter II. The methodology of the analysis, analysis on policy, law and regulation, existing organizational structure, education, ICT infrastructure, e-Government status of Philippines, front and back office, e-Government requirements, critical information requirement (CIR), and benchmarking were explained in details.

The Chapter III was comprised of defined vision, mission and strategy. The corresponding identified projects in the areas of G2C, G4B, G2G, infrastructure and ongoing projects were explained. The Chapter IV described the implementation strategy. It contained the e-Government roadmap, legal framework, To-be Model, prerequisite laws, organization and human resource development.

The Chapter V explained the recommendation for success with the core factors such as organization, managing, task and project and measuring. At the end of this report, the Chapter VI described the action plan for prioritized projects.

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I. Overview

1. Background

The world is facing an economic downturn unlike any before, with EU facing its share of crisis sparked by Greece and the US from housing mortgage loan issues all leading to a difficult economic period for some years to come.

Such unfavorable external factors are affecting the Philippines and economic growth will undoubtedly come out lower than expected. Along with social unrest and effects of the climate changes that have just recently shown its brutal force in torrential rains, the need for faster and more effective response by the government is in more need than ever.

The Philippine government needs to ready itself to face such challenges that will become more and more common in the times to come. Government responses to the needs of its people need to be not only effective but also quick and timely. Such demands on national resources also mean that government efforts need to be as efficient as possible.

Also of equal importance is building a better business environment to boost the economy. More transparent business practices, more secure transactions and equal opportunities for all need to be fostered. The Philippines needs to prepare itself to take advantage of economic recovery that will come in the near future.

The Philippines is at a critical junction not only in its economic development but also in e-Government. At one point in time, in the 1970s, through vigorous effort, the Philippines was a leading nation in e-Government within Asia. Since then, although there has been much effort to reinvigorate e-Government such as the establishment of the e-Government Fund and the development of various nationwide ICT policies such as the “Government Information Systems Plan,” or the GISP for short, “The Philippine Digital Strategy(PDS) 2011-2016” as well as the “iGov Philippines” project, the gap between policy making and implementation of such policies has crippled the growth of e-Government.

Currently, the Philippines is rated the 88th in the world in the UN ranking of e-Government index which is not due to policy making capability but more to the lack of action and actual realization of the well-built plans thus far, even if they lack details.

As shown by many cases in other advanced countries, e-Government can make a big difference not only in the success of economic development but also to engage the citizens more, thereby creating a more equal and just society. With such goals in mind, the need for a detailed policy plan that can encompass the whole government organizations for a more open, effective and efficient delivery of public services that will affect every Filipino, has become the motivating factor behind the building of a "Master Plan" for a better e-Government for the Philippines.

In order to better respond to such external factors as well as build a solid platform that would enable all in the Philippines to greater economic wealth, it is without a doubt that a concrete and decisive plan that will build on the current policy for ICT, the PDS, is much needed. Such a plan should be aligned with the PDS but also include detailed action plans and necessary budget plan in addition to actual funding source for such projects that have been identified as priority projects in the next few years to come.

2. Objective

The main objective of the Philippine e-Government Master Plan Project is to draw a big picture of e-Government, a blueprint that is achievable in the next four years that would allow the Philippine government to better respond to not only such external factors as economic and climate changes but to also introduce innovations within the government system that will promote efficiency and allow more citizen engagement in the decision making processes of the public sector.

The Philippine e-Government Master Plan Project will lay out the necessary components that will help achieve this objective; the vision and mission statements as well as strategies for implementation. Also, the To-Be Model will be identified along with projects and action plans to fulfill the vision and future e-Government of the Philippines.

Subject	Contents
Name	Philippine e-Government Master Plan Project
Duration	2013 – 2016 (4 years)
Objective	Build the blueprint of future e-Government Master Plan that will lead to innovation of government work process, better public service to both businesses and citizens, and promote citizen participation

Table 1: Summary of the Philippine e-Government Master Plan Project

3. Scope

The Philippine e-Government Master Plan Project will encompass all aspects of the Philippine government. The project scope of the e-Government Master Plan is divided into: subject to be pursued; time period to execute those subjects; and activities to achieve those subjects.

Subject of this project is for the government to enhance productivity in its administrative services and make improvements in its services for the people and businesses.

Activities to achieve the subject include identifying the ICT status of the Philippines through bibliographic study, various surveys and interviews. Also, benchmarking studies is conducted to create a To-Be Model that fits the reality of the Philippines, which will help to build a more efficient, productive, transparent and responsible government. Other activities include, defining strategies and tasks to achieve the goal, drawing up the project roadmap, selecting the priority project, and preparing detailed action plan.

The e-Government Master Plan is a long term project. However, in order to reflect the dynamic development in the ICT sector and to establish a realistic plan, it is better to shorten the project period and to make periodic modifications to the plan to reflect new developments and trends in ICT. As such, the project period is set for 4 years.

II. Analysis of e-Government Environment of the Philippines

1. Methodology of the Analysis

1.1. Overview

In the case of the Philippines, although a previous e-Government Master Plan does exist, in today's world of fast changing and developing technology, especially in the ICT sector, a more holistic approach would serve better, rather than trying to update each section of the previous Master Plan. So with less consideration for the previous Master Plan of the Philippines than it deserves, this report will look over the totality of e-Government in the Philippines by encompassing all the 19 Departments of the executive branch as well as various agencies and bureaus that comprise the government of the Philippines in an attempt to shed light on the current situation and also provide a guiding light for a future model of e-Government for the Philippines.

It should be noted that any serious research begins with the most basic environment analysis of various policies and information on the subject at hand. As such, this report begins with the most basic aspect of the as-is analysis by analyzing publicly available information on the components that make up the e-Government such as policies, laws and regulations, infrastructure and so on. Study was carried out on the most important digital plans, the "Government Information Systems Plan," the "Philippine Digital Strategy," and the "i-Gov Philippines" project in order to find the general direction and implementation strategies for e-Government building in the Philippines in the recent years. Also, legal framework, implementation structure, human resource, basic ICT infrastructure were all given serious treatment in an attempt to provide a basic understanding of the fundamental of e-Government in the Philippines.

However, it should also be noted that no research is complete without closer examination and actual on-hand information gathering such as on-site surveys and interviews and to this end, over 18 government organizations including the Department of Interior and Local Government, Department of Health, Department of Environment and Natural Resources and many more government organizations were interviewed during a 3-week on-site visit to the Philippines by the NIPA Consulting Team, from mid to the end of May this year. Moreover, over 20 government entities have taken part in a government-wide online e-Government survey as well as some hundreds of Philippine citizens.

The result of the interviews and surveys of both the government and citizens was then used in both qualitative and quantitative evaluation of the e-Government requirements for the Philippines.

All such activities have yielded a set of basic facts that describe the current status of e-Government in the Philippines. While such facts have the potential to accurately paint the current picture of the Philippine e-Government, without the participation of e-Government experts in each and every one of the Departments of the Philippine government, it would be difficult to interpret these facts in a proper context.

So a one-full-day workshop with participation by Directors or their deputies from all the Departments and other various agencies during the 2nd on-site visit to the Philippines by

the NIPA Consulting Team in the first week of July, 2012, resulted not only in a more comprehensive understanding of the current state of e-Government in the Philippines but also managed to unearth valuable implications that will become vital components for the next phase of this project, that of building a to-be model customized to the needs of the Philippines, based on benchmark results of more advanced models.

The last portion of this report highlights the Critical Information Requirements (CIR), a representation of common issues as well as improvement opportunities identified so far which will play a major role in the selection of prioritized e-Government projects. Also, a number of important considerations have been offered to provide the basis for review of all that was learned to this stage for perusal by the stakeholders in the hope that it will lead to more insights and better blueprint of the To-Be Model of e-Government of the Philippines.

1.2. Subject of Analysis and Data Gathering

Subject	Sub-Section	Data Gathering
Basic ICT and e-Government Environment	Policy	Research
	Law and Regulations	
	Organization	
	Education	
Current State of e-Government	Infrastructure	
	e-Government State	
	Front Office	
	Back Office	
e-Government Requirements	Qualitative Evaluation	On-site interviews and surveys, online surveys
	Quantitative Evaluation	

Table 2: Subject of Analysis and Data Gathering

The Table 2 shows the list of main subjects their subsections and the process of data gathering. In order to identify the "As-Is" status of e-Government in Philippines, first of all; basic ICT and e-Government environment of Philippines was analyzed which covered the policy, law and regulations, organization and education. These are the main parameters to identify the status of existing environment. Secondly, the current state of e-Government in Philippines was analyzed based upon the existing infrastructure, e-Government state, front office and back office. The infrastructure emphasized on current ICT status of the country. The e-Government state described the rank of Philippines in e-Government based upon UN survey. The front office covered the online service and citizen participation in government policy and decision making process. The back office showed the existing capability of government to provide service to the citizen. The research with various approaches were done during these above mentioned process. Thirdly, the elicitation of e-Government requirements was done with qualitative as well as quantitative evaluation. The on-site interviews, surveys and online surveys were conducted as a part of data gathering.

1.3. Process of Analysis

Figure 1: Process of Analysis

The first step of analysis was to find facts for each of the sub-sections of the subject for analysis, as shown in Figure 1.

Once solid facts were gathered for each of the sub-sections, they were examined and analyzed by comparing the facts to previous experiences of Korean e-Government implementation and implications were carefully selected from this comparison.

Based on the implications and best practices of the Korean e-Government, the Critical Information Requirements (CIR)[1] were identified and mapped to provide a picture of not only the current level of e-Government of the Philippines but also the basic direction of implementation strategy for e-Government.

2. Analysis of Environment

2.1. Policy

< Summary >

The Philippine government possesses a clear vision of e-Government laid out in the "i-Gov Philippines" project, "The Philippine Digital Strategy 2011-2016: Towards a Digitally-Empowered Nation" and the "Government Information Systems Plan," all of which serve to not only align direction for implementation but also provide the basis for concrete action plan.

With solid budget support in the form of the e-Government Fund, proper policy and implementation framework is in place that needs to be taken advantage of. With such policy as "one nation, one map" and various telecom policy acts, the Philippines is ready to become a serious player in the e-Government arena.

2.1.1. Fact-findings

- The Philippines has various ICT plans such as the "Government Information Systems Plan" and the 6-year digital development strategy, "The Philippine Digital Strategy 2011-2016"
- Most of the Departments in the Philippines have ISSPs, made together with the national computerization agency, the NCC
- Previous e-Government Master Plan exists but is not up-to date or active

[1]Critical Information Requirements (CIR): a set of critical success factors needed to prioritize informatization projects of the to-be model of e-Government

- i-Gov Philippines project is being implemented
- The Philippines is part of a regional international ICT cooperation network
- The Philippines has consistent ICT policies such as the "one nation, one map" policy
- Telecom policies have been well established
- The government has allocated budget for e-Government

2.1.2. Overview

In this section of environment analysis, a historical overview of ICT and e-Government related policies and direction of development is outlined. But mainly, the "Government Information Systems Plan," the "Philippine Digital Strategy 2011-2016," and the "i-Gov Philippines" project is analyzed in order to find the general direction and strategies of e-Government implementation pursued by the Philippine government in the recent years.

2.1.3. Earlier History of ICT and e-Government Development Policy

The establishment of the National Computer Center (NCC) by Executive Order 322 in 1971 for government computerization is a good indicator of the political will and foresight of the Philippine government for ICT implementation. Along with the 'evangelistic' efforts made by Executive Secretary Alejandro Melchor in the late 1960s to early 1970s, the Philippines came up on top of all other South East Asian countries during this period.

During these formative years, the Philippine government was able to achieve much in government computerization and at the same time, by giving the private sector initiative to develop the telecommunication sector through endorsement of policy of private ownership, the present Philippine telecommunication market has become one of the most competitive in the world.

Specifically, since the mid-1990s, the Philippine government developed the private telecommunication market with the enactment of the "Public Telecommunications Policy Act of the Philippines" in 1995, characterized by competitive environment fostering private ownership of telecommunication services. At the same time, telecommunication regulations forced mobile and international telecommunication operators to install specific number of fixed lines, paving a solid basis for both mobile and land-based telecommunication network.

Unfortunately, there has not been another champion for ICT since then and lack of political leadership, inadequate funding as well as other problems resulted in delays in implementation of various ICT systems and projects.

Although there have been more recent attempts to reinvigorate the ICT sector, such efforts were met with limited success at best. The "Government Information Systems

Plan," or the GISP for short, was first introduced in July, 2000, and approved by President Joseph Ejercito Estrada, clearly indicating the importance placed by the nation on ICT for its role in not only economic development but also in achieving democracy and open governance. And establishment and implementation of "The Philippine Digital Strategy 2011-2016" as well as the "i-Gov Philippines" project clearly show that the Philippine government is committed to the idea of e-Government as a vehicle for economic development and more open nation. Another success story in so far as policy making goes, is the establishment of an e-Government Fund in the amount of 1 billion pesos annually in 2003 by the Philippine government.

However, the minimal use of the e-Government Fund, average of some 30% of the fund used annually, and ineffective implementation of the GISP clearly show that there is a large gap between policy making and implementation.

2.1.4. Government Information Systems Plan(GISP)

First drafted and approved by President Joseph Ejercito Estrada in July, 2000, the GISP was an ambitious presidential level agenda that attempted to take the Philippine government online through application of ICT. Certainly, it was one of the first serious attempts to publish government services online and engage the citizen online; it is quite unfortunate that the result of implementation of the GISP was mixed at best.

The GISP has several characteristics that show the capable policy making competency possessed by the Philippine government in the ICT sector.

First, the beauty of the GISP was in its simple vision: Philippine government online. This simple vision, when realized, would allow "every Filipino, organization and foreign investor and visitor to access government information and services online in their homes, in community or municipal centers, in foreign posts, in public libraries and kiosks, and in government offices."[2]

[2]Government Information Systems Plan(July 2000), Chapter 2, Vision

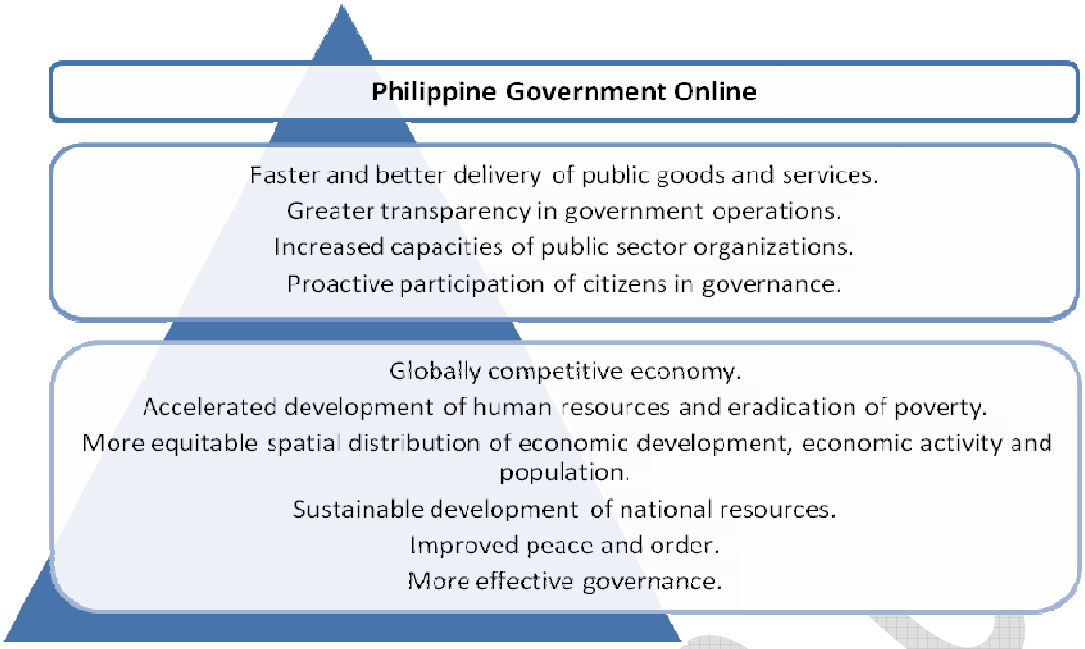


Figure 2: Vision, Goals and Objectives of the GISP

Second, the GISP was clearly aligned with the national development agenda, the "Medium-Term Philippine Development Plan" or the "Angat Pinoy 2004."

Third, institutional and policy issues such as the ineffective National Information Technology Council (NITC) and other related issues, were clearly defined.

Fourth, sustainability of the GISP was considered; for example, "clearly define ownership and management responsibilities."[3]

Fifth, financial planning of the GISP, especially appropriation of necessary funding in the national budget process, was established.

However, the main limitations of the GISP were: first, the lack of clearly prioritized list of projects; second, no accompanying budget spending plan for each project within the GISP; third, no action plans or tasks for implementation; and fourth, unclear ownership and implementation framework.

2.1.5. Philippine Digital Strategy(PDS)

The PDS is the most recent national ICT roadmap of the Philippines formulated by the now-defunct Commission on Information and Communications Technology(CICT)[4] during

[3]Government Information Systems Plan (July 2000), Chapter 2, Development Framework

[4]The CICT was dissolved and turned into the ICT Office under the Department of Science and Technology (DOST) by President Aquino's Executive Order No. 47 as a measure for streamlining government bureaucracy in July, 2011.

the Aquino administration in 2011. It contains the vision of the Philippines empowered by ICT for a more connected society that would promote economic and social growth as well as efficient delivery of public services.

As with the GISP, the PDS addresses the concerns of alignment of ICT development with other mid-term Philippine development plans and roadmaps. And it took the concerted efforts of the CICT and consultation from the private sector and other government agencies nine months to complete this national level ICT agenda of the Philippines.

Although the CICT was dissolved on the same day that the PDS was announced publicly, the DOST has vowed to pursue the vision and goals of this five-year plan.

Figure 3: Vision of the Philippine Digital Strategy

The goals of the PDS are expressed as "PDS Targets" as depicted in

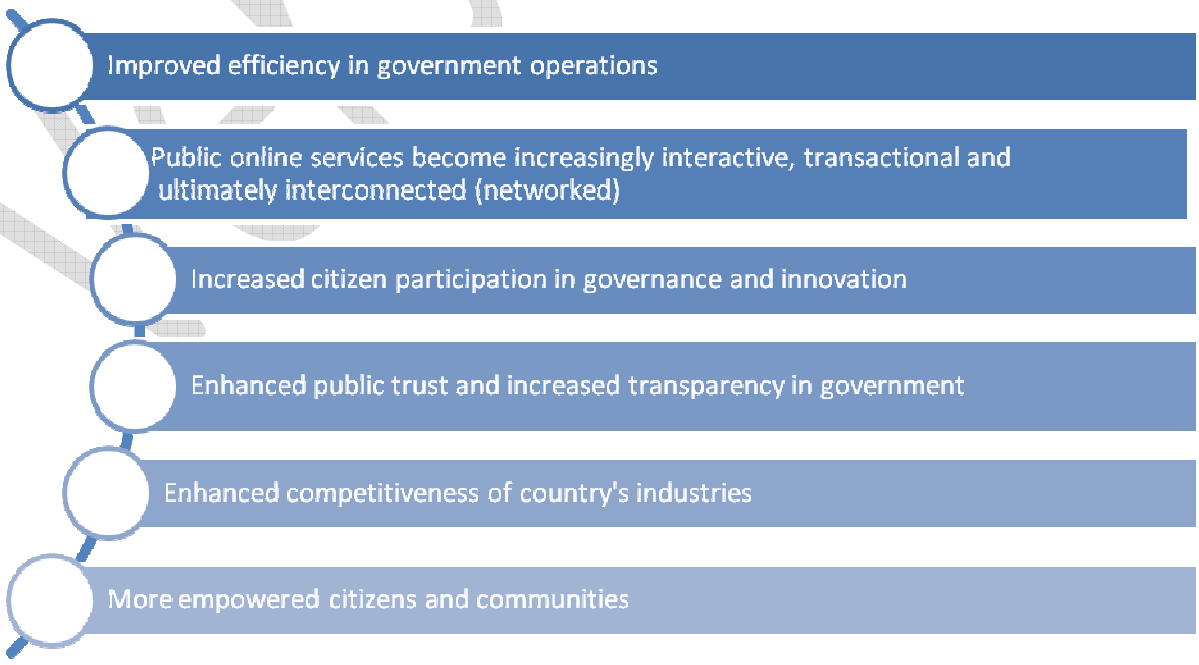


Figure 4 and show the commitment of the Philippine government in its efforts to realize the vision of the PDS.

Figure 4: Goals of the Philippine Digital Strategy: PDS Targets

While "PDS Targets" defines what the objectives are for the PDS, it is the "PDS Thrusts" that define the basic strategy to achieve the vision of the PDS.

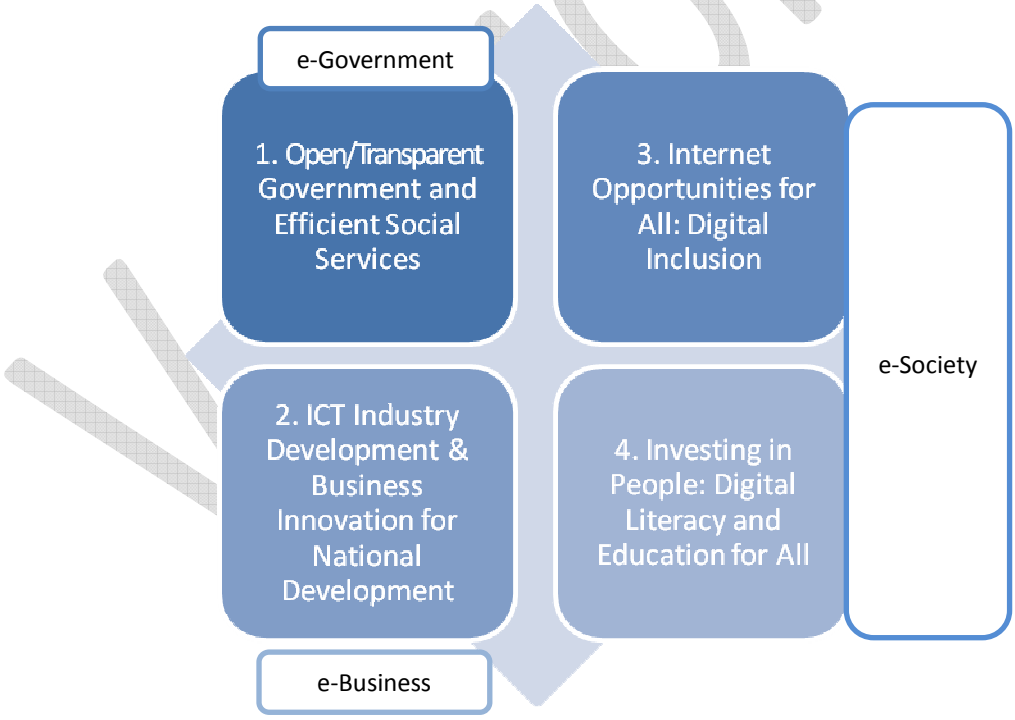


Figure 5: 4 Strategic Thrusts of the PDS

Each of the thrusts from Figure 5 is well-defined and key actions for each thrust have been identified as well.

It clearly shows that the PDS includes actions to achieve the goals of the PDS.

However, it is more important to note that the PDS sets both qualitative and quantitative indicators for achieving its goals in the form of very clear milestones and measurable targets for the actions that form the basis of the PDS thrusts. In fact, some of the key actions, such as enacting the Data Privacy and Cybercrime laws have already been accomplished just recently.

Unfortunately, even with such milestones and measurable targets, the PDS is not without its share of problems mainly that of lack of funding plans as well as detailed projects and action plans for implementation. As with the GISP, the implementation of the PDS will not be easy as there is no clear ownership on top of the vagueness of the PDS itself. The performance indicators have no owners and seem to be more declaratory in nature than actual real indicators for performance evaluation. It is clear that the omission of detailed e-Government implementation projects with direct access to the e-Government Fund will likely make it difficult to achieve the objectives set out by the PDS as well.

While the PDS is rather vague at best, it is clear that DOST is committed to implementing the PDS to the end. What is unclear is the future of the PDS; with no detailed implementation plan to complement the PDS, the goals of the PDS seem less like objectives and more like incomplete picture of the next level of e-Government that the Philippines want to achieve.

PDS Thrust	Key Actions
1. Transparent Government/Open Governance	1. Create high level leadership for e-Government
	2. Improve government ICT infrastructure, systems and ICT-related procedures
	3. Improve organizational, inter-governmental coordination, personnel and capacity issues
	4. Enhance e-Government services and applications through G2B and G2C through citizen-centric interest clusters
	5. Increase access of government data to the public
2. ICT Industry Development and Business Innovation	1. Enhance capacity of micro & small businesses to leverage ICTs
	2. Promote countryside job-growth in ICT and ICT-enabled industries: "Next-Wave Cities"
	3. Prepare strategic marketing plan
	4. Attract investment for ICT research and innovation
	5. Develop digital content/media
	6. Strengthen regional multi-stakeholder ICT councils
3. Internet for All/Digital Inclusion	1. National connectivity & broadband development plan: GSN, super WIFI
	2. Info & communications infrastructure: disaster mitigation & management, public education, public health + sectorial
	3. Institutionalize/expand publicly shared access: community e-centers
	4. Modernize ICT-related laws, policies, institutions: data privacy, cyber security/cybercrime, convergence, telecom regulation, competition policy for ICT sector

	5. Telecom regulatory policy: consumer protection, competition/anti-trust, tariffs/incentives/taxation
	6. Green ICTs: eWaste, ICT & climate change
4. Digital Literacy/ICT-enabled Education for All	1. Strengthen reforms in the educational system
	2. Address labor gaps of ICT/ICT-enabled industries
	3. Developing of 'techno-preneurs'
	4. Address needs of special sectors: youth, women, PWDs, indigenous people, etc.

Table 3: Key Actions of the 4 PDS Thrusts

The Table 3 depicts the four main PDS thrusts and its corresponding key actions. The four thrusts include the transparent/open governance, ICT industry development and business innovation, Internet for all, and digital literacy/ICT enables education for all. Each one of them has corresponding key actions.

2.1.6. i-Gov Philippines Project

The i-Gov Philippines Project is a "joint project of DOST-ICTO (NCC &TelOf) and DOST-ASTI, geared towards addressing basic government needs for transparency, efficiency and governance"[5], a concept based on the PDS. The 470 million peso flagship project was launched on June 28, 2012 after President Benigno "Noynoy" Aquino assumed power in the same year after Sen. Edgardo Angara questioned the low e-Government fund adoption despite the use of 8 billion(Peso) in e-Government fund.

This project is made up of different components across several essential government agencies and will interconnect the existing online public services of the 98 national government agencies (NGA) using a network of fiber optic cables that run from Metro Manila to Cebu. The NGAs will be connected physically by fiber optic to be laid down along the three existing metro rail lines (LRTs 1 and 2, and MRT 3) since many NGAs are clustered together in specific cities where the train systems run.

[5]From iGovPhil Project facebook at http://www.facebook.com/iGovPhil

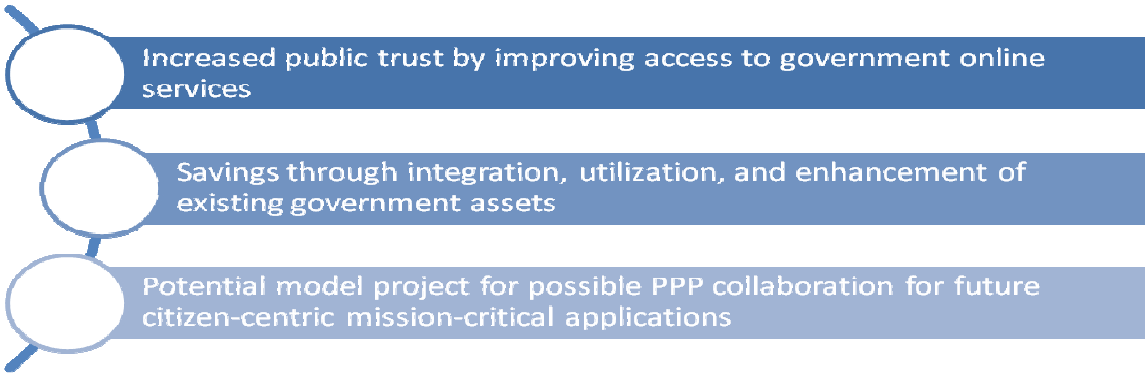


Figure 6: Expected Outcomes of the iGovPhil Project

The end goal, to "implement interactive, interconnected and interoperable government applications and online services" and "enhance public service delivery" can easily be seen by the expected outcomes of this project from the Figure 6 above.

This network will also include a data center, a national records management information system, e-mail and VOIP collaboration system for all agencies, PKI and payment system providing short-term benefits such as centralized inventory of public records, prevention of doubling or inconsistent information of individuals, speed up of information sharing and collaboration among government offices and management of public service programs. Long-term benefits include faster public service delivery and enhanced transparency in transactions.

One of the main features of the iGovPhil Project is the evaluation plan which will help in the achievement of its outcomes. The evaluation plan calls for: first, all system reviews to be done by the target beneficiaries; second, upon deployment, users will be asked to determine the systems' usability, functionality and appropriateness; third, focus group discussions will be utilized to further determine quality of the systems; and fourth, documentation, evaluation and drafting of the next steps plan will be the key to ensuring usability of the deployed systems.

2.1.7. Implications

- Department level ICT plans such as the ISSP are detailed but comprehensive national level plans such as the GISP and PDS lack details and implementation strategies
- There is a big gap between policy making and implementation
- Strong desire to implement e-Government and potential capacity exists

The above implications are based upon the fact findings and the analysis. It shows the need of detail comprehensive national plan with strong desire to implement e-Government that would reduce the gap between policy making and implementation.

2.2. Law and Regulations

< Summary >

Diverse laws and regulations exist in the Philippines that not only define e-Government and its various processes but also serve to facilitate the development of ICT in general, in the private sector as well. The E-Commerce and E-procurement laws are especially important regulations that help raise efficiency and transparency in government's economic activities while helping the private sector raise its competitiveness as well.

As yet, there is no law on information sharing, but the Philippine government is working on the Freedom of Information bill (FOI) which is an integral element of the Aquino Good Governance and Anti-Corruption Plan of 2012-2016, recently approved by President Aquino subject to further refinements. Also recently enacted are the Cybercrime Prevention Act and Data Privacy Act which will further encourage the use of cyberspace for information, recreation, learning and commerce.

2.2.1. Fact-findings

- E-commerce act enacted
- PKI is being implemented
- E-procurement laws and regulations are established
- There is no law on disclosure of public information yet; Freedom of Information Bill is in deliberation
- Privacy protection act adopted in June, 2012 (Data Privacy Act)
- NCC recommended all Departments and Agencies to legalize computer software, promoting intellectual property protection in the public sector on software use
- National crime information system not implemented, only proposed
- Digital evidence accepted by the Philippine courts
- Cyber security law adopted in June, 2012 (Cybercrime Prevention Act)

2.2.2. Overview

A list of e-Government and ICT related laws and regulations of the Philippines was provided by the NCC for analysis of the e-Government legal framework.[6] Each regulation was classified according to its empowerment level such as Executive Order, Presidential approval or endorsement, etc. and examined as well as cross-checked with other related regulations in order to search for a set of implications on the current state of the legal framework in the Philippines for e-Government.

[6]Refer to Appendix D., as provided by NCC

2.2.3. Current Status

Many laws and regulations are currently in force in the Philippines that define and regulate the ICT in the private sector and e-Government in general. From the early years of computerization of the government in the late 1960s to the next national agenda that outlines the future vision of e-Government, the Philippine government has always identified the necessary changes that need to be made to the existing legal framework.

Laws on electronic commerce[7] and e-procurement[8], the adoption of PKI system[9], the directive by NCC to legalize computer software used in the government[10], and so on, all show that there has been much effort to build a good legal framework on which to establish e-Government in the Philippines. Along with such basis, the NCC issued IT Advisory No. 97-03 on Intellectual Property Rights (IPR), directing all Departments, Agencies and Instrumentalities to legalize their computer software, thereby further enhancing the legality of the very component integral to e-Government, the computer software.

The judiciary branch of the government has also been working on following the technology trend by recognizing digital evidence in the Philippine courts while legal enforcement agencies have plan to build a National Justice Information System (NJIS) that facilitate the efficient recording, monitoring, tracking and reporting of crimes, cases, offenders and victims. However, it is unfortunate that a project for a National Crime Information System (NCIS) was funded in 2000 but not implemented yet.

As yet, there is no law on information sharing, but the Philippine government is working on the Freedom of Information bill (FOI) which is an integral element of the Aquino Good Governance and Anti-Corruption Plan of 2012-2016, recently approved by President Aquino subject to further refinements. This bill is the result of a consultative process following careful study of similar legislation by an administrative study group in order to ensure public interest without compromising government's legitimate rights. More specifically, the public's right to know and legitimate information security were balanced out.

Of equal importance, are the Data Protection Act of 2011 and Cybercrime Prevention Act, both of which are being deliberated in the Philippine Congress just recently in June, 2012. As can be expected, there is much controversy on both laws due to the difficult nature of defining what cybercrime is and the scope of applicability but the Philippine government is quite set upon complete enactment of these two very important laws that will help foster a better environment for e-Government in the Philippines.

[7]Philippines E-Commerce Law under Republic Act No. 8792, July 26, 1999

[8]Republic Act No. 9184

[9]Executive Order No. 810

[10]IT Advisory No. 97-03

2.2.4. Implications

- ☞ Enforcement of ICT related laws and regulations is relatively weak
- ☞ Revision and adaptation of ICT related laws and regulations in response to environmental changes is slow
- ☞ There is a lack of interconnection between various ICT related laws and regulations
- ☞ E-commerce and social welfare related laws are well maintained

These implications are based upon the fact findings and analysis. It indicates the weak parts of enforcement of ICT related laws and regulations. In spite of well maintained laws in e-commerce and social welfare, the adaptability of ICT related laws and regulations with the changes of environment is low.

2.3. Organization

< Summary >

The hierarchical structure of ICT organization is well structured in Philippines. There are 19 departments and each department has its own ICT and data center. The President appoints the secretary of the department, subject to the approval of the e-Commission on Appointments. Most of the ICT related development is done independently in the department. The department of Science and Technology(DOST) has taken the responsibility for enhancing the ICT development in the country. The National Computer Center (NCC) has taken the lead role in developing e-Government system in the country.

2.3.1. Fact-findings

- Cabinet level national ICT committee does not exist
- DOST is the overall competent government organization for national informatization
- Reorganization plan for the ICT Office is being drafted by DOST
- Roles and responsibilities of DOST and NCC are well defined
- All government organizations possess ICT responsible departments
- There is a Congressional Oversight Committee on e-Commerce

2.3.2. Overview

The numbers of interactions were done in order to identify the ICT organization structure in Philippines. The related documents were examined and numbers of websites are also visited during this phase.

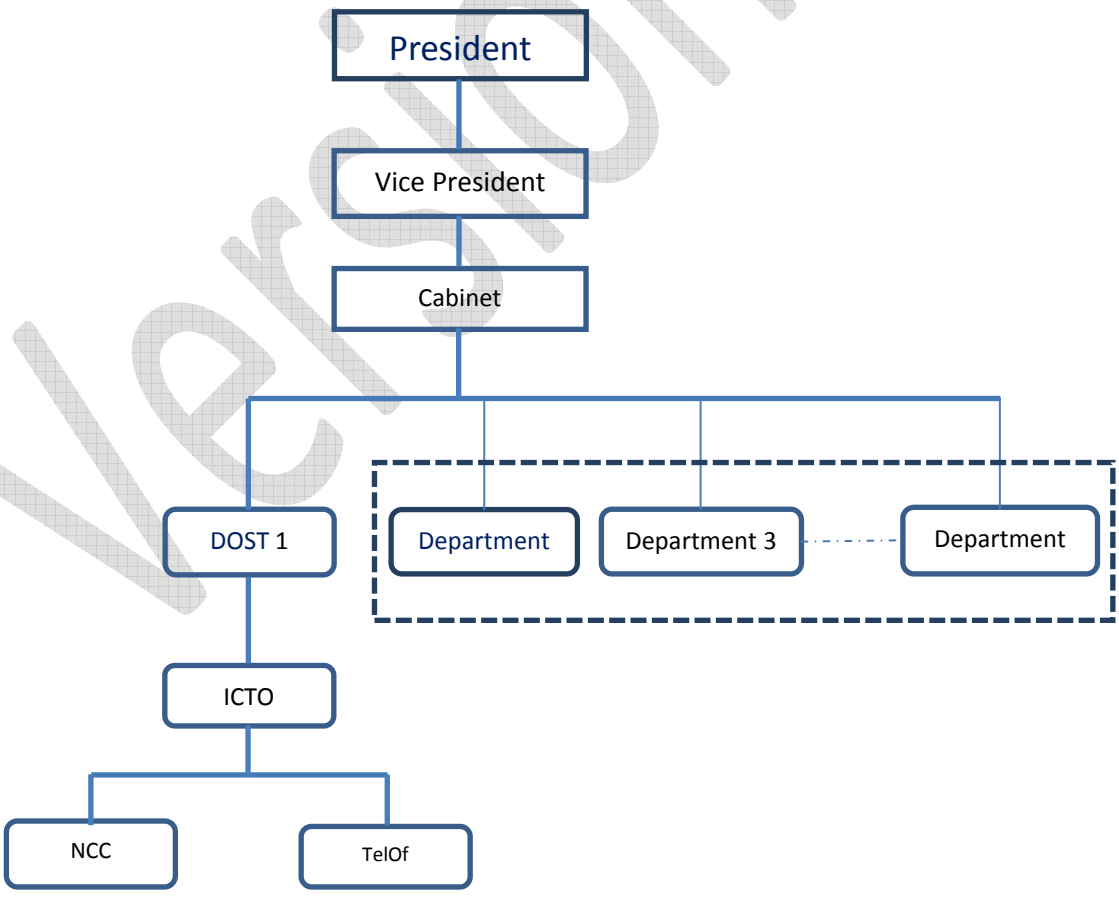


Figure 7: Philippine Government Organizational Structure

The President has the executive power in the Philippines as shown in Figure 7. The President is assisted by his or her cabinet that is made up of different departments and is headed by a secretary. The President appoints the secretary with the consent of the Commission on Appointments. There are 19 departments in Philippines. Each department has its own ICT center and plays the important roles in national e-Government system.

The department develops its own systems with little or no coordination with other departments. The existing isolated departments make lots of redundancy process and services. There is a need of center of excellence in e-Government which should coordinate among the departments. Among the 19 departments, the Department of Science and Technology (DOST) has taken the lead role in the development of e-Government system. It should also act as a center of excellence to enhance the coordination and cooperation among the department's ICT center.

The President of Philippines has been very much committed for the development of ICT in the country since a long time. During the early 2000s, then President Joseph Ejercito Estrada issued Executive Order No. 265 for approving and adopting the Government Information Systems Plan (GISP) as framework and guide for all computerization efforts in government. The National Information Technology Council (NITC) was the policy advisory body on information and communication technology (ICT) in the country, had formulated in close consultation with concerned government agencies, the private sectors, local government units, academia, and members of Congress and accordingly endorsed a government information systems plan that would serve as a blueprint for computerization of vital government operations and front line services for more effective governance. The secretary of DOST was the chairman of NITC and the secretary of National Economy and Development Authority was the co-chairman.

The Department of Science and Technology (DOST) in Philippines executes the mandate of providing central direction, leadership and coordination of all scientific and technological activities. It also formulates the policies, programs and various technical projects to support national development of Philippines.

2.3.3. DOST Organization Structure

The secretary is the head of the Department of Science and Technology (DOST) who is appointed by the President. The secretary uses the given authority and carries out the responsibilities for the given mandate. In order to exercise authorities and carry out the responsibilities, the secretary is supported by three undersecretaries in the three different domains such as Research and Development, Regional Operations and Science and Technology Services. The secretary is also supported by three assistant secretaries in the areas of strategic plans and programs, technology transfer and finance, administrative and legal affairs.

The organization structure of DOST is composed of three sectorial planning councils, seven research and development institutes, eight science and technological services, two collegial bodies, sixteen regional offices and 79 provincial science and technology centers as given in **Figure 8**.

The Information and Communications Technology Office belongs to the science and technological services.

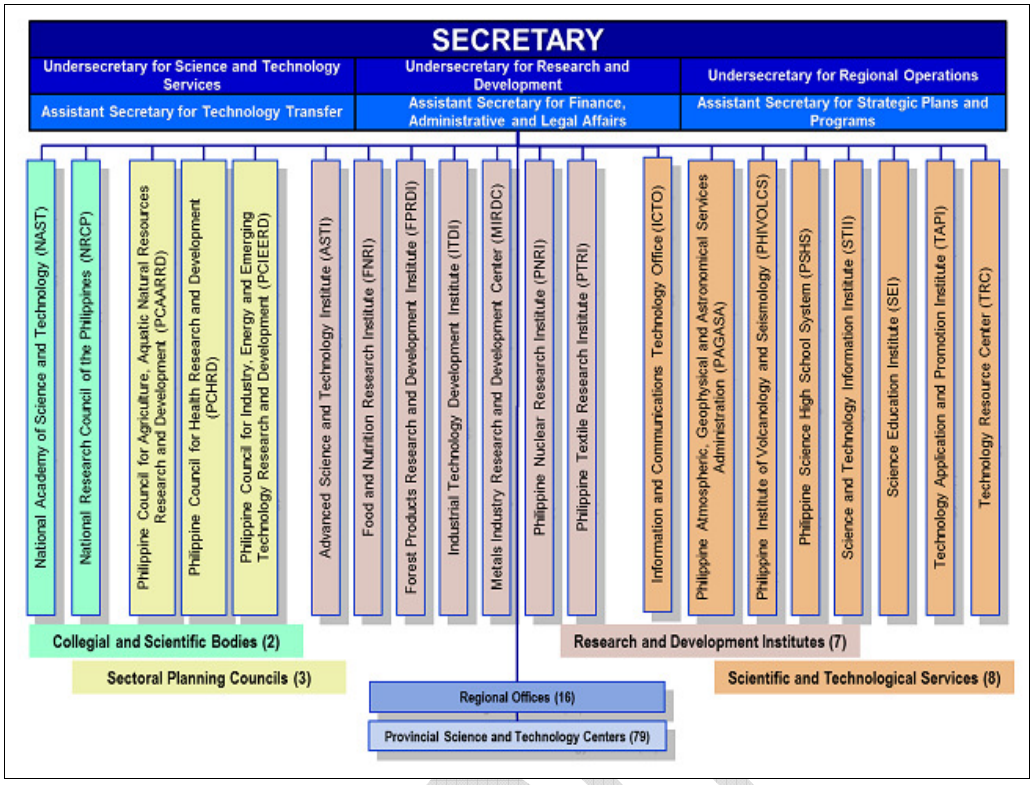


Figure 8: Organizational Structure of DOST

The Office of the Secretary of Department of Science and Technology is an apex body for the development of ICT in Philippines. The Information and Communications Technology Office (ICTO) is one of the key offices in the Scientific and Technological Services. The ICTO is composed of the National Computer Center (NCC) and Telecommunications Office (TelOf) as given in Figure 7.

2.3.3.1. Functions of Information and Communications Technology Office (ICTO)

- Formulate, recommend and implement an appropriate policy and program framework that will promote the rapid development and improved global competitiveness of Philippines's information and communications technology industry though research and development and though effective linkages to industry.

- Ensure the provision of efficient and effective information and communications technology infrastructure, information systems and resources to support efficient, effective, transparent and accountable governance and, in particular, support the speedy and efficient enforcement of rules and delivery of accessible public services to the people.

- Conduct continuing research and development in partnership with the academe towards improving the quality of ICT education and the production of globally competitive ICT manpower.

- Build the capacities of public sector institutions and their personnel in the use of ICT to improve planning, management, delivery of mission, critical functions and monitoring and evaluation.

- Formulate the Governance Information System Plan and administer the e-Governance Fund.

2.3.3.2. Functions of National Computer Center (NCC)

- **ICT POLICIES**

  This includes policy research, development and monitoring for the rationalization of ICT use in government; maintenance of IT industry statistics and data bank in support of ICT policy and development.

- **ICT STRATEGIC PLANNING IN GOVERNMENT**

  This refers to the formulation of an ICT development plan for the government. It also includes the review and approval of the Information Systems Strategic Plans (ISSPs) of the national government agencies (NGAs), government owned and controlled corporations (GOCCs), state universities and colleges (SUCs), and government financial institutions (GFIs).

- **ICT INFRASTRUCTURE**

  This refers to the development of computing and networking infrastructures; and the development of knowledge-based and common software for government.

- **ICT CONSULTING**

  This refers to the provision of consulting services to promote the strategic use of IT and transparency in IT resources acquisition in government; and the development of supra-systems and critical systems in government.

- **ICT LITERACY AND MANPOWER DEVELOPMENT**

  This refers to the promotion of a national IT literacy especially in government; the promotion of mass-based IT education and training.

- **ICT IN LOCAL GOVERNANCE**

  NCC has presence in the growth areas in the country for the purpose of enhancing local governance by making local government units electronically enabled, as well as accelerating ICT diffusion on a nationwide basis.

2.3.4. Implications

- ☞ There is a lack of leadership in the ICT and e-Government sector
- ☞ Cooperative network for ICT between the Departments is weak
- ☞ Standardization should be strongly promoted for high interoperability among government organizations

The above implications are based upon the fact findings and analysis. It gives the impression on lack of committed leader in ICT and e-Government sector that has affected in cooperation among the departments. The cooperation and collaboration among the departments can be archived through the standardization.

2.4. Education

< Summary >

Educational system is one of the assets in the Philippines. It is classified into three phases such as elementary school, high school and university level higher education. The government as well as private sectors is providing education throughout the country. The middle level ICT programs are well categorized to provide middle level expertise to the country. In spite of good educational infrastructure, there is acute problem of high level faculties' members. The activity of e-Government related research is very low.

2.4.1. Fact-findings

- ➢ Both the government and the private sector are actively involved with ICT academic institutions
- ➢ There is no gender discrimination in the ICT sector
- ➢ Mid-level ICT programs are well organized
- ➢ Research activities in the ICT sector are relatively weak compared to other academic activities
- ➢ Number of faculty members in academic institutions with degrees higher than Master-level is relatively small

2.4.2. Overview

The educational system in the Philippines is influenced by the educational system of Spain and USA. The Department of Education administers the elementary and high school levels and the Commission on Higher Education administers the university level. Both government and private sectors are active in providing the education to the citizens. There are many private and public academic institutes in the country. The educational system in the Philippines is classified into three phases such as elementary school, high

school (junior high school and senior high school) and university level or higher education level. The elementary school has the grade from 1 to 6. The junior high school is the first part of the high school begins with grade 7 or first year and completes with grade 10 or fourth year. The senior high school has grade 11 or year 5 and grade 12 or year 6.

In this section, the educational system and the human resource status of the faculties in higher education in the Philippines was analyzed.

2.4.3. Higher Education (University Level Education)

Higher education provides the University level education in the Philippines. The government and private sectors are involved in higher education system through the public and private academic institutes. The public institutes are state universities, state universities satellite/extension campus, state college, satellite state college/extension campus, local college and local universities, specialized higher education institutes, government school and supervised institution. The private institutes are private non-sectarian and private sectarian.

The role of higher education in the development of e-Government system is very imperative. The maturity of higher education in the nation shows the degree of capacity in supporting the e-Government system. In order to identify the status of higher education system in Philippines, first of all the distribution of academic institutes throughout the country is identified. Secondly, the enrolment status in the regions based upon the genders which give us the clear picture of gender's gap in the academic area. Thirdly, the status of ICT related subjects in each region is identified then finally at the end, the level of education in each region is identified.

The Philippines has been very active in providing higher education in East Asia since a long time back. The educational system in Philippines is considered one of the best educational systems in East Asia. Many foreigners come to the Philippines for higher education in different disciplines. The Philippines has a high potential in educational system which can be used in national e-Government building.

2.4.3.1. Higher Education Institutions by Region

The Philippines is well established in academic institutes. There are 57 state universities (SU) and it has 280 satellite universities and extension colleges (CA/CAE). There are 53 state colleges (SC) with 108 satellite state colleges and extension colleges (SS/SSE). There are 93 local universities and colleges (LUCs). The specialized (SP), government school (OGS) and supervised institutes (CSI) are 5, 10 and 1 respectively. There are more private non-sectarian (PN) and private sectarian (PS) institutes as compared to other academic institutes.

In total there are 2,937,847 students in Higher Education in entire Philippines. Among them 1,601,478 are female and 1,336,369 are male. There is more concentration in National Capital Region as compared to other regions.

2.4.3.2. ICT Related Subjects in Each Region

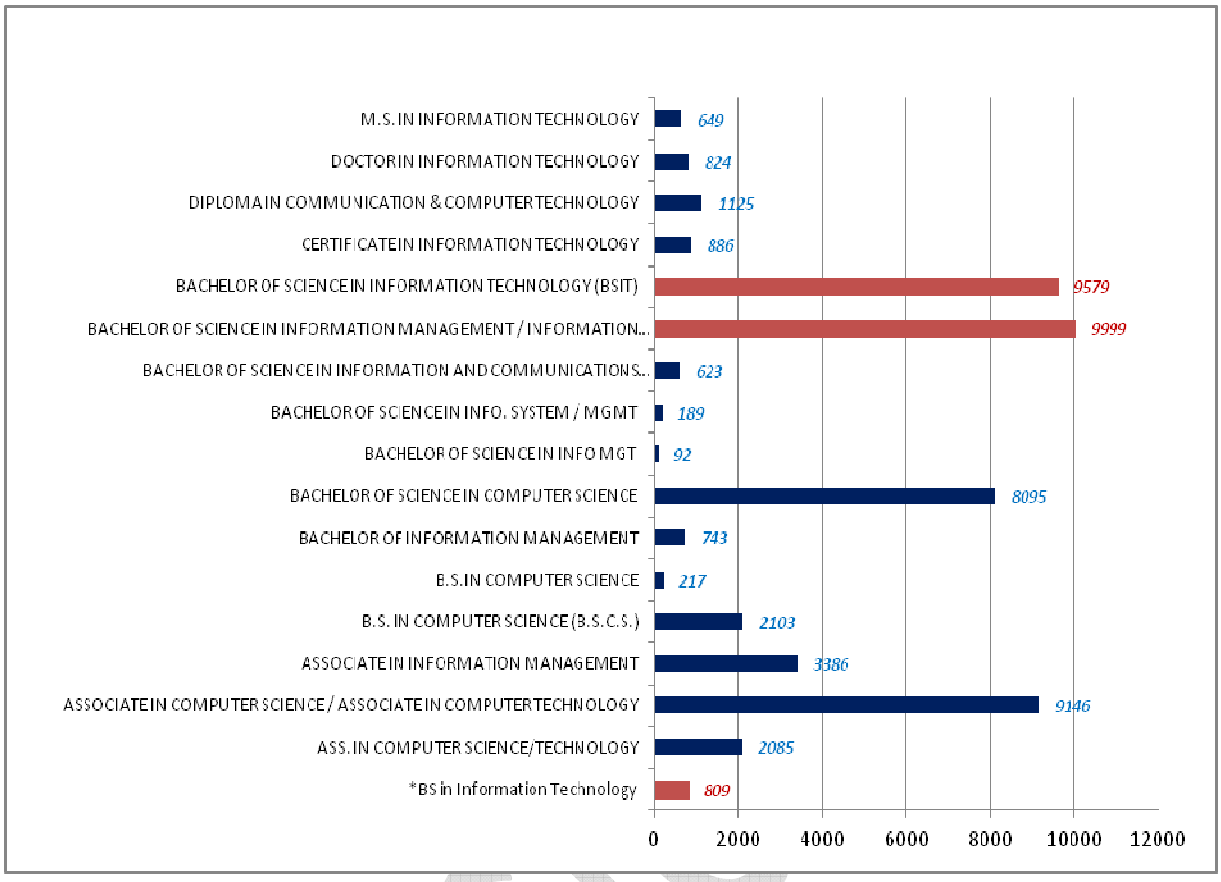


Figure 9: ICT Related Subjects

There are various academic programs in ICT in entire Philippine as shown in Figure 9. The Bachelor of Science in Information Management and Bachelor of Science in Information Technology are very popular programs in Philippines where as Bachelor of Science in Information Management is not popular.

The distribution of the programs is not equal. The programs such as Bachelor of Science in Information Management, Bachelor of Science in Information System and Management and Bachelor of Science in Information Technology are not available in most of regions. The unavailability of such ICT programs in the regions makes the gaps wider among the regions.

2.4.3.3. Level of Education by Regions

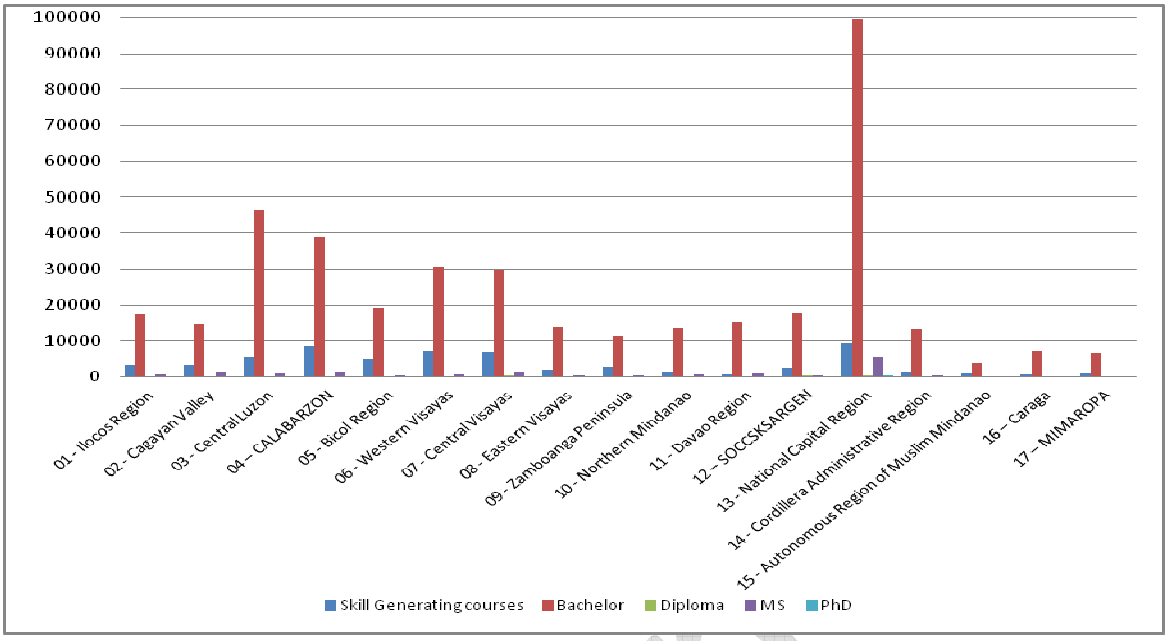


Figure 10: Level of Program based on Regions

Figure 10 shows that the bachelor level program is dominant in all 17 regions. Among the 17 regions, the National Capital Region is in leading stage.

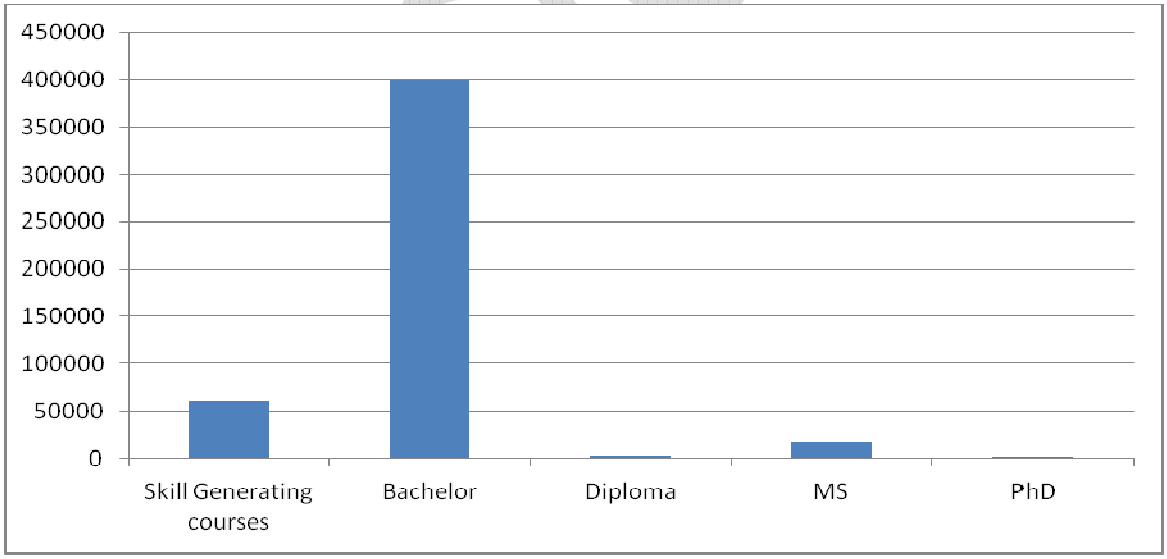


Figure 11: Total Number of Level of Programs

Figure 11 shows the level of students in Philippines. In entire Philippines, there are 1,625 students in PhD or Doctorate program which is very less as compared to other program such as 16,652 students in Master level program, 2,534 students in Diploma level program, 3,999,367 in Bachelor level program and 61,684 in special skills generating courses.

2.4.3.4. Human Resource in Higher Education

Human resource capacity is one of the strong entities in Philippines. It is also one of the main components in analyzing the status of e-Government. Philippine has been very active in attracting many students from abroad since long time. There are many foreign students coming from different parts of the world in different universities and colleges in Philippines to pursue the higher education.

In this section, the status of human resources in higher education was analyzed with Figure 12 and Figure 13.

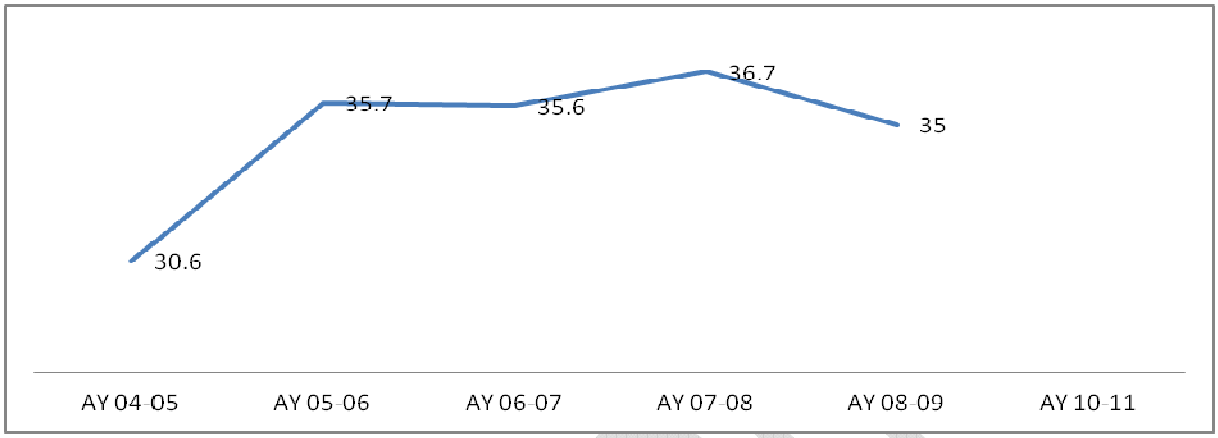


Figure 12: Proportion of Faculties with Master's Degree

Figure 12 depicts the status of faculty with Master's Degree from academic year 2004/2005 to academic year 2010/2011. In 2004/2005, there were 30.6% faculties with Master Degree and in 2005/2006, there were 35.7%. This was the increment of 5% in one academic year. In 2006/2007, it was the same as previous year. In 2007/2008, again there was an increment by 1% but in 2008/2009, it stepped down to 35%.

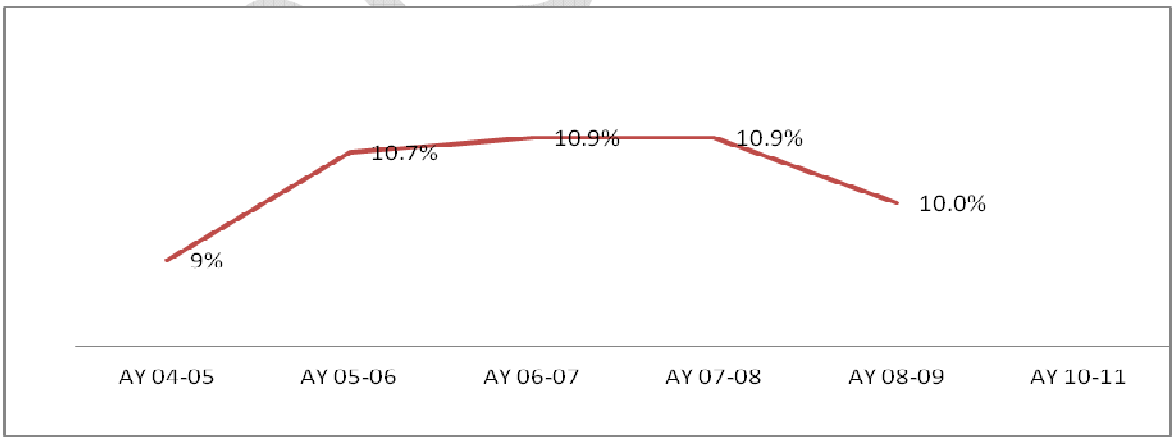


Figure 13: Proportion of Faculties with Doctorate Degree

Figure 13 depicts the status of faculty with Doctorate Degree from academic year 2004/2005 to academic year 2010/2011. In 2004/2005, there were only 9.2% faculties with Doctorate Degree and in 2005/2006, there were 10.7%. This was the increment of 1% in one academic year. In 2006/2007, it was the same as previous year and so was in 2007/2008. In 2008/2009, it was 10%.

The small number of faculties with higher degree affects the research activities in

the country. Research is one of the main components in e-Government system. In order to emphasize on e-Government research activities the existing human resource capacity is required to be increased and motivated the faculties to supervise related research.

2.4.4. Implications

- ☞ Education assets need to be used in implementation of e-Government
- ☞ Research activities in ICT, especially e-Government, need to be actively promoted
- ☞ ICT education programs should be distributed equally in each region
- ☞ HR capacity should be enhanced and more members of the faculty should be encouraged to supervise research activities

The implications are based upon the fact findings and research. It shows that the education is one of the main assets of Philippines which has to be used in a proper way by conducting various e-Government research with the supervision of faculty members. The entire country is required to be equally benefitted from the ICT education programs.

3. Analysis of Current e-Government

3.1. ICT Infrastructure

< Summary >

ICT infrastructure is the backbone of e-Government system. Providing efficient, effective and affordable connectivity throughout the country is the main responsibility of the government. There are still many municipalities and academic institutes in the Philippines deprived from connectivity. Fiber network is still not distributed throughout the country. The PC penetration rate is very low and this is the big challenge for the government to run e-Government system. The existing Internet speed is not enough for e-Government system and proposed I-Government project.

3.1.1. Fact-findings

- ➢ There are 7 mobile operators, 73 local exchange carriers and 14 inter carrier service providers
- ➢ Almost 95% of Filipinos use prepaid mobile service
- ➢ The fixed line tele-density is 4.5 per 100 inhabitants
- ➢ 1.39 Billion text messages(SMS) are sent a day.

- The download speed is 2.34 Mbps (65th in the world) and upload speed is 0.65 Mbps (72nd in the world) in the Philippines.
- PC penetration rate (30%) is very low.
- There are still many municipalities outside the urban areas deprived of mobile services.
- More than 70% of public high schools have no Internet connectivity.
- There are 755 community e-Centers throughout the Philippines.

3.1.2. Overview

ICT infrastructure is one of the core components in finding out the e-Government state of the nation. It is also the backbone for entire e-Government system. The UN uses main two parameters such as willingness of the country and its capacity in identifying the state of the nation. The capacity includes the Human Resource Status and Infrastructure Status. In this section, the status of ICT infrastructure in the Philippines was identified and analyzed.

3.1.3. Telecommunication

Year	Subscriber
2000	6,400,000
2005	34,778,995
2009	75,000,000
2010	80,000,000

Table 4: Mobile Telephony Revolution

Table 4 above shows the revolution of mobile services in the Philippines. In 2000, there were 6,400,000 subscribers and after five years it jumped to 34,778,996 subscribers which were more than 5 times. The increment of 5 times in 5 years shows the people were more inclined towards the mobile services. In 2010, it reached 80,000,000 which was the huge figure in mobile services.

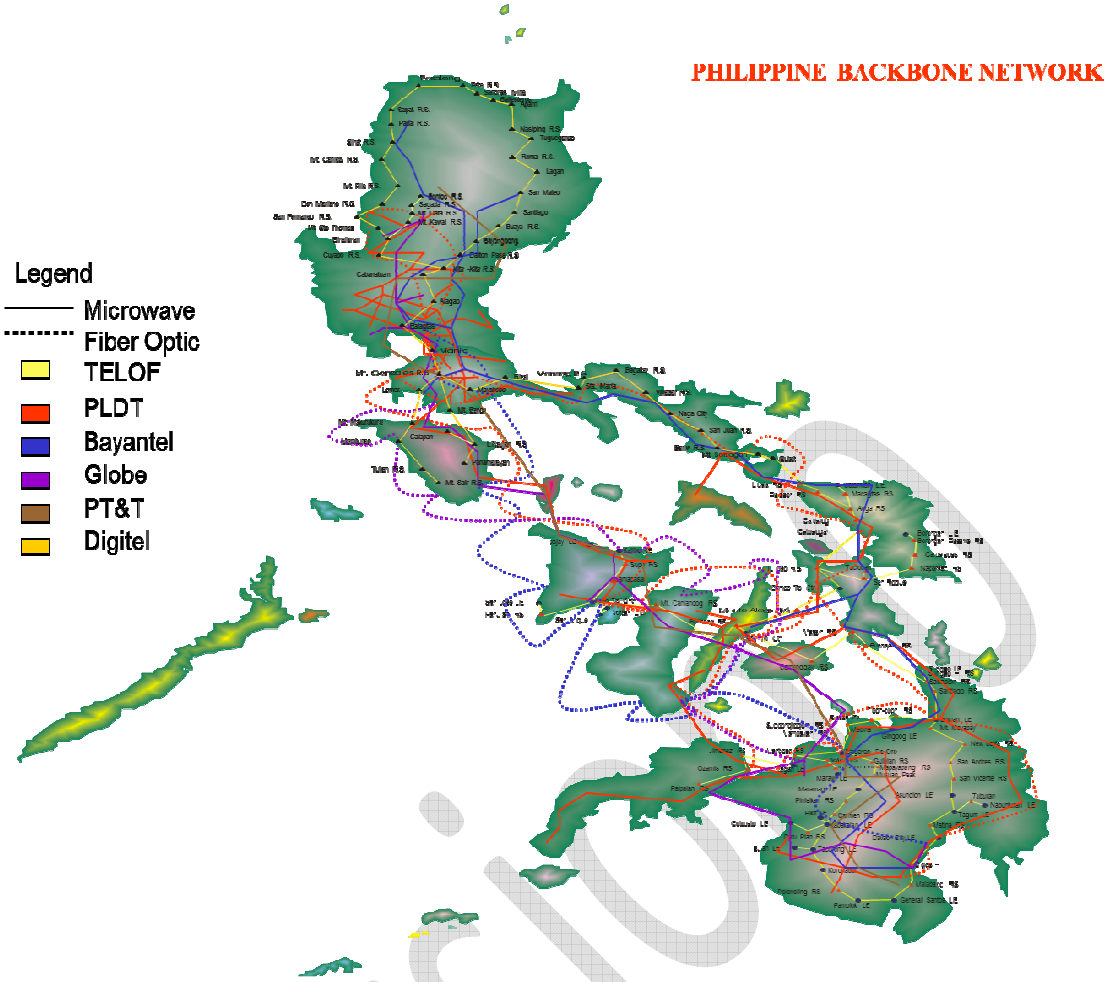


Figure 14: Philippine Backbone Network

Figure 14 shows the layout of backbone network in Philippines. The dotted line shows the fiber layout and dark line shows the microwave throughout the country. There are six telecommunication service providers participating in providing connectivity through the fiber and microwave. The entire Philippine has to be connected with suitable wired or wireless networks to expand the features of e-Government to every citizen. It is not easy for the government to work alone. The government has to explore the possibilities of private sectors to take a part on it. The private sector can contribute on the expansion of such connectivity with the supports of government. The involvement of private sectors with government supports can reduce the existing gap between rural and urban areas in terms of connectivity and services.

3.1.4. Proposed Fiber Network for iGovPhil Project

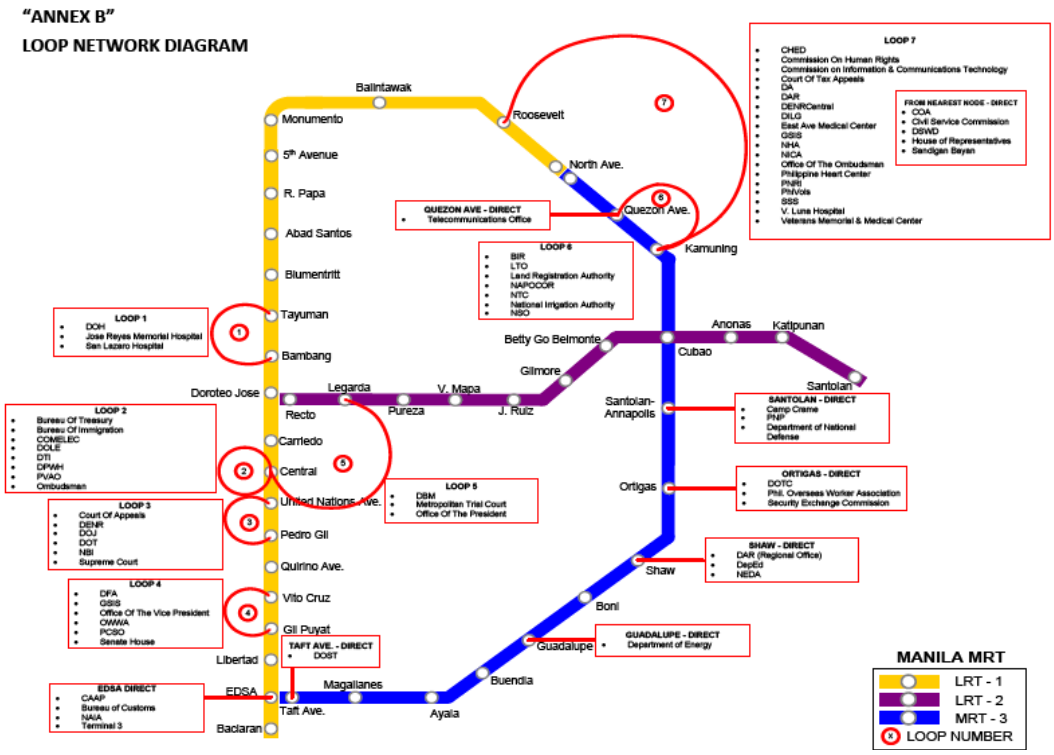
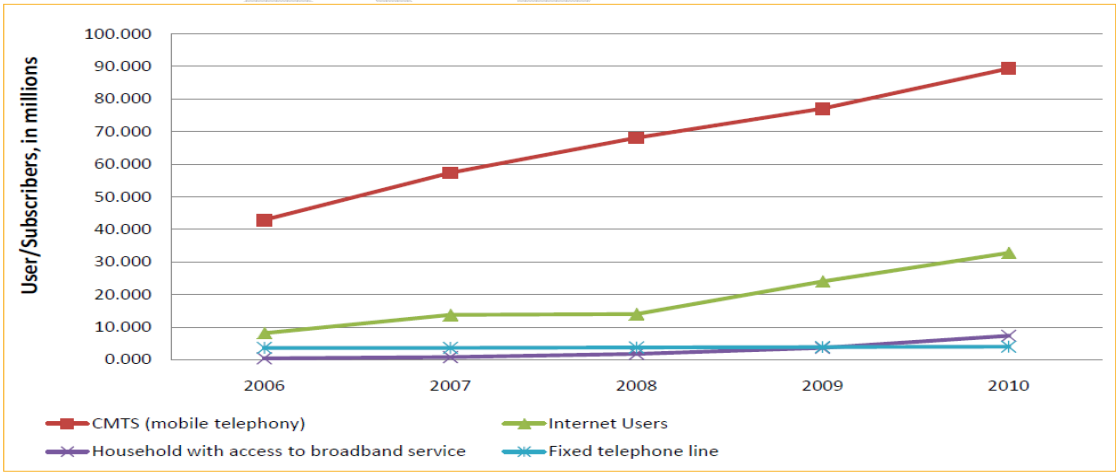


Figure 15: Proposed Fiber Network

Figure 15 above depicts the proposed fiber layout in Metro Manila as a backbone for iGovPhilProject. The fiber will be distributed based upon the layout of LRT and MRT. There are 7 loops in total for providing the services.



Source: CICT, NTC

Figure 16: Growth in Number of Users/Subscribers in ICT Services

Figure 16 shows the growth in users in ICT services such as mobile telephone, Internet, household with access to broadband service and fixed telephone. There was a continuous growth in mobile services, leaving Internet, broadband and fixed telephone far behind.

3.1.5. Philippines Community e-Center Network (PhilCeCNet)

Philippine Community e-Center Network is a multi-sectorial partner of the Commission on Information and Communication Technology in the implementation of the Philippine Community e-Center program. The concept of Community e-Centers in the Philippines was started with clear vision and mission in 1999. It was started with the pilot multi-purpose community tele-centers with the help of Department of Science and Technology (DOST) in coordination with partner funding institutions and other public and private agencies.

The e-Center is a learning and collaborative community where the stakeholders contribute to achieve the vision and mission of Community e-Center. It is a self-sustaining shared facility providing affordable access to ICT enabled services. The e-Center serves as a channel for efficient delivery of government services as well as services provided by other agencies to the underserved communities of the Philippines. It also encourages the communities to participate in government activities and services.

The main goal of the Philippine Community E-Center Network is to reduce the digital gap in Philippine. In order to accomplish the goal, the E-center Network provides following main services.[11]

- Basic Internet services (email services, research and information resource generation)
- Business services (scanning, printing, copying and faxing, public calling center, ID printing & lamination)
- Other services (video editing, lay outing)
- Capability-building (hands-on computer literacy and skills development trainings)
- ICT services (troubleshooting, computer repair, technical services, web development)
- Internet Service Provider (provision of Internet connectivity to local government units, schools, barangays and households)
- Online advertisement of local products and local eco-tourism
- Conduit for e-Government services (NSO, GSIS, etc.)
- e-Business (e-Banking, e-Trade)
- Testing centers
- Community radio center
- Public e-Library

[11] http://www.philcecnet.ph/

- Mini coop (online payment, online transactions)
- e-Procurement services
- Applications and placement for employment
- Price monitoring/ labor advisory services/ cost of doing business
- Distance learning
- Tele-health/telemedicine
- Business solution center (BPO)
- Databank/information center

There are 755 e-center communities throughout the Philippine. These communities are the basic building blocks for the national e-Government projects.

3.1.6. ICT Penetration

Infrastructure Index	Internet User per 100 inhabitants	Fixed Telephone Line per 100 inhabitants	Mobile Subscribers per 100 inhabitants	Fixed Internet Subscription per 100 inhabitants	Fixed Broadband per 100 inhabitants	Rank
0.2082	25	7.27	85.67	3.93	1.85	110

Table 5: ICT Status (UN 2012)

Table 5 is the details of ICT penetration in Philippines. It shows that the Internet users are only 25 out of 100 Filipinos. Only 7.27 Filipinos use fixed telephone service whereas 85.67 use mobile phones. Internet subscription is 3.93 and the fixed broadband is 1.85. With all these attributes Philippines stands in 110th rank in maturity of ICT infrastructure as per UN report.

The penetration of personal computer (PC) is also very low in the Philippines especially in the rural areas. The infrastructure limitations, availability of electricity access and the high cost are the main reasons among others.

3.1.7. ICT Service Coverage in Philippines

The fixed telephone lines, wireless communications and broadband Internet are the key technologies in the Philippines. The mobile telephone service has dominated the entire market of the Philippines. ICT has covered 94.7% of total municipalities where as fixed telephone lines has covered only 53.9%. In spite of high coverage and continued expansion in mobile services there are still many municipalities deprived from mobile services. Reducing the gap between “have” and “have not” among the municipalities is the big challenge for the government of Philippines.

The backbone network is based upon the fiber optics technology that provides domestic as well as international broadband connectivity covering 63 provinces (79%). 761 cities and municipalities (50%) are considered to be covered with fixed or mobile broadband

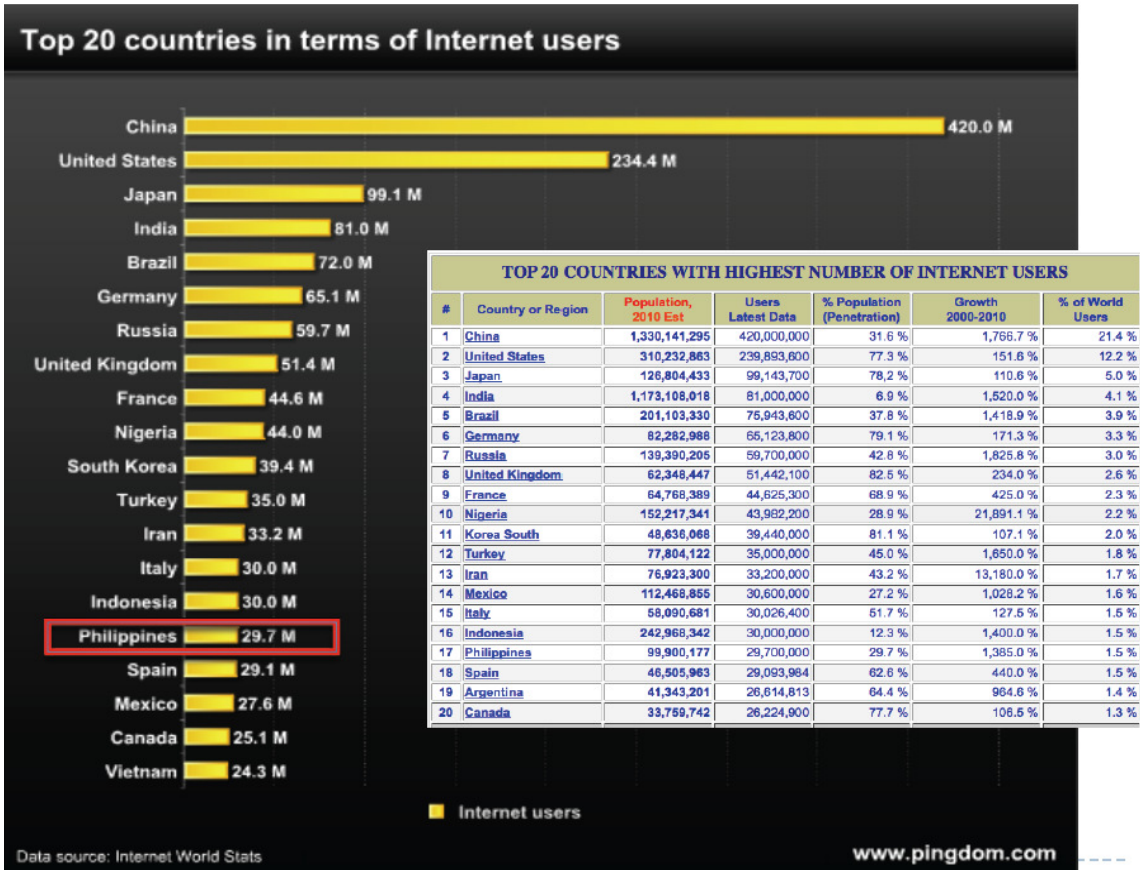
Internet service. The 3G connectivity is only limited in urban centers and boundaries.

3.1.8. Internet Service

Year	Users
2000	2.0 M > 2.6% of 78 M population (ITU)
2005	7.8 M >9.3% of 84 M population (CI Almanac)
2008	14.0 M > 14.6% of 96 M population (Yahoo)
2009	24.0 M > 24.5 % of 98 M population (Nielsen)
2010	29.7 M > of 99.9 M population (ITU)

Table 6: Internet Users

Table 6 clearly shows the increase in Internet users from 2000 to 2010. In 2000, when the population was 78 M, then only 2.0 M used the Internet. In 2005, the number of users reached to 7.8 M out of 84 M. In 2009, 24 M people used the Internet which is the big jump as compare to 2008 but in 2010 there were only 29.7 M in 99.9 M.



TOP 20 COUNTRIES WITH HIGHEST NUMBER OF INTERNET USERS

#	Country or Region	Population, 2010 Est	Users Latest Data	% Population (Penetration)	Growth 2000-2010	% of World Users
1	China	1,330,141,295	420,000,000	31.6 %	1,766.7 %	21.4 %
2	United States	310,232,863	239,893,600	77.3 %	151.6 %	12.2 %
3	Japan	126,804,433	99,143,700	78.2 %	110.6 %	5.0 %
4	India	1,173,108,018	81,000,000	6.9 %	1,520.0 %	4.1 %
5	Brazil	201,103,330	75,943,600	37.8 %	1,418.9 %	3.9 %
6	Germany	82,282,988	65,123,800	79.1 %	171.3 %	3.3 %
7	Russia	139,390,205	59,700,000	42.8 %	1,825.8 %	3.0 %
8	United Kingdom	62,348,447	51,442,100	82.5 %	234.0 %	2.6 %
9	France	64,768,389	44,625,300	68.9 %	425.0 %	2.3 %
10	Nigeria	152,217,341	43,982,200	28.9 %	21,891.1 %	2.2 %
11	Korea South	48,636,068	39,440,000	81.1 %	107.1 %	2.0 %
12	Turkey	77,804,122	35,000,000	45.0 %	1,650.0 %	1.8 %
13	Iran	76,923,300	33,200,000	43.2 %	13,180.0 %	1.7 %
14	Mexico	112,468,855	30,600,000	27.2 %	1,028.2 %	1.6 %
15	Italy	58,090,681	30,026,400	51.7 %	127.5 %	1.5 %
16	Indonesia	242,968,342	30,000,000	12.3 %	1,400.0 %	1.5 %
17	Philippines	99,900,177	29,700,000	29.7 %	1,385.0 %	1.5 %
18	Spain	46,505,963	29,093,984	62.6 %	440.0 %	1.5 %
19	Argentina	41,343,201	26,614,813	64.4 %	964.6 %	1.4 %
20	Canada	33,759,742	26,224,900	77.7 %	106.5 %	1.3 %

Figure 17: Top 20 Countries in Terms of Internet Users

Figure 17 shows that the Philippines is the 16th in terms of Internet users among top twenty countries.

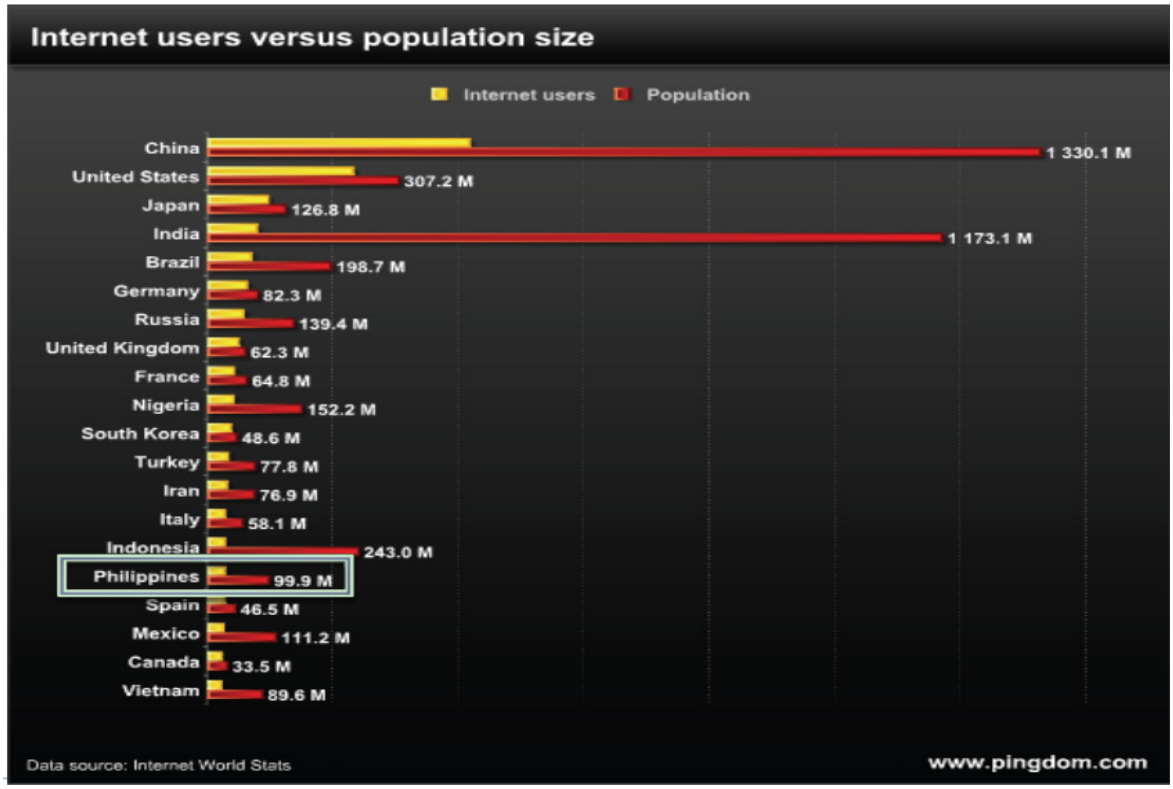


Figure 18: Internet Users versus Population Size

The above Figure 18 also shows that only 29.7 million Filipinos are using Internet out of 99.9 million.

Global Rank	Country/Region	Q4 '11 Avg. Mbps	QoQ Change	YoY Change
1	South Korea	17.5	4.7%	28%
2	Japan	9.1	2.3%	10%
3	Hong Kong	9.1	-14.0%	-2.6%
24	Australia	4.9	37.0%	66%
29	Singapore	4.6	3.3%	49%
43	Taiwan	3.7	-8.8%	-22%
44	New Zealand	3.7	-7.2%	7%
50	Thailand	3.1	-11.0%	13%
73	Malaysia	1.8	-4.3%	37%
86	China	1.5	5.1%	53%
103	**Philippines**	**1.1**	**-4.9%**	**8.6%**
114	India	0.9	-6.0%	13.0%

Table 7: Average Measured Internet Connection Speed by Asia Pacific Country/Region (Akamai)

Table 7 shows that Philippines is in the 103rd position in Internet speed. The existing speed is not sufficient to achieve the features of e-Government and proposed iGovPhil Project. People have to spend more time for just downloading and uploading the official documents which could give the negative impacts to the citizen on e-Government system.

REGION	TOTAL NO. OF PUBLIC HS	CONNECTED		WITHOUT CONNECTION		
		No. of HS	% Connected	w/in Telco area	out of Telco area	% Unconnected
National	6,650	1,936	29.1	1,150	3,564	70.9
NCR	220	157	71.4	63	0	28.6
CAR	243	7	2.9	46	190	97.1
I	461	81	17.6	101	279	82.4
II	350	26	7.4	33	291	92.6
III	502	115	22.9	81	306	77.1
IV-A	578	214	37	118	246	63
IV-B	340	34	10	39	267	90
V	582	38	6.5	78	466	93.5
VI	603	139	23.1	185	279	76.9
VII	610	298	48.9	107	205	51.1
VIII	397	70	17.6	88	239	82.4
IX	330	144	43.6	21	165	56.4
X	278	154	55.4	55	69	44.6
XI	279	61	21.9	76	142	78.1
XII	332	233	70.2	16	83	29.8
XIII	297	64	215	34	199	78.5
ARMM	248	101	40.7	9	138	59.3

Table 8: Internet Connection in High Schools (Japan International Cooperation Agency (JICA) Study, 2009)

Table 8 shows the Internet connectivity in public high schools in Philippines. The government has realized the importance of Internet right from the school. It clearly shows that there is only 29.1 % connectivity in entire high schools in Philippines. The size of connectivity in academic institutes is to be increased in order to provide balanced ICT services.

3.1.9. Implications

- Infrastructure is too weak to support active e-Government activities
- There is a need to motivate private telephone service providers to expand its service throughout the country
- Existing e-Centers need to be strengthened with latest technology and local contents
- Rural and urban areas need to have equal ICT services and opportunities
- Academic institutions should all be inter-connected and provided with excellent facilities to enhance the existing ICT structure
- Citizens should be encouraged and provided with sustainable environment to use the PC
- Internet speed needs to be increased

The implications are based upon the fact findings and the research. It shows overall ICT infrastructure is weak and most of the ICT services are concentrated in urban areas. There is a need to provide equal opportunities to entire country with the active involvements of private sectors. The existing e-centers are required to be upgraded as per the need of local residents and the existing Internet speed should be increased.

3.2. e-Government State of Philippines

< Summary >

The United Nation (UN) does survey in every two years to identify the status of e-Government in almost every country. Understanding state-of-art, state-of-practice and state-of-readiness are the main activities in As-Is analysis to find out the state of e-Governance. It gives the clear picture of the country in terms of their capabilities, strengths, weaknesses and their willingness. As per the UN report, Philippines is in the 88th rank now in 2012 but it was in the 78th rank in 2010. In spite of higher index values as compared to average regional countries, Philippines is continuously moving down in last 10 years.

3.2.1. Fact-findings

- Philippines is 5th in ranking among South East Asian countries and 88th in the world
- Philippines moved 10 steps down in ranking from 2010 to 2012
- Philippines is above the regional and world average
- Philippines is lower in all five parameters (e-participation, e-Government, human capital, online service, infrastructure) in comparison to Singapore and all parameters of Malaysia except the human capital index
- As compared to other regional countries, Philippines is higher in e-Government, human capital, and online service indices but lower in e-participation and infrastructure indices
- Philippines gained ranking in e-participation, e-Government, online service and infrastructure indices (0.0248, 0.0493, 0.1030 and 0.0967 respectively), but lost ranking in human capital index (0.0540)

3.2.2. Overview

Understanding state-of-art, state-of-practice and state-of-readiness are the main activities in As-Is analysis. It gives the clear picture of the country in terms of their capabilities, strengths, weaknesses and their willingness. The United Nation (UN) survey was referred as a this part of analysis to identify and understand the present scenario of e-Government state of Philippines.

3.2.3. United Nations e-Government Survey 2010-2012

The United Nations(UN) does survey in every two years to identify the status of e-Government in almost every country. The UN reports were referred to identify the e-Government status of Philippines. The analysis was done in three phases. In Phase I,

Philippines were compared with other countries in South Eastern Asia. In Phase II, Philippines were compared with Singapore and Malaysia. In Phase III, Philippines was compared itself in 2010 and 2012 and finally the detail analysis was done based upon the core components of e-Government index.

3.2.3.1. Phase I

Country and Regional Ranking		e-Government Development Index Value		World e-Government Development Ranking	
No.	**Country**	**2012**	**2010**	**2012**	**2010**
1	Singapore	0.8474	0.7476	10	11
2	Malaysia	0.6703	0.6101	40	32
3	Brunei Darussalam	0.6250	0.4796	54	68
4	Viet Nam	0.5217	0.4454	83	90
5	**Philippines**	**0.5130**	**0.4637**	**88**	**78**
6	Thailand	0.5093	0.4653	92	76
7	Indonesia	0.4949	0.4026	97	109
8	Lao Peoples Dem Rep.	0.2935	0.2637	153	151
9	Cambodia	0.2902	0.2878	155	140
10	Myanmar	0.2703	0.2818	160	141
11	Timor-Leste	0.2365	0.2273	170	162
Sub Regional Average		**0.4793**	**0.4250**	-	-
World Average		**0.4882**	**0.4406**	-	-
South Korea		**0.9283**	**0.8785**	**1**	**1**

Table 9: e-Government Ranking in South East Asia

In Table 9 above, the entire South East Asian countries, sub regional average, world average and South Korea were considered in order to find out the position of Philippines among the South East Asian countries. The Philippines was the 78th in rank in 2010 and now is the 88th in 2012. As per previous UN reports, Philippines has been continuously going down in rank in the last 10 years.

3.2.3.2. Phase II

In Phase II, the Philippines was compared to Singapore and Malaysia in order to find out the relative rank and status among three countries. The five main parameters such as e-participation, e-Government index, human capital index, online service index and infrastructure index were considered in Table 10.

The involvement of citizens in decision making process is very low as compared to Singapore and Malaysia as per Table 10. The Philippines has to upgrade the existing government portals with more features and encourage citizens to give feedbacks and to take the part in decision making process of the country.

Rank	Country	e-Participation Index	e-Government Index	Human Capital Index	Online Service Index	Infrastructure Index
88	Philippines	0.2105(24)	0.5130(88)	0.8341(68)	0.4967(71)	0.2082(110)

10	Singapore	0.9474(2)	0.8474(10)	0.8500(58)	1.0000(2)	0.6923(23)
40	Malaysia	0.5000(14)	0.6703(40)	0.7691(110)	0.7908(20)	0.4510(57)
Regional Average		0.2738	0.4992	0.7278	0.4880	0.2818
Differences with Singapore		-0.7369	-0.3344	-0.0159	-0.5033	-0.4841
Differences with Malaysia		-0.2895	-0.1573	+0.065	-0.2941	-0.2428
Differences with Region		-0.0633	+0.0138	+0.1063	+0.0087	-0.0736

Table 10: Comparison between the Philippines, Singapore, Malaysia and Regional Countries

3.2.3.3. Phase III

The Phase III compares Philippines in 2010 and 2012. The detail analysis of Philippines in 2010 and 2012 was done in Table 11. According to the UN survey, e-Government index is the summation of human capital, online service and infrastructure indices. It also depends upon the e-participation index indirectly. In Table 11, the three main components along with e-participation index were analyzed.

No.	Year	E-Participation Index	e-Government Index	Human Capital Index	Online Service Index	Infrastructure Index
1	2010	0.1857	0.4637	0.8881	0.3937	0.1115
2	2012	0.2105	0.5130	0.8341	0.4967	0.2082
Differences		+0.0248	+0.0493	-0.0540	+0.1030	0.0967

Table 11: Philippines in 2010 and 2012

Table 12 below depicts the e-Government index value of Philippines. The Philippines is in the 88th position in e-Government index with human capital component (0.8341), online service component (0.4967), and telecommunication infrastructure (0.2082).

e-Government Index	Human Capital Component	Online Service Component	Telecommunication Infrastructure	Rank
0.5130	0.8341	0.4967	0.2082	88

Table 12: e-Government Index

Table 13 below shows the details of human capital index of Philippines. It is the mixture of two prime entities such as adult literacy rate and gross enrolment rate. Philippines is in 68thposition with adult literacy rate (95.42) and combined gross enrolment rate (80.01). The gross enrolment should be increased to maintain its human capital index.

Human Capital Index	Adult Literacy Rate	Combined Gross Enrolment Rate	Rank
0.8341	95.42%	80.01%	68

Table 13: Human Capital Index

Table 14 below shows the online service index of Philippines. The values of online service index depends upon the quality of government portals and its required features such as level of interactive and volume of information. It is calculated with emerging information service, enhanced information service, transactional service and connected approach. Philippines scored index value of 0.4967 in 71stposition with the cumulative values of 83%, 52%, 37% and 36%.

Online Service Index	Emerging Information Service[Stage I]	Enhanced Information Service[Stage II]	Transactional Service [Stage III]	Connected Approach [Stage IV]	Rank
0.4967	83%	52%	37%	36%	71

Table 14: Online Service Index

Table 15 below depicts the infrastructure index of the Philippines. The Philippines is in 110thposition with the average of five main parameters such as Internet user per 100 inhabitants (25), fixed telephone line per 100 inhabitants (7.27), mobile subscribers per 100 inhabitants (85.67), fixed Internet subscriber per 100 inhabitants (3.93)and fixed broadband per 100 inhabitants (1.85). Besides mobile subscribers, the number of users in Internet users, in fixed Internet subscription and in fixed broadband is very low. This is one of the big challenges for Philippines.

Infrastructure Index	Internet User per 100 inhabitants	Fixed Telephone Line per 100 inhabitants	Mobile Subscribers per 100 inhabitants	Fixed Internet Subscription per 100 inhabitants	Fixed Broadband per 100 inhabitants	Rank
0.2082	25	7.27	85.67	3.93	1.85	110

Table 15: Infrastructure Index

3.2.4. Implications

- ☞ Philippines is at a critical junction in the development of e-Government and needs to take conclusive actions
- ☞ Existing government portals need to be updated with more information and provide full interactive features
- ☞ Citizens should be encouraged and motivated to take part in decision making
- ☞ Policy and ICT systems should be designed to encourage citizens to use more Internet
- ☞ Broadband facilities need to be enhanced throughout the country
- ☞ Human Resource is a big asset of the Philippines and can be utilized in conducting research activities in e-Government system
- ☞ There is a need to increase Internet penetration in the entire country
- ☞ Enrolment in academic institutions needs to be raised

The implications are based upon the fact findings and research. The e-Government rank of Philippines has been going down since last ten years. In order to overcome this problem, citizens should be encouraged to take part in decision making by designing ICT systems and making government portal more interactive and user friendly. Since human resource is one of the big assets of Philippines, enrolment in academic institutions should be more.

3.3. Front Office

< Summary >

Online service and citizen engagement are the main two parameters to evaluate the state-of-the-art of the front office in the country. The quality and maturity of online service depends upon the features of government's individual web sites. There are four levels in evaluating maturity of online service. The Philippines is in level 2 as per the research. The citizen engagement in the policy and decision making process is very important in e-Government system. The citizen can make themselves engaged through government portal. The existing government portal has to be enhanced with more interactive features.

3.3.1. Fact-findings

- ➢ Not all information is available at the government portal
- ➢ The government portal is not highly interactive
- ➢ A large number of the government services require physical visit to relevant offices

- Philippine e-Government is mature in level 1 but still in primitive stage of level 2 in the UN e-Government maturity scale

3.3.2. Overview

Front Office is an interactive junction for the citizens to access the services and collect the required information from the government. It should provide user friendly environment to the citizens and act as a bridge between government and citizens.

The analysis of front office in a country includes the issues such as online service and citizen engagement.

3.3.3. Online Service

The maturity of a country in providing the information and services can be analyzed through the four level models. This model is very popular in finding out the status of online service in a country. Each level shows the maturity in providing online service. The levels are:

- Level 1 : Static Information
  (The information is published in government website but it is static)

- Level 2 : Interactive Information
  (Level 1 + Interactive i.e. citizen can access the information and interact)

- Level 3: Transactional
  (Level 1 + Level 2 + citizen's ability to enter secure information and engage in transactions with the organization)

- Level 4: Seamless
  (Level 1 + Level 2 + Level 3 + organization's ability to share data and information with other organizations, as per the law and with the user's consent)

These above levels are the stages of e-Government as prescribed by the United Nations.

As per available information, the Philippines is mature in level 1 but it is in initial stage in level 2. The Philippines has to explore the various types of service delivery mechanism with proper software and hardware to enhance the existing service delivery mechanism.

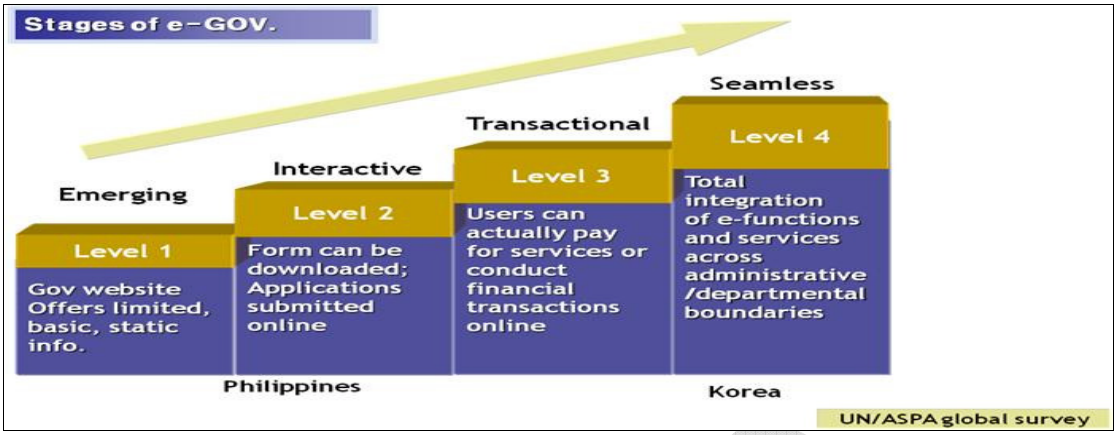


Figure 19 : Stages of e-Government

3.3.4. Citizen Engagement

Citizen involvement is very important in developing e-Government system. Citizen can be engaged in policy making of the nation by proper use and design of Front Office. It can be done by reaching a wider group of citizen, tailoring information to the target citizen, engaging citizens through consultation and participation, facilitating the analysis of citizen contributions, and providing feedback to citizens. The government portal is the nucleus for citizen engagement. It has to cover every department under its umbrella. At the same time each department should be digitized and strong enough in terms of ICT to support government portal. This mechanism will help the citizens to get all required information and services through a single government portal.

3.3.4.1. Government Portal

http://www.gov.ph/ provides the government information to the citizens of Philippines.

Features of the Portal:

- Citizens can connect every department through portal
- Online services are provided based upon the need of citizens, overseas Filipino workers, business and investors, government employees, visitors to Philippines, government agencies
- Public information is provided based upon topics such as: benefits, grants, financial aids, consumer guides and protection, defense and international relations etc.
- It also provides the links to the State Universities and Colleges
- It is also equipped with citizen's suggestions and feedbacks

3.3.5. Implications

- ☞ There is a need to upgrade the hardware to enhance government service delivery
- ☞ Every Department and government organization needs to be encouraged to digitize their entire information and actively support the government portal
- ☞ Government representative portal needs to be enhanced to provide one-stop service

The implications are based upon the fact findings and research. It shows the quality of service to the citizen should be improved by upgrading the hardware and software. All existing data is required to be digitize to provide the government portal as one stop service.

3.4. Back Office

< Summary >

Back office is the main execution parts of an organization that are carried out internally and supports the core processes. The connectivity among the government organizations is necessary to provide seamless services to the citizens. In the Philippines, the connectivity among the government organizations is very weak. There is no standardization among them. The ICT human capacity is not enough in the government organization to support ICT related activities.

3.4.1. Fact-findings

- ➢ Connectivity among government organizations is weak
- ➢ There is no national standardization among the departments or government organizations
- ➢ Low level technology is still in active use
- ➢ The number of ICT staff is very small

3.4.2. Overview

Back office is the main execution parts of an organization that are carried out internally and supports the core processes but the complexities of the processes are not accessible and visible to the citizen.

e-Government helps organization to reform administrative back office so that it can provide seamless services to the citizen. Seamless services are services that excel the organization-based structure of the supply of information and services, and present citizen with a coherent, integrated package of information and services. In doing so, e-Government enables seamless, inter-organization services so that citizen can interact

with the government as a single organization or a single window. Back office should always be efficient and interoperable among the organizations in the government to appear as a single organization from the citizen's view.

In order to know the back office status three factors are considered such as status of services and systems, government ICT infrastructures, and human resources status.

Agency/ Department	Service	IT System	Content of DB	Language	IT Staffs
Benefit Development and Research Department (BDRD)	Processing of Claims Reimbursement, Generation of Voucher, Generation of Check payment, Posting of Return to Hospital (RTH) and Denial Claims, and Generation of Reports (for accounting and claim related reports such as benefit payment notice, vouchers, RTH letters, etc.	New Claims Processing System (NClaims)	**Claims Information** (Claim series, member data record, Illness code and type, Surgical Procedures (if any), Doctor information, hospital information, hospital charges, professional charges, claim status, etc.) **Libraries** (RVS Codes , ICD 10 codes, Accredited Hospitals and Professionals, Benefit Tables, Deficiency Code, etc.), **Computed allowable benefit**, **Payment information** (Voucher No, Voucher Date, Check no., check amt, Check Date, Claimant Name, etc.)	Delphi 7	4 (2 analysts and 2 developers)

Agency/ Department	Service	IT System	Content of DB	Language	IT Staffs
Accreditation Department	Processing of Institutional Health Care Providers Accreditation, Generation of Certificates, Printing of ID of HCPs, Generation of Agenda Report and other Statistical Reports.	Integrated Philhealth Accreditation System 1 (IPAS 1)	**Institutional Health Care Provider Profile** (Hospital/Facilities - HCI and Professionals -HCP) **Monthly Mandatory Hospital Report**, **Accreditation Details** (Accreditation Validity, HCI services, HCP specialty, HCP sub-specialty,etc)	VB.net	2 (1 analyst and 1 developer)
Member Management Group	Provides Member contributions information and Employer, organized group, reports information	Philhealth Member Account Information System (PMAIS)	Member contributions data, Employer, Organized Group and IPM Group reports data	Delphi 7	2 (1 analyst and 1 developer)
Member Management Group	Provides information of members, employers, organized groups and Sponsors	Membership and Contribution Information System (MCIS)	Information of Members and Employers, Organized Groups and Sponsors	Delphi 7	4 (2 analysts and 2 developers)
Treasury Department	Facilitates over the counter payments of Members, Employers, Organized Group, IPM Group and Sponsors	Over-the-counter Collection System (OTCCS)	Members, Employers, Organized Groups, IPM Groups, and Sponsors payments	Delphi 7	2 (1 analyst and 1 developer)

Agency/ Department	Service	IT System	Content of DB	Language	IT Staffs
Human Resources Department, Comptrollership Department, and Treasury Department	Employee information, Bank services, Accounting, Computes monthly payrolls, Bureau of Internal Revenue, Contributions or loans from GSIS, PhilHealth, PAG-IBIG and others.	March 16, 2012 PhilHealth Integrated Payroll System (PIPS)	Employee Profile, Regular and Overtime Payrolls, Special Payroll, Loan Applied, Refund, Contributions, Salary, Departments, Positions, Special Order/Official Business, Daily Time Record, Leave Credits, Holidays, Tax, Tax Schedule, Authority to Debit, Payroll Extraction	Unclaimed Refund System (UR$) Delphi 7	Member Name, Patient Na Unclaimed Refund Amou Vouchers, Checks, Mailing 2 (1 analyst and 1 developer)
Member Management Group (MMG)	Registration of Private and gov't workers, Overseas Filipino workers, Individually Paying (Professional and Non-Professional)	Electronic Registration and Amendment Request System Phase 1 (eRAS – Phase 1)	Registrant name, address, contact, membership information, dependent information, supporting documents	PHP	1 analyst and 1 developer
Claims Review Office / Claim Review Unit (Regional Offices)	Provides information on Claims that were subjected for Motion for Reconsideration	Claims Review Information Management and Evaluation System (CRIMES)	Denied Claim for Motion for Reconsideration, Hospital library, Medical Evaluation, Confinement information	Delphi 5	3 (yet to identify how many analysts and developers were involved)
DILG	Electronic Data Processing Service (EDPS)	Local Governance Information System	Data on Local Government units; data of field officers	MS Access PHP	25
DND	Service Record	HURIS	Personnel Data	MS Access w/ VBA	4
DBM-PS, PhilGEPS	Payroll & remittances	PAYROLL	Personnel Compensation	MS Access w/ VBA	4
	Journal entry, books of accts	ENGAS	Accounting data	VBG & MS SQL	4

Agency/ Department	Service	IT System	Content of DB	Language	IT Staffs
	Tracking of different documents	DOC TRACK	Document Tracking	MS Access & MS SQL	4
	DTR	BIOMETRIC	Time-In and Out	VBG & MS SQL	5
	A) Registration and approval of agency and supplier organization, B) facility to create bid notices and documents, award bid notices, closure of bid notices, C) online procurement of agencies for common-use goods, item catalogue maintenance, inventory management D) facility to upload eligibility documents	Philippine Government E-Procurement Systems (PhilGEPS)	Organization data, Bid Notices data, Item Catalogue, Item inventory	.NET Framework 1.1, VB.NET, PHP, ext2, MS SQL	9

Table 16: Status of Services

Agency	Hardware			
	Number of Server	Number of PC	Network Access	Network Speed
PHIC	200	4500	LAN/WAN/Internet	100/1000 Mbps
DILG-EDPS	6	500	Cable; modem	1.5 mbps
DND Proper	6 in 1 (Modular Server)	250 desktop 50 laptops	Leased Line	100 mbps
UDD(Makati)	50	129 units	Leased Line	30mbps
DBM-PS, PhilGEPS	3	21	LAN, WIFI	2Mbps

Table 17: Infrastructure Status

Agency	HR	
	No. of ICT Trained Officials	No. of Officials in charge of ICT
PHIC	40 (PRO and ITMD Sections + ITMD Div chiefs)	15 (approximate)
DILG-EDPS	3	1

DND Proper	22 (USEC/ASEC/Dir)	1
UDD(Makati)	20	9
DBM-PS, PhilGEPS	4	2

Table 18 Table 19: Status of Human Resource Development

3.4.3. Implications

- ☞ Need to strengthen connectivity among government organizations
- ☞ Standardization needed to increase interoperability
- ☞ Enterprise Architecture (EA) should be adopted and business process reengineering (BPR) should become mandatory
- ☞ The concept of "Whole of Government" approach needs to be used
- ☞ Policy to reduce the gap among the government departments and organizations needs to be implemented
- ☞ ICT experts needs to be increased in numbers in all Departments and government organizations

The implications are based upon the fact findings and research. Back office is the back bone of e-Government system. In order to make it more effective, a standardization is required for high interoperability among the government departments. The features of "Whole of Government" can be used by using Enterprise Architecture and Business Process Reengineering. These are the mandatory steps in making back office strong and effective.

4. Analysis of e-Government Requirements

4.1. Methodology of Evaluation

4.1.1. Overview

The approach taken for analyzing the e-Government requirements was to do various direct interviews with public officials from government organizations in charge of ICT as well as survey as many government organizations and the average Philippine citizens as possible. Much emphasis was put on direct contact with both the government and the citizens.

The result of both the various surveys and interviews were then analyzed qualitatively and quantitatively to accurately reflect the current e-Government situation in the Philippines.

More specifically, 19 government organizations were visited and interviews with relevant ICT officials were done. Most of the organizations visited were executive branch but the Supreme Court and 2 local governments as well as the Commission on Elections were also included. e-Government survey of over 100 local Philippine citizens was also taken to assess the reception of government services by the general public.

For the quantitative analysis, more than 20 government organizations including those interviewed, participated in taking an online e-Government survey.

4.1.2. Qualitative Evaluation

4.1.2.1. Government Interview

The 19 Departments and various government agencies to be visited were classified into 3 groups (high/mid/low) according to their ICT capacity and competency.[12]

The 3 groups were then sampled and government organizations from each group were chosen upon availability for interview; physical interviews took place from May 15 to May 30, 2012, in the Philippines by the NIPA Consulting Team for the "Philippine e-Government Master Plan Consulting Project."

Date of Interview	Organization Interviewed	Person Interviewed	Group Level
May 15	NAMRIA	Linda SD. Papa(Deputy Administrator)	High
May 16	DSWD	Felino Castro	High
May 18	BIR	Jaime Zabala	High
	DPWH		High
May 21	PHIC	Bobby Crisostomo(IT mag. div.)	High
	DOH	Cherrie Esteban	Mid
May 22	SSS	Tony salazar	High

[12]Appendix A. Classification of Organizations provided by the NCC

	DENR	Roberto de Leon(MIS division)	Mid
	PhilGEPS-PS	Ulysses delaCruz(system development div.)	Mid
	City of Makati	Merlina G. Panganiban(Department Head)	High
May 23	NSO	Elpidio C. Nogales(IT operations division)	High
	Supreme Court	Joey N. Enriquez(SC Chief Judicial Staff)	Mid
	DND	Andres D. Navarro(Deputy chief)	Low
	Globe Telecom Inc.	Abigail Anne Wu(Segment Marketing)	N/A
May 24	COMELEC	Helen G.Aguila-Flores(Comstrat Manager)	N/A
	BTR	Regilito L. Tamayo(OIC-Director)	High
	Quezon City	Precious Tolentino	N/A
May 30	Commission on Higher Education	Gregorio T. Atienza	N/A
	DILG	Maria Elena M.Robosa(EDPS)	Mid

Table 20: List of Interviews with Government Organizations

Interview sheet and tables[13] were asked to be filled out and used in the qualitative evaluation for the e-Government requirements.

4.1.2.2. Citizen Survey

Over 100 average Philippine citizens were surveyed[14], using both online and offline methods.

Although demography of the population may have not been properly reflected, the results of the offline surveys made at the campus of U.P. Diliman, various large shopping malls and cafes in Metro Manila as well as the online survey from various SNS sites do offer very important and relevant picture of the reception of Philippine e-Government services provided to the citizens.

Moreover, the low rate of PC penetration (30%) and Internet connectivity (25%) become the limiting factors for the average Filipino to have real experience in e-Government services other than those who have permanent access to the PC and Internet connectivity.

4.1.2.3. Gap Analysis

While qualitative evaluation of both government interviews and citizen survey was conducted, facts and implications were also identified from the differences found between the provider and receiver of e-Government services in the Philippines

These differences or the gap between public officials and the citizens, when properly analyzed, can serve to bridge the communication barrier that exists and also point to a new direction for e-Government implementation.

[13]Appendix B. Interview Sheet and Tables

[14]Appendix C. Citizen Survey Sheet

4.1.3. Quantitative Evaluation

4.1.3.1. Government Survey

A rather lengthy and heavy set of questions[15] were used to survey various government organizations to gauge how public servants felt about their work processes, information management and sharing and so on.

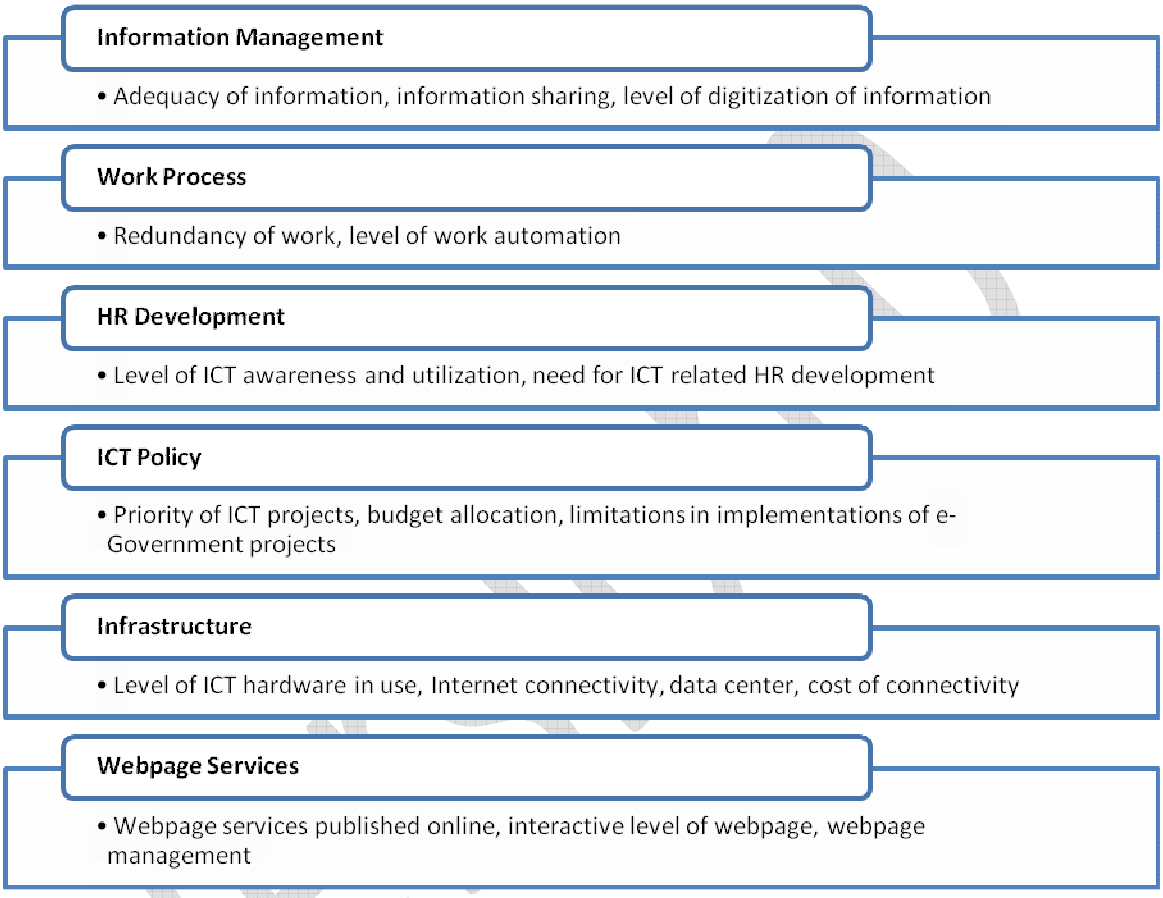


Figure 20: Indicators of the Quantitative Evaluation

Figure 20 above shows the indicators used for the quantitative evaluation. From 6 categories that form the basis of any organization and its work environment, various indicators were chosen and reflected in the survey to accurately assess what requirements are needed in the To-Be model of e-Government for the Philippines.

The quantitative survey was distributed to all the 19 Departments and various Bureaus of the executive branch of the Philippine government as well as other government organizations such as the LGUs as shown below in Table 21.

Organization	Person to Survey	Remarks

[15]Refer to Appendix 4. Survey Sheet from the 1st on-site "Visiting Plan(2012.5.7)" to the Philippines

Department of Agriculture	CIO
Department of Budget and Management	CIO
Department of Education	CIO
Department of Energy	CIO
Department of Health	CIO
Department of Environment and Natural Resources	CIO
Department of Finance	CIO
Department of Foreign Affairs	CIO
Department of the Interior and Local Government	CIO
Department of Justice	CIO
Department of Labor and Employment	CIO
Department of National Defense	CIO
Department of Public Works and Highways	CIO
Department of Science and Technology	CIO
Department of Social Welfare and Development	CIO
Department of Tourism	CIO
Department of Trade and Industry	CIO
Department of Transportation and Communications	CIO
Department of Agrarian Reform	CIO
Congress of Philippines	CIO
Supreme Court of Philippines	CIO
Chief of the National Computer Center (NCC)	CIO
City of Manila	CIO

Table 21: Distribution List of Government Organizations for Quantitative Survey

Along with distribution of the survey sheet to the list above, the survey was also uploaded on the Internet to allow for easier access.

Some 20 government organizations have responded to the survey. However, it should be noted that the amount of responses gathered so far has produced meaningful data and the basic trend shown in the quantitative analysis is unlikely to be affected in any significant way.

4.2. Result of Qualitative Analysis

< Summary >

In order to better provide public services to the citizens utilizing ICT, existing work processes need to be examined and reengineered to remove redundant work and reduce their complexity. Also, by appointing high level Chief Information Officers (CIOs) in every government organizations, the quality of HR can be drastically improved as well as to facilitate policy making and implementation capacity. As a result, most politicians pay more attention to high level officials. Also, the establishment of a government data center will greatly enhance data security, making it easier to convince politicians on e-Government policy, especially in the face of cyber threats and the need for strong data security.

On the other side of e-Government, most of the citizens who took part in the survey had to physically visit various government agencies for most of their public needs, thereby indicating the level of Philippine e-Government as level 2 at best in accordance with the UN standards. The lack of interactive features also meant that there is not much in citizen engagement in decision making processes, for both ICT policies and non-ICT policies.

4.2.1. Fact-findings

4.2.1.1. Government Interview

Most government organizations have objectives to provide efficient and effective services to the citizens using ICT. In order to meet the objective, first of all there is a need to examine the existing business process and apply reengineering approach to remove the redundancy and reduce the existing process complexity. The human resource always plays the significant role in system development. The appointment of high level chief information officer (CIO) is recommended in every government organization. The CIO is involved in internal system development as well as coordinating other CIOs to follow the standardization and enhance the interoperability among the government organizations. The CIO has to be smart enough to induce the attributes such as reliability, availability and maintainability in the system. Besides these responsibilities, the CIO also needs to follow best HRD package to recruit as per the need in order to reduce the skills gap. Identification of required best practices is always needed in developing e-Government system. The Philippines has to explore the best practices such as e-bidding, e-SCM, e-insurance and many more and customize them locally. The policy makers are still reluctant in most of the cases in e-Government system. Most of them are still not convinced on the data security. In order to address these challenges, the establishment of government integrated data center is needed and the leaders in each organization are required to be equipped with the benefits of system.

The UN has prescribed four levels of maturity in providing online services with the use of ICT infrastructure and websites. Their level starts from level 1 which has the parameters of static information to the citizens. The level 2 is characterized with interactive features. The level 3 has the features of payments for the required

services and level 4 has the seamless features i.e. entire connected government services. As per the UN recommendation, none of the existing organization belongs to high level category. Most of the organizations fall onto the level 1 and very few in level 2.

4.2.1.2. Citizen Survey

At the other side, citizens' have given their views regarding the government services, their expectation and know-how of the e-Government projects. As per their feedback, most of the citizens use vehicle and health related services frequently but the corresponding departments are in primitive stage in providing these services through ICT. Very less numbers of citizens are happy with existing government's administrative services and most of them have complained on time consuming execution, complicated work flow and customer satisfaction deficiency.

The objectives of e-Government system cannot be achieved without citizens' involvement in policy making and ICT projects. In general, governments use e-Government to empower the citizens and include them in policy formulation and decision making process of the government. Their suggestions and their feedback are very important in system development. United Nation has suggested that the strength of the country in e-participation can be evaluated based upon volume of published relevant information, degree of citizens engagements with government officials and consideration of their feedbacks and suggestions in policy and decision making. As per the outcome of survey conducted in Philippines, most of the citizens are not aware of ICT projects neither they are involved in decision making process.

4.2.2. Implications

4.2.2.1. Government Interview

- ☞ Need to establish ICT systems with reliability and availability
- ☞ Effective HR development needed to reduce the skill gap
- ☞ Government IT resources need to be aggregated
- ☞ Need to conduct BPR and develop EA
- ☞ Need to increase ICT awareness of the high level policy makers
- ☞ Empowered CIO needed in every government organizations
- ☞ Quality of existing government portal needs to be enhanced
- ☞ Efficient implementation of e-Government budget needed

These implications are drawn based upon the interview with government

employees. Sufficient budget is required for establishing reliable and trustworthy ICT system in each department. The use of BPR and EA is needed to aggregate government ICT resources and enhance interoperability among the departments. Each department should have qualified CIO to take care of ICT department, to provide training to the employees and make a plan to increase ICT awareness to high level policy makers.

4.2.2.2. Citizen Survey

- ☞ Physical visit is often needed for everyday public services such as automobile, health, and tax services
- ☞ Level satisfaction for public service is high but speed of service delivery needs to be increased
- ☞ The basic national information such as resident management, social welfare and tax information needs to be digitized
- ☞ Active promotions of national ICT agenda to the public at large needed
- ☞ Emphasis of national ICT plans should be on economic growth and education reform
- ☞ Prevention of corruption and education reform are the highest priority in economic development

The implications are based upon the citizen survey. Citizens make multiple visits for the government service. The level of satisfaction is high but the speed of service delivery is still very low and most of the information is not digitized. The national ICT plans should be highly prioritized with prevention of corruption.

4.2.2.3. Gap Analysis

- ☞ Public officials need change of attitude to raise quality of public service delivery though ICT
- ☞ Citizens need to be encouraged to become involved in policy decision making process
- ☞ Overall enhancement of government portal is needed as a new mechanism for communication

The implication are based upon the gap between “As-Is” and “To-Be”. The government employees from various departments participated in a one day workshop to find the gap. The implications show that the officials should make the positive attitude for service delivery and for motivating citizens to take a part in

decision making with enhancement of the quality of government portal.

4.3. Result of Quantitative Analysis

< Summary >

Approximately twenty government Departments and Bureau as well as COMELEC and the S upreme Court, participated in the government-wide survey for this analysis. Hopefully, more organizations will participate as well, thus strengthening the overall credibility and accuracy of the survey. As it is, the result of the quantitative evaluation shows certain tr ends on how government organizations view and implement e-Government initiatives. Overall, the survey can be broken down to six main components: information management, work process, HRD, ICT policy, infrastructure and webpage services. Answers to questions from each component were used as indicators for evaluation. The main findings were t hat compared to the current level of informatization, assessment of level of e-Government by government officials was too optimistic as the Philippine e-Government is still in the entry level of digitalization and that the back office should be strengthened considerably.

4.3.1. Fact-findings

4.3.1.1. Information Management

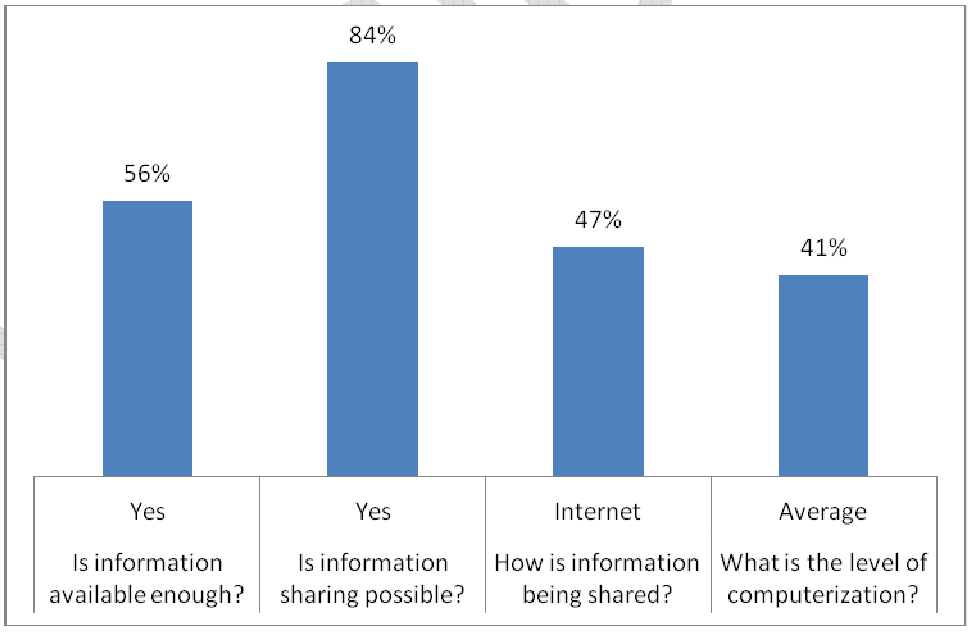


Figure 21: Result of Government Survey: Information Management

4.3.1.2. Work Process

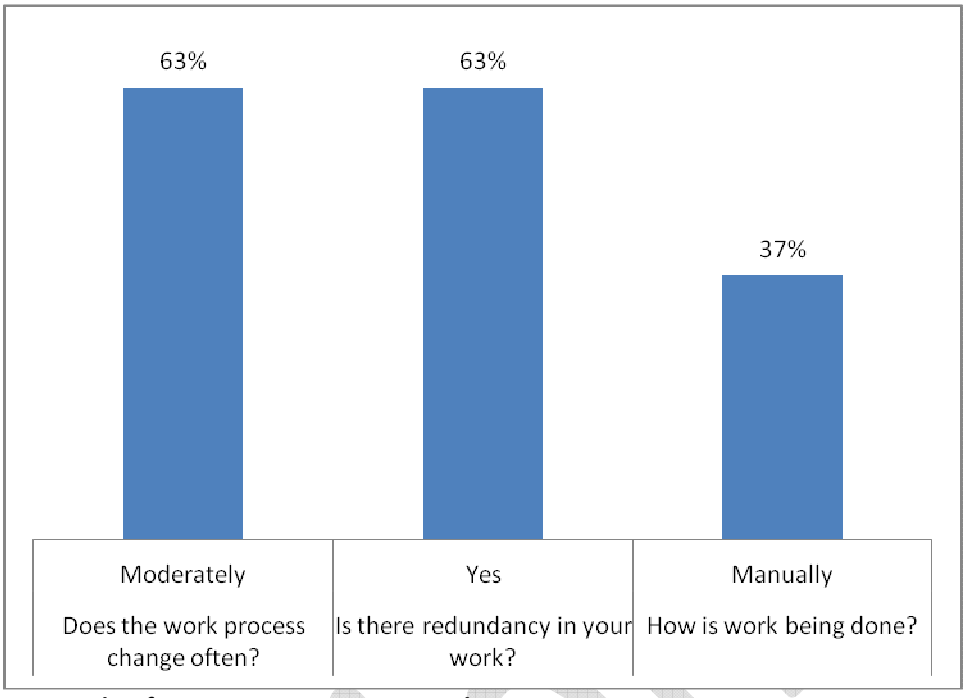


Figure 22: Result of Government Survey: Work Process

4.3.1.3. HR Development

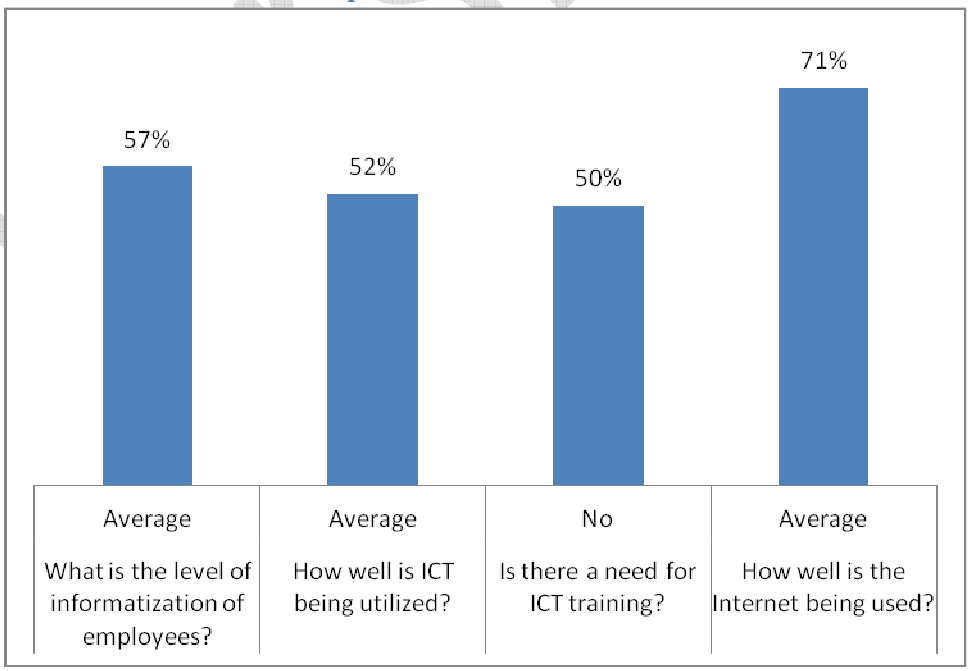


Figure 23: Result of Government Survey: HR Development

4.3.1.4. ICT Policy

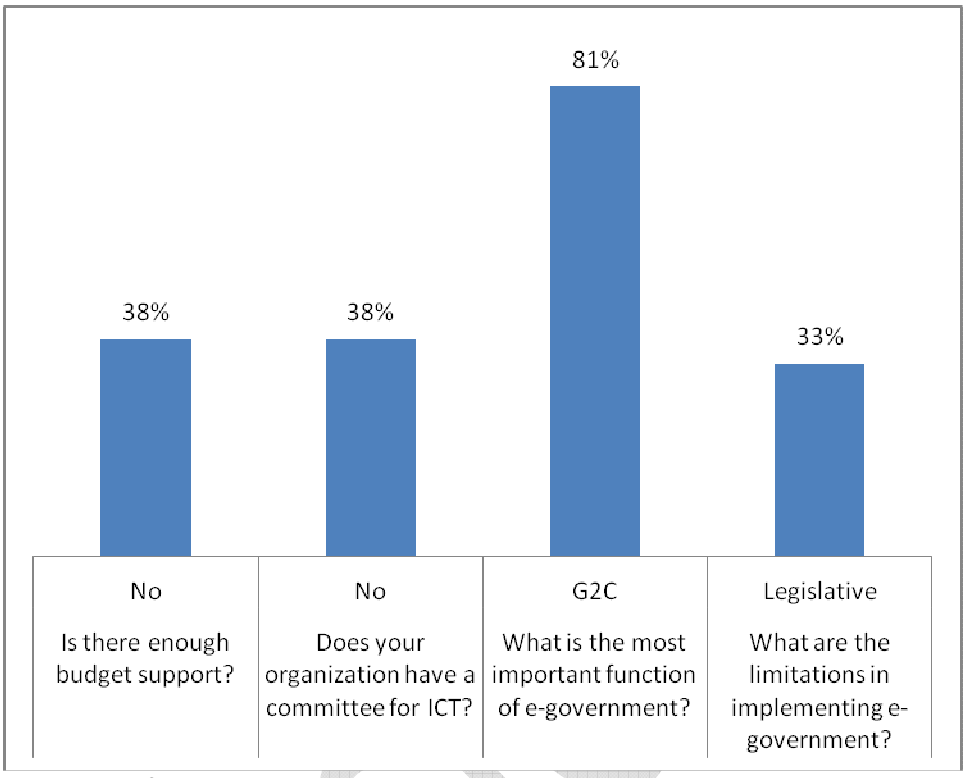


Figure 24: Result of Government Survey: ICT Policy

4.3.1.1. Infrastructure

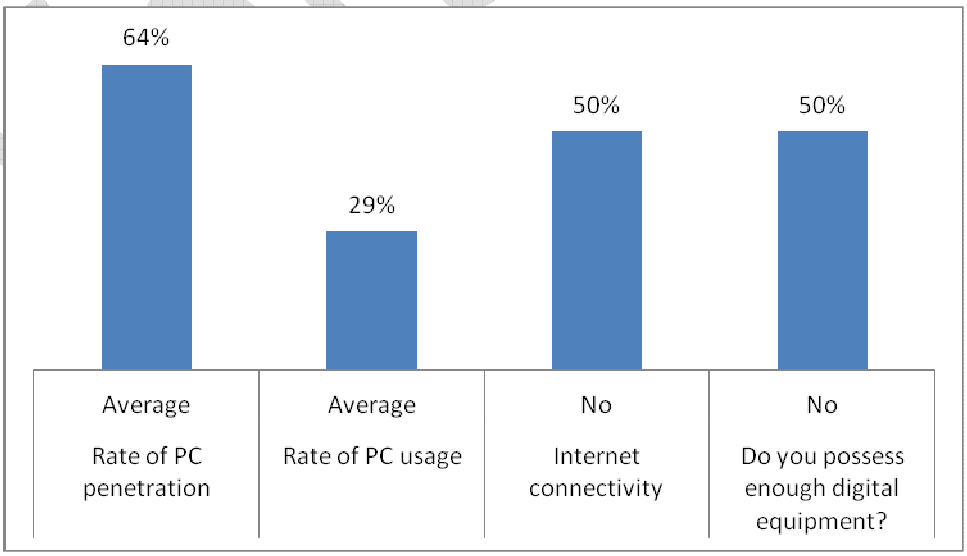


Figure 25: Result of Government Survey: Infrastructure (1)

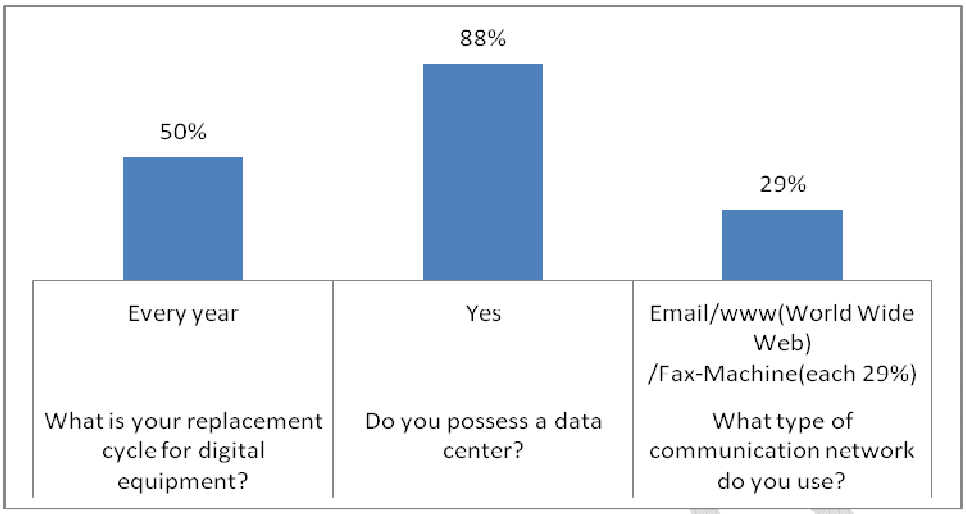


Figure 26: Result of Government Survey: Infrastructure (2)

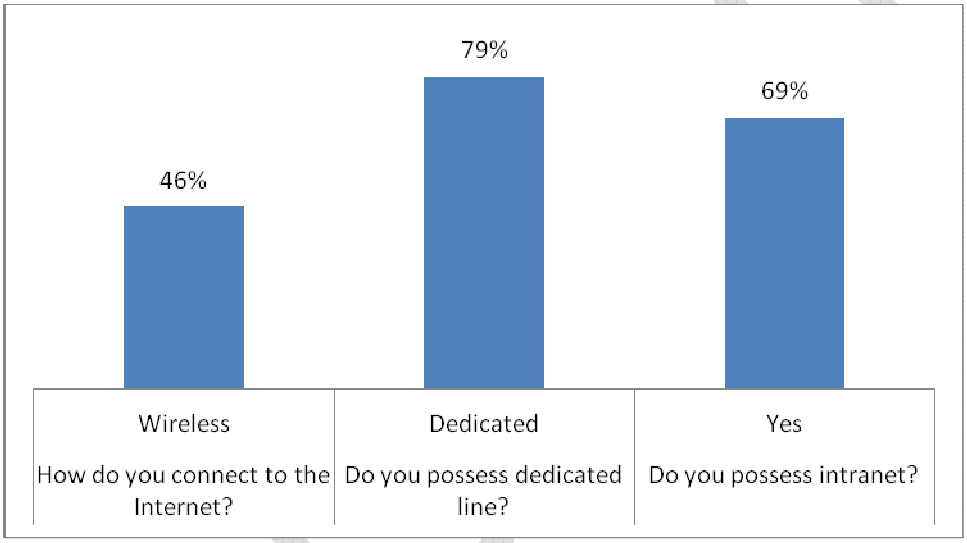


Figure 27: Result of Government Survey: Infrastructure (3)

4.3.1.2. Webpage Services

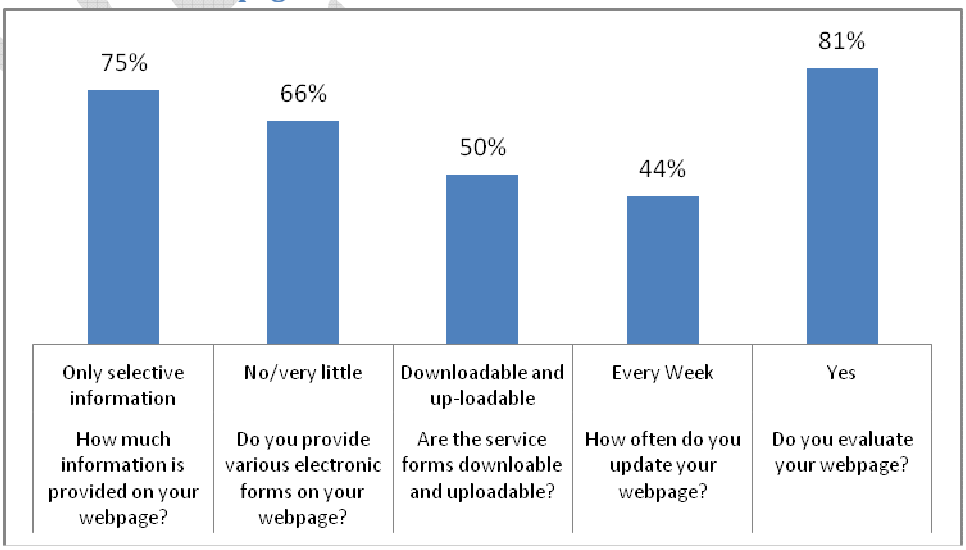


Figure 28: Result of Government Survey: Webpage Services

4.3.2. Implications

- ☞ Compared to the level of informatization, assessment of e-Government is too optimistic
- ☞ e-Government is still in entry level of digitalization
- ☞ There is little to almost no standardization of work process
- ☞ Implementation of work related system is very limited
- ☞ Overall human resource level is low to drive informtization
- ☞ Considering rate of Internet usage, there is potential HRD possibilities
- ☞ Back office needs to be upgraded to enhance the quality of public service delivery
- ☞ ICT organizations need to bolstered and strengthened
- ☞ Level of PC penetration and Internet connectivity is very low
- ☞ Basic infrastructure such as data centers and communication network is weak at best
- ☞ Information provided through homepages is very limited

The implications are based upon the survey. It shows that there are still many works to be done for digitizing the existing government's document. The existing work process does not follow the defined format. The effective back office with user friendly government portal is required to integrate the entire departments. The ICT infrastructure such as PC penetration, Internet speed is not in satisfactory level.

4.4. Result of Workshop

< Summary >

The purpose of workshop was to assess the maturity level of the Philippine e-Governm ent and prioritize strategic e-Government projects.
This workshop was based on the e-GAT(e-Government Assessment Tool)
A simplified but full consulting process from diagnosis to priority identification and strat egy development in the one-day workshop would help to identify the components of th e vision and strategy for establishing the Philippine e-Government roadmap with particip ation from Philippine government officials in charge of IT in their respective organization s.
It was especially important and significant that all the stakeholders from related depart ments and other various agencies participated in this one-day workshop so that the pri oritization of e-Government projects and the vision of future To-be model could be ide ntified.

4.4.1. Overview

NCC hosted the e-Government Assessment Workshop on July 3, 2012 with government officials participating from various government agencies. The workshop was held at the seminar room on the 2nd floor of the NCC building from 9 am to 5 pm, a full working day. Many were invited to the workshop, mostly the executive branch; all of the 19 Departments and most of the government agencies. Over 35 government officials from various government agencies such as DSWD, DPWH, DFA, CHED, DILG, BIR, DOH, DND and NCC participated in the workshop, resulting in a comprehensive review of progress made thus far.

The workshop program consisted of session for e-GAT analysis and visioning for e-Government of the Philippines by the participating government officials.[16]

In order to find out the vision for the future of Electronic Government in Philippines and its corresponding mission, the visioning workshop was carried out with the government officials. The NIPA consultant started workshop with the presentation on guidelines of developing vision and mission of Electronic Government. Then, the government officials were divided into four groups in order to find out the vision and mission. Each group presented its vision and mission at the end of the workshop. Then finally, the consolidated vision and mission was defined with the consultation of NCC.

4.4.2. Fact-findings

4.4.3. Result of the e-GAT Analysis

4.4.3.1. Gap Analysis: G2G

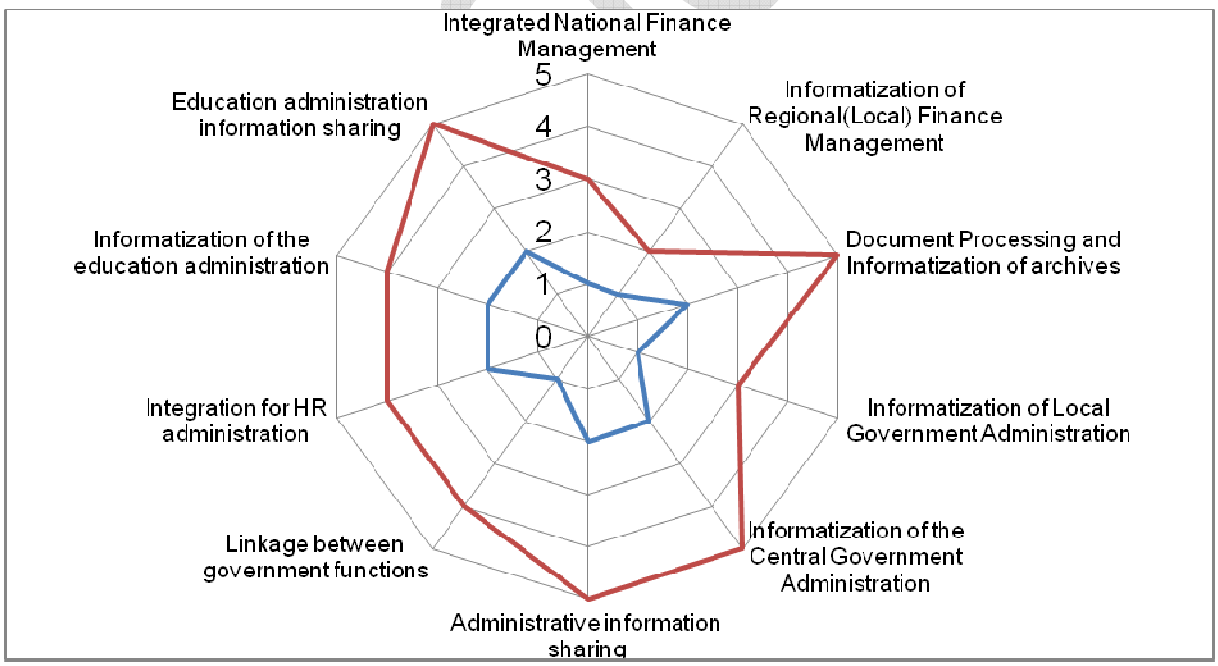


Figure 29: e-GAT Gap Analysis: G2G

[16]Refer to Appendix E. Workshop Program for more details

The Figure 29 depicts the gap in G2G in Philippines. There are ten parameters used in identifying the G2G gap in Philippines. They are such as: informatization of regional (local) finance management, document processing and informatization of archives, information of local government administration, informatization of the central government administration, administrative information sharing, linkage between government functions, integration for HR administration, informatization of the education administration, educational administration information sharing, and integrated national finance management. The inner circle with blue color shows the "As-Is" status of each parameter and the outer circle with red color shows the "To-Be" model of each parameter. Example: In the case of informatization of regional (local) finance management, the existing level is 1 and expected level is 2 so the gap is 1. Similarly in the case of administrative information sharing, the existing level is 2 and the expected level is 5 so the gap is 3.

4.4.3.2. Gap Analysis: G4C

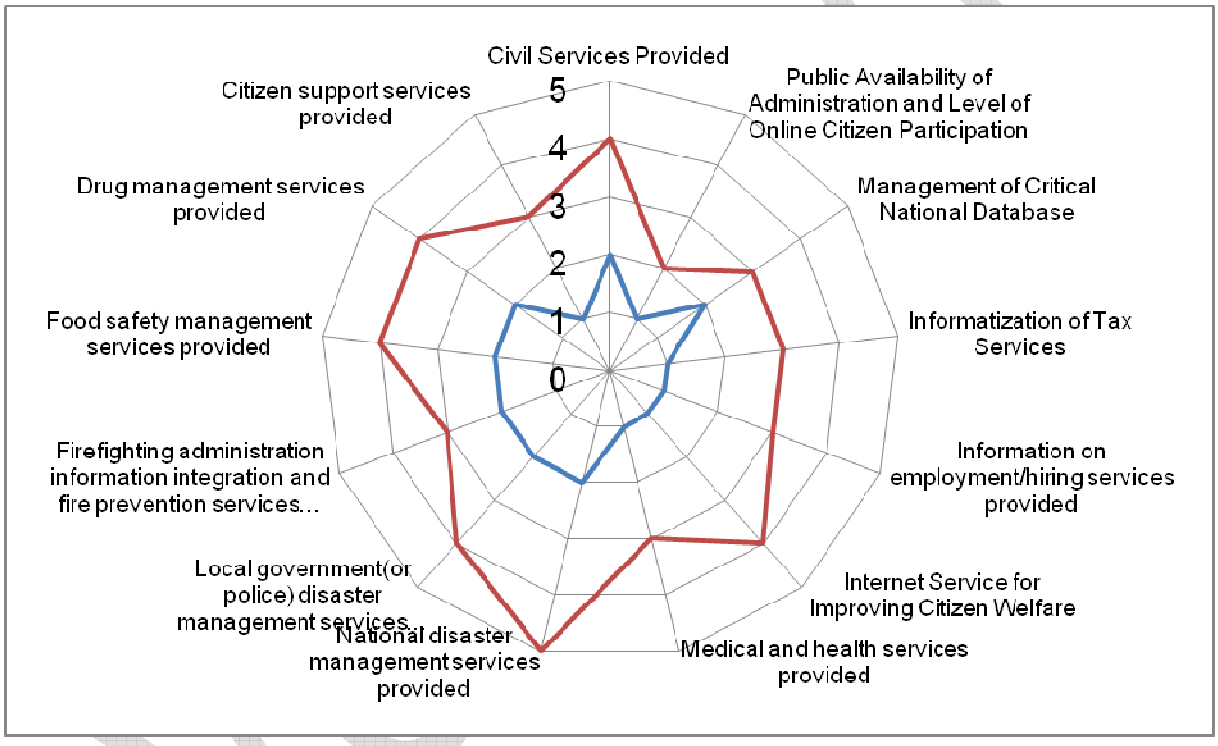


Figure 30: e-GAT Gap Analysis: G4C

The Figure 30 shows the gap of G4C in Philippines. The thirteen parameters are used in identifying gap in G4C in Philippines. They are such as: public availability of administrative and level of online citizen participation, management of critical national database, informatization of tax services, information on employment/hiring services provided, Internet service for improving citizen welfare, medical and health services provided, national disaster management services provided, local government(or police) disaster management services, firefighting administration information integration and fire prevention services, food safety management services provided, drug management services provided, citizen support services provided and citizen service provided. The gap in the Figure 30 shows that public availability of administrative and level of online citizen participation, information of tax services, information on employment/hiring services, Internet service for improving citizen welfare, medical and health service, and citizen support services are in primitive level i.e. 1 and remaining in level 2.

It indicates the status of citizens' services provided by government in Philippines is still in early stage and there is a need to enhance these stages to provide better services.

4.4.3.3. Gap Analysis: G2B

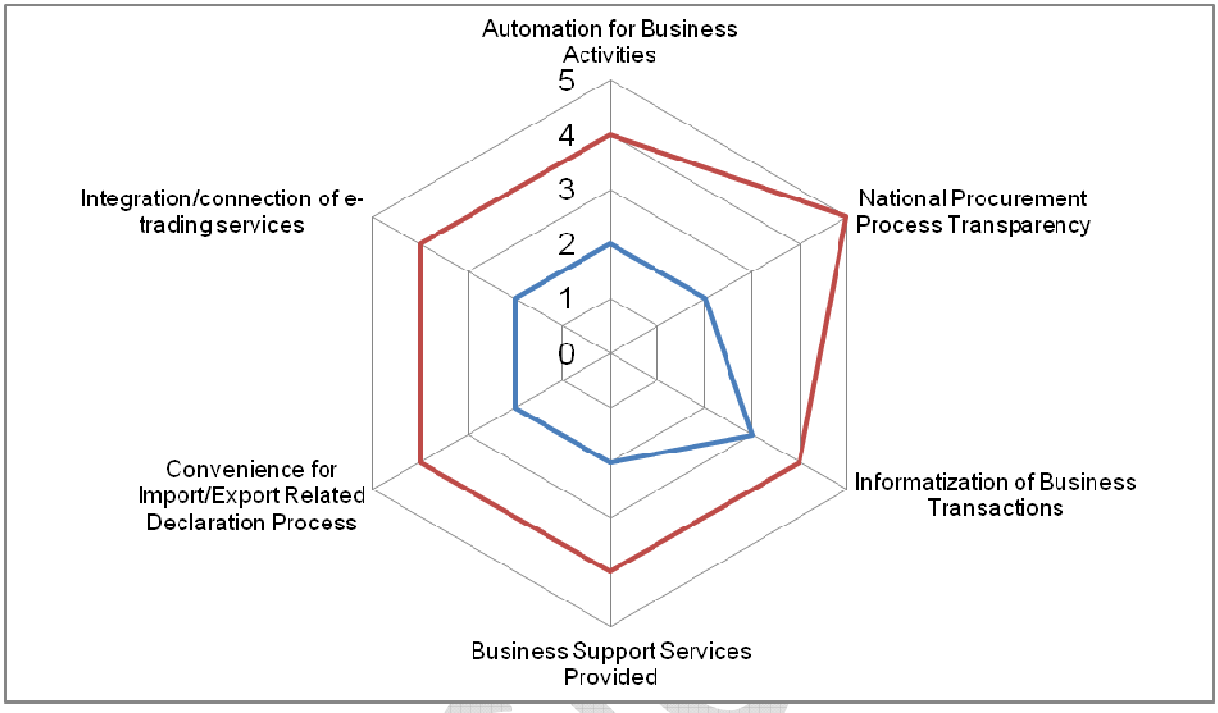


Figure 31: e-GAT Gap Analysis: G2B

The Figure 31 shows the gap of G2B in Philippines. The six parameters are used in identifying the G2B gap in Philippines. The parameters are as follows: national procurement process transparency, informatization of business transactions, business support service provided, convenience for import/export related declaration process, integration/connection of e-trading services and automation for business activities. The gap in Figure 31 shows that national procurement process transparency, business support services provided, convenience for import/export related declaration process, integration/connection of e-trading services and automation for business activities are in level 2. Among them, national procurement process transparency is expected to be in level 5 i.e. gap of 3.

The remaining one parameter (informatization of business transaction) is in level 3 and it is expected to be in level 4 i.e. gap of 1.

4.4.3.4. Gap Analysis: Common Infrastructure

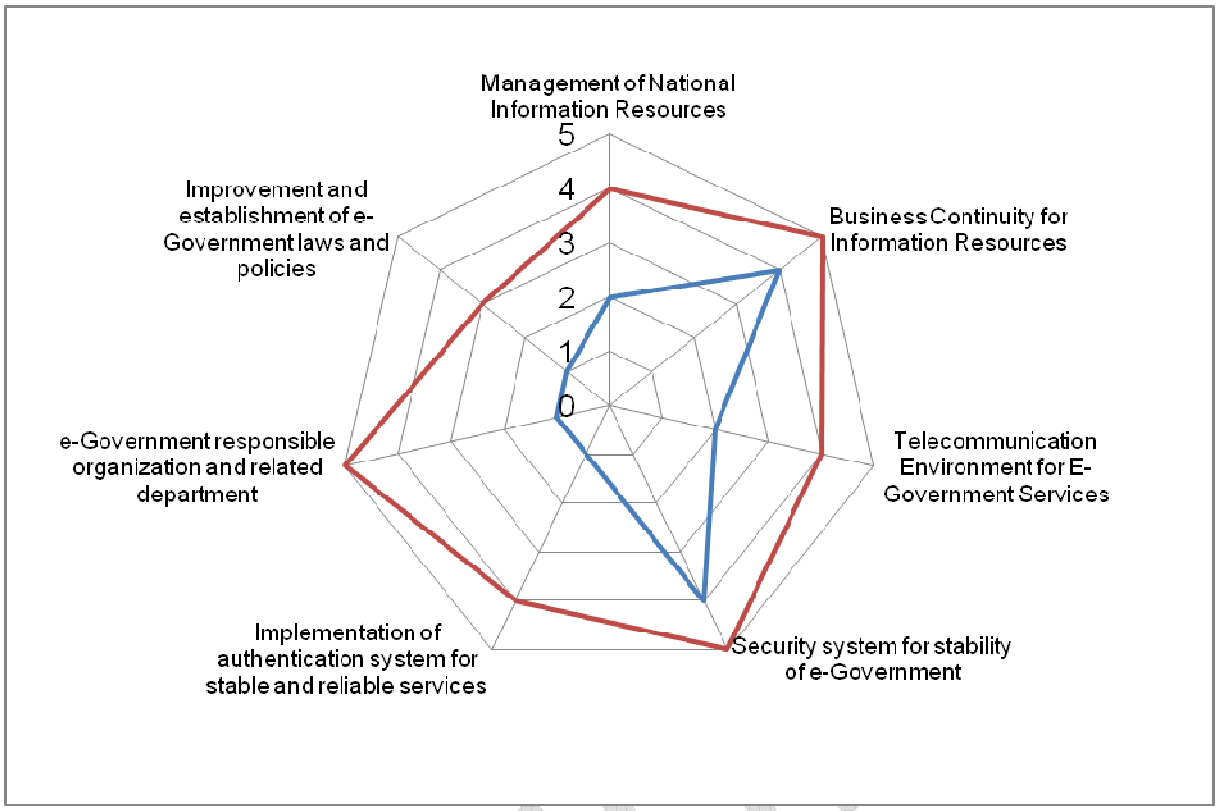


Figure 32: e-GAT Analysis: Common Infrastructure

The Figure 32 shows the gap of common infrastructure in Philippines. The seven parameters are used in identifying the infrastructure gap in Philippines. The parameters are as follows: business continuity for information resources, telecommunication environment for e-Government services, security system for stability of e-Government, implementation of authentication system for stable and reliable services, e-Government responsible organization and related department, improvement and establishment of e-Government laws and policies and management of national information resources. The Figure 32 shows that business continuity for information resources and security system for stability of e-Government are in level 4 already and they need only one more level to act as a seamless in these areas. The implementation of authentication system for stable and reliable services, e-Government responsible organization and related departments and improvement and establishment of e-Government laws and policies are in level 1. Among these in level 1, e-Government responsible organization and related departments is expected to make a big jump of 4 and be in level 5. Similarly the Figure 32 shows the other gaps as well.

5. Result of Analysis & CIR (Critical Information Requirement)

5.1. Findings

Based upon the outcome of fact findings, analysis and implications, the equivalent CIRs are drawn in this section. The CIRs give the proper directions in developing e-Government system in the country. There are eleven types of CIRs in this section. These CIRs are related to the policy and budget, law and regulations, organization, education, ICT infrastructure, e-Government state, front office, back office, qualitative analysis, qualitative analysis(citizen survey and gap analysis) and quantitative analysis.

5.1.1. Policy and Budget

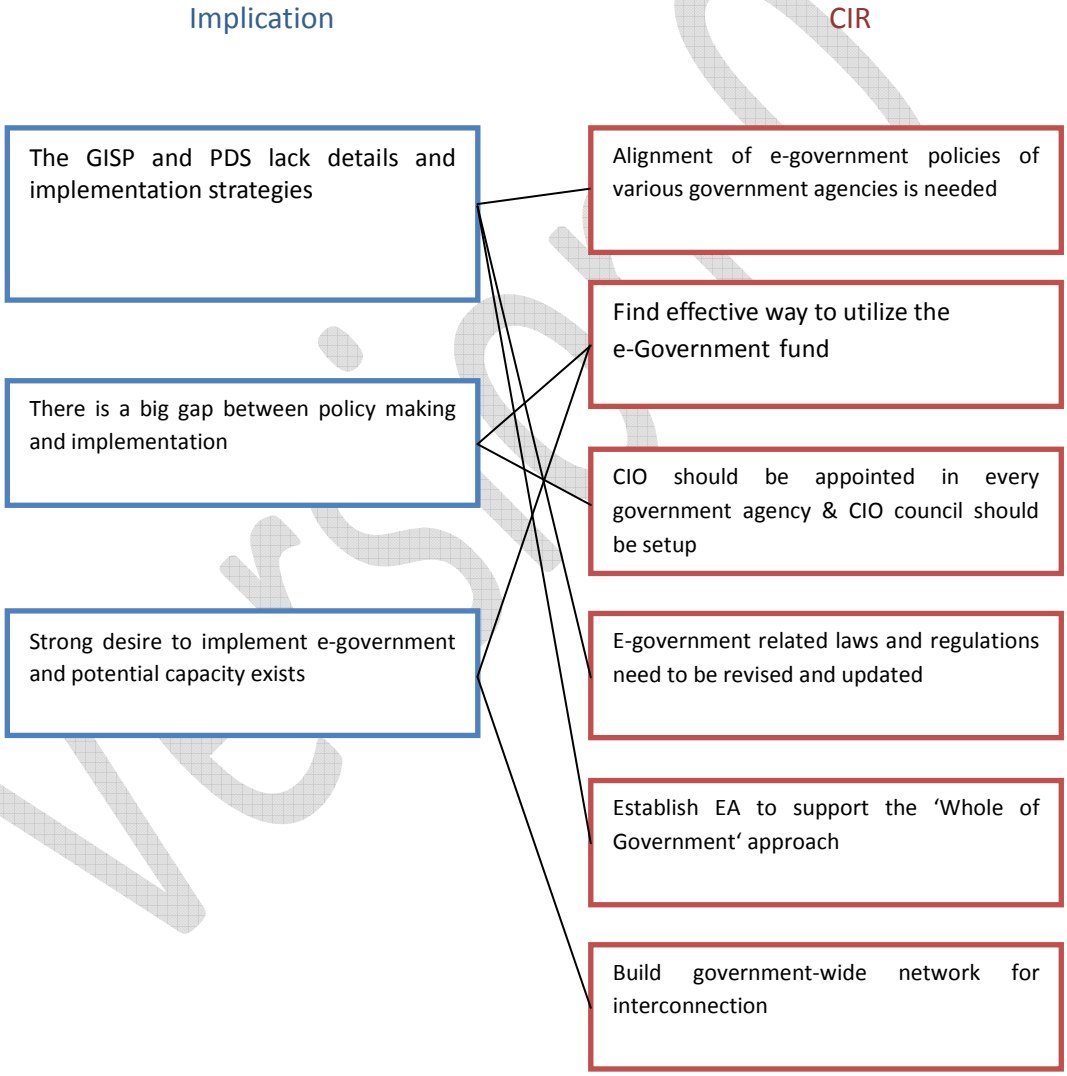


Figure 33: CIR: Policy and Budget

The Figure 33 shows the CIR for policy and budget. There are three implications in the left side of the figure and the corresponding six CIRs are in the right side of figure. There is a mapping between implications and CIRs. The mapping in Figure 33 is based upon 1: M (one to many) relationship.

5.1.2. Law and Regulations

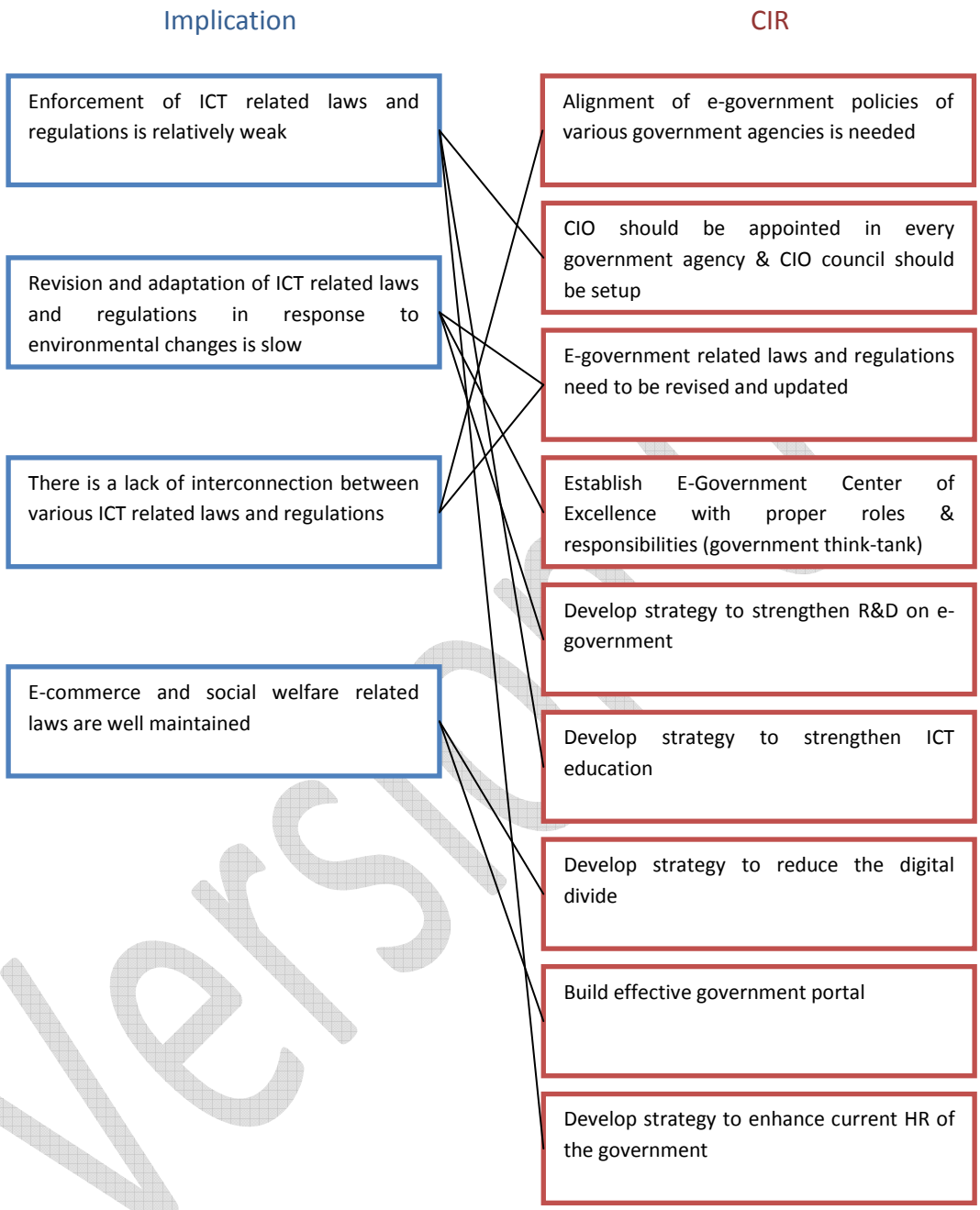


Figure 34: CIR: Law and Regulations

The Figure 34 is the CIR diagram for law and regulations. The four implications in the left side have nine CIRs in the right side of the figure. This CIRs diagram is also based upon the 1: M (one to many) relationship.

5.1.3. Organization

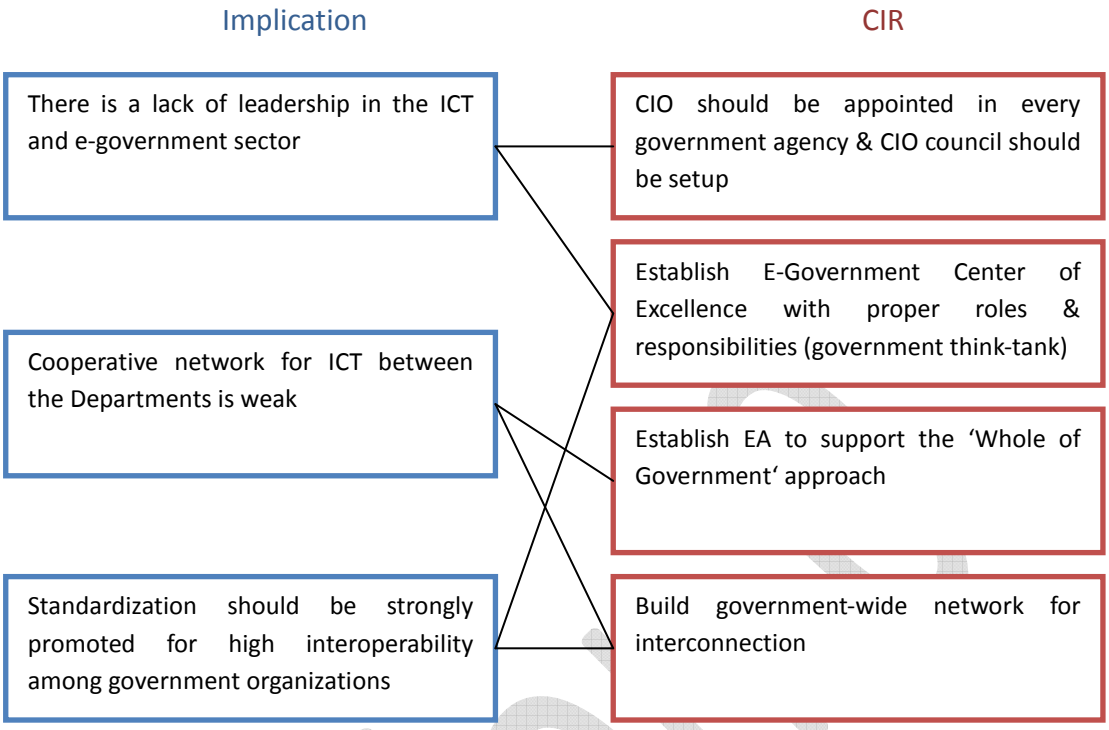


Figure 35: CIR: Organization

The Figure 35 is the CIR diagram of organization. There are three implications in the left side of the figure whereas four corresponding CIRs are in the right side. The relationship is based upon 1:M (one to many) relationship.

5.1.4. Education

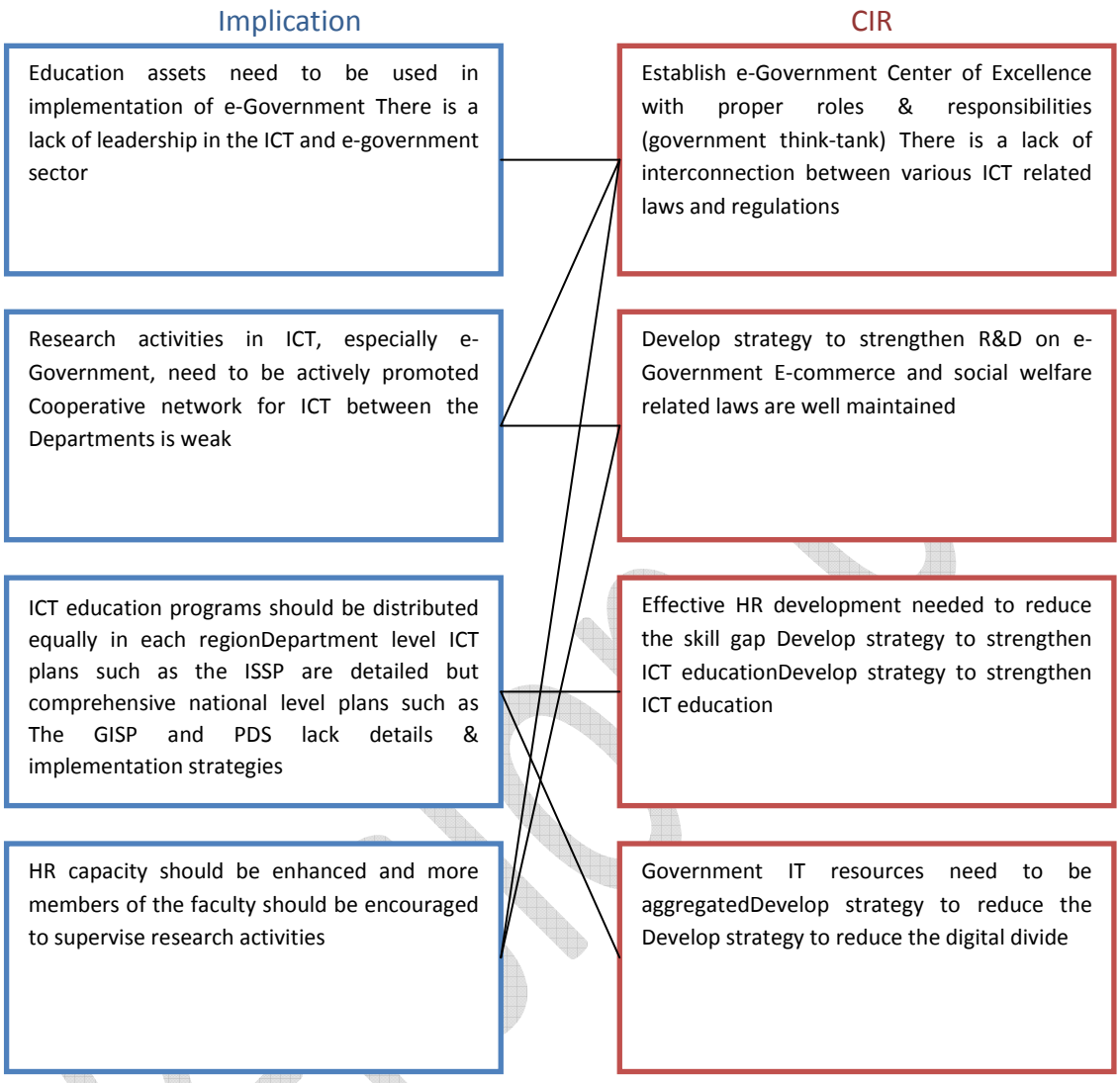


Figure 36: CIR: Education

The Figure 36 is the CIR diagram of education. There are four implications in the left side of the figure whereas four corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1:M (one to many) relationship

5.1.5. ICT Infrastructure

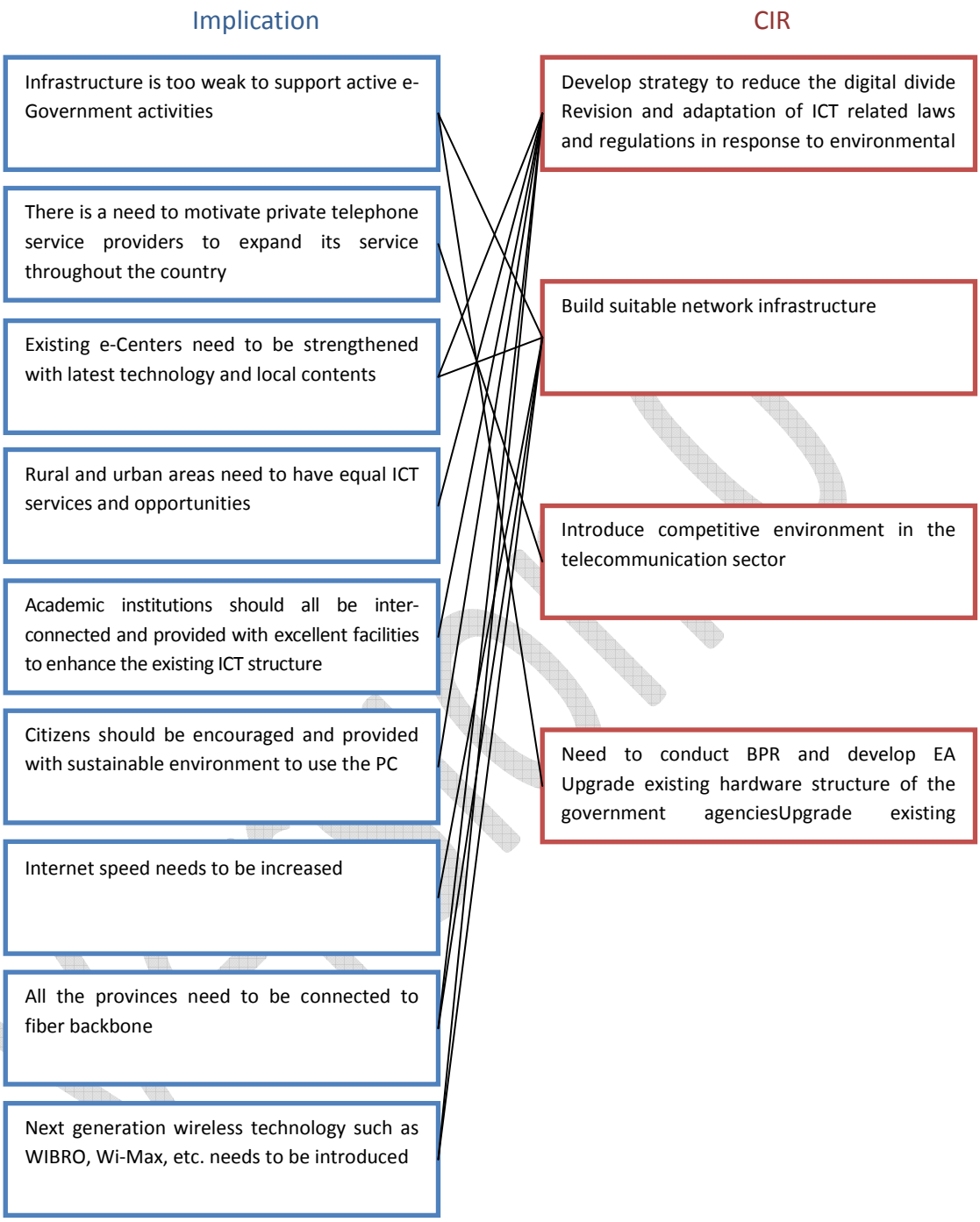


Figure 37: CIR: ICT Infrastructure

The Figure 37 is the CIR diagram of ICT infrastructure. There are nine implications in the left side of the figure whereas four corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1:M (one to many) relationship

5.1.6. e-Government State of the Philippines: UN Evaluation

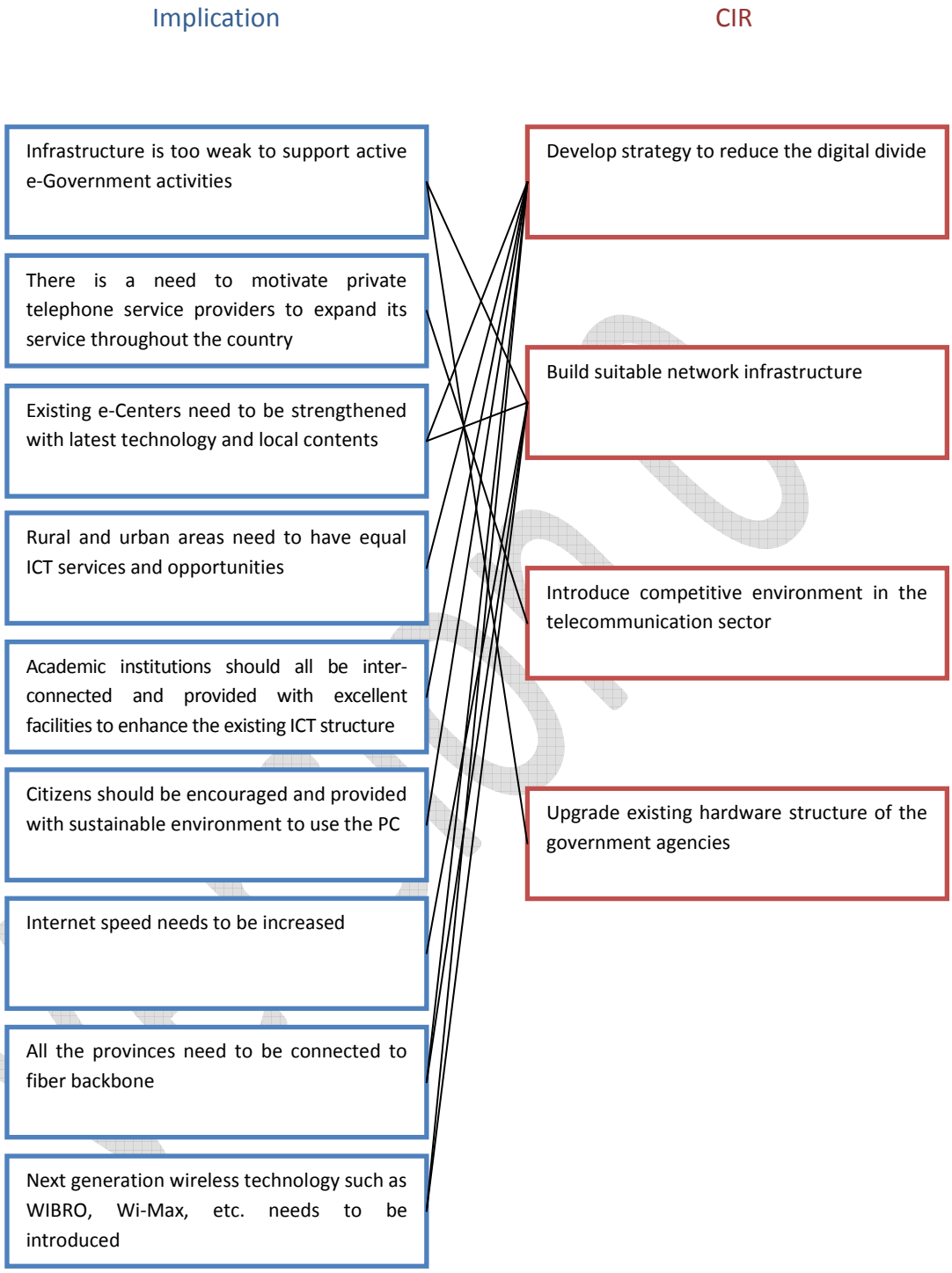


Figure 38: CIR: e-Government State of the Philippines: UN Evaluati

The Figure 38 is the CIR diagram of e-Government State of the Philippines (UN Evaluation). There are nine implications in the left side of the figure whereas four corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1:M (one to many) relationship

5.1.7. Front Office

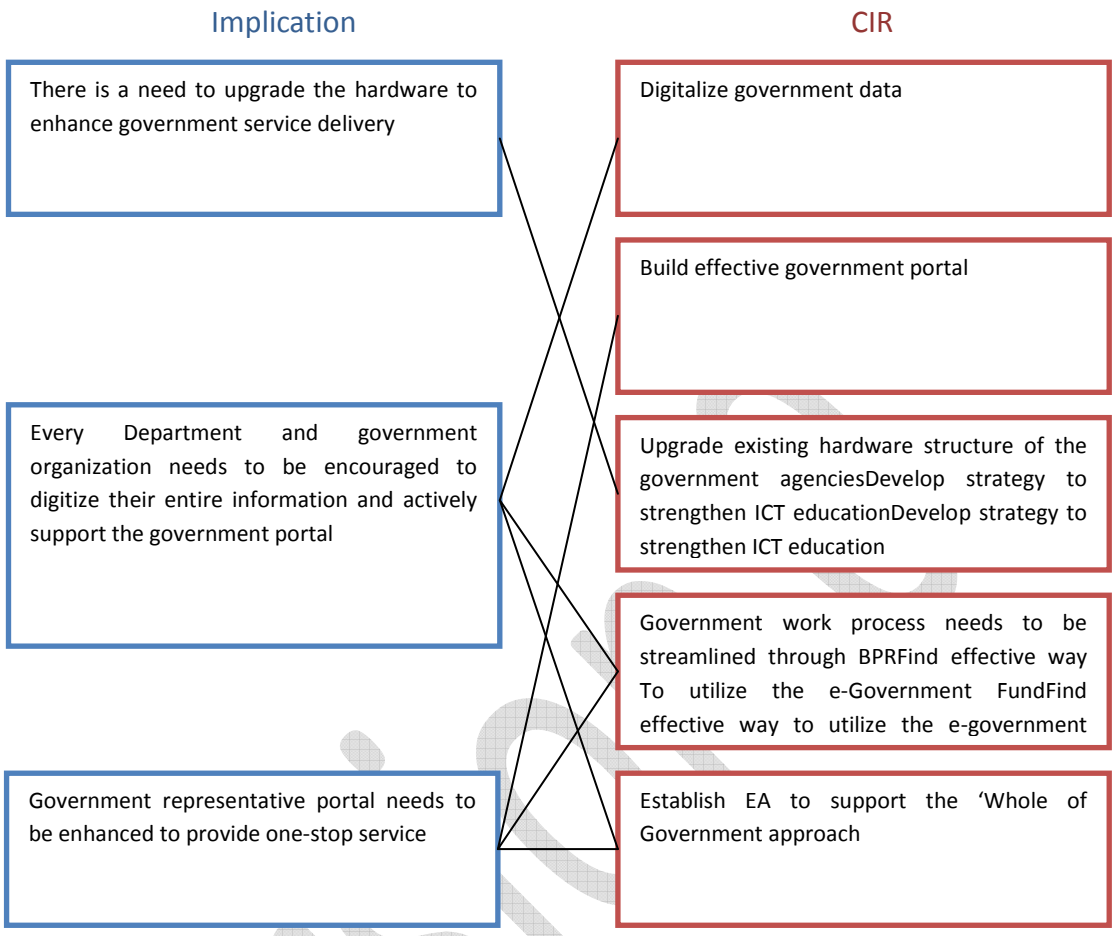


Figure 39: CIR: Front Office

The Figure 39 is the CIR diagram of front office. There are three implications in the left side of the figure whereas four corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1: M (one to many) relationship

5.1.8. Back Office

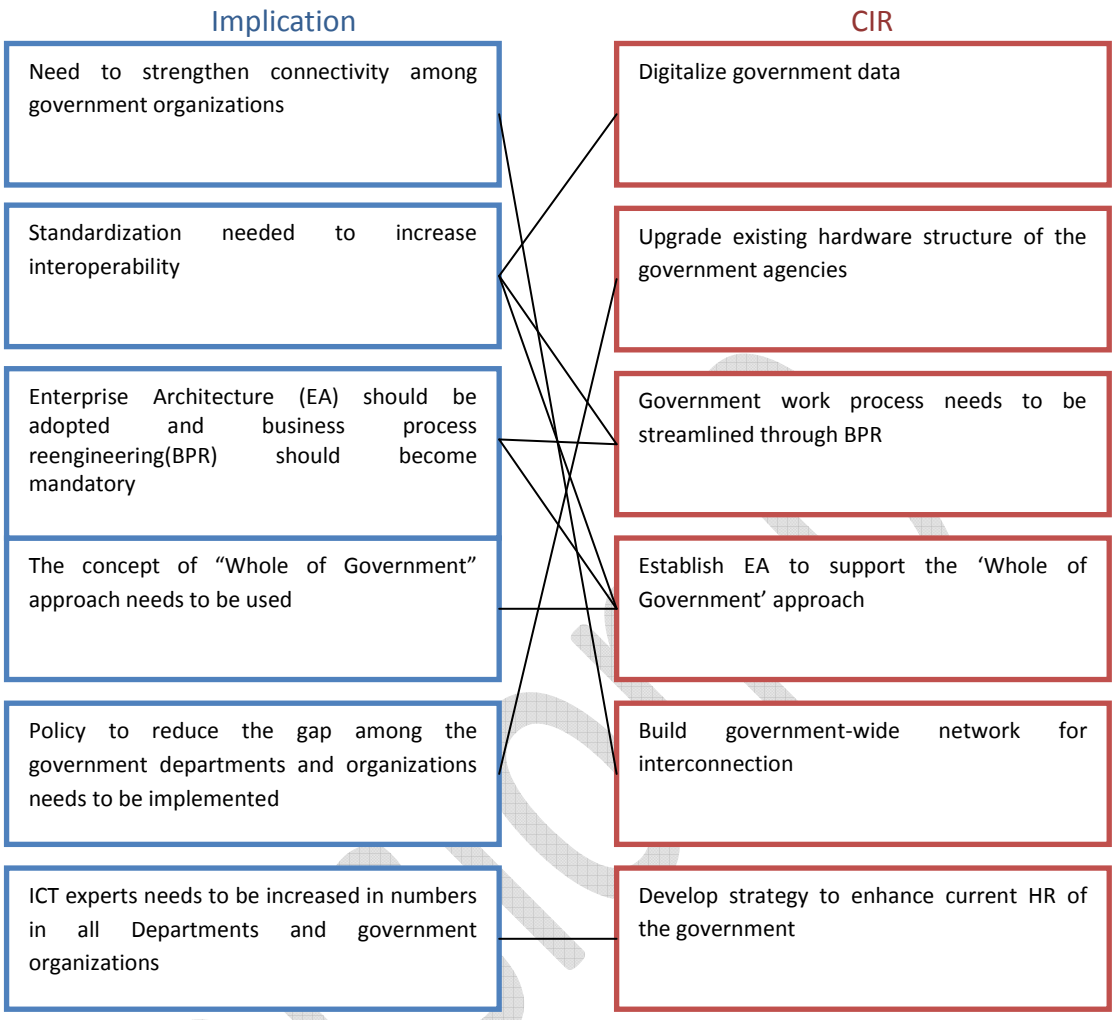


Figure 40: CIR: Back Office

The Figure 40 is the CIR diagram of back office. There are six implications in the left side of the figure whereas six corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1: M (one to many) relationship.

5.1.9. Result of Qualitative Analysis

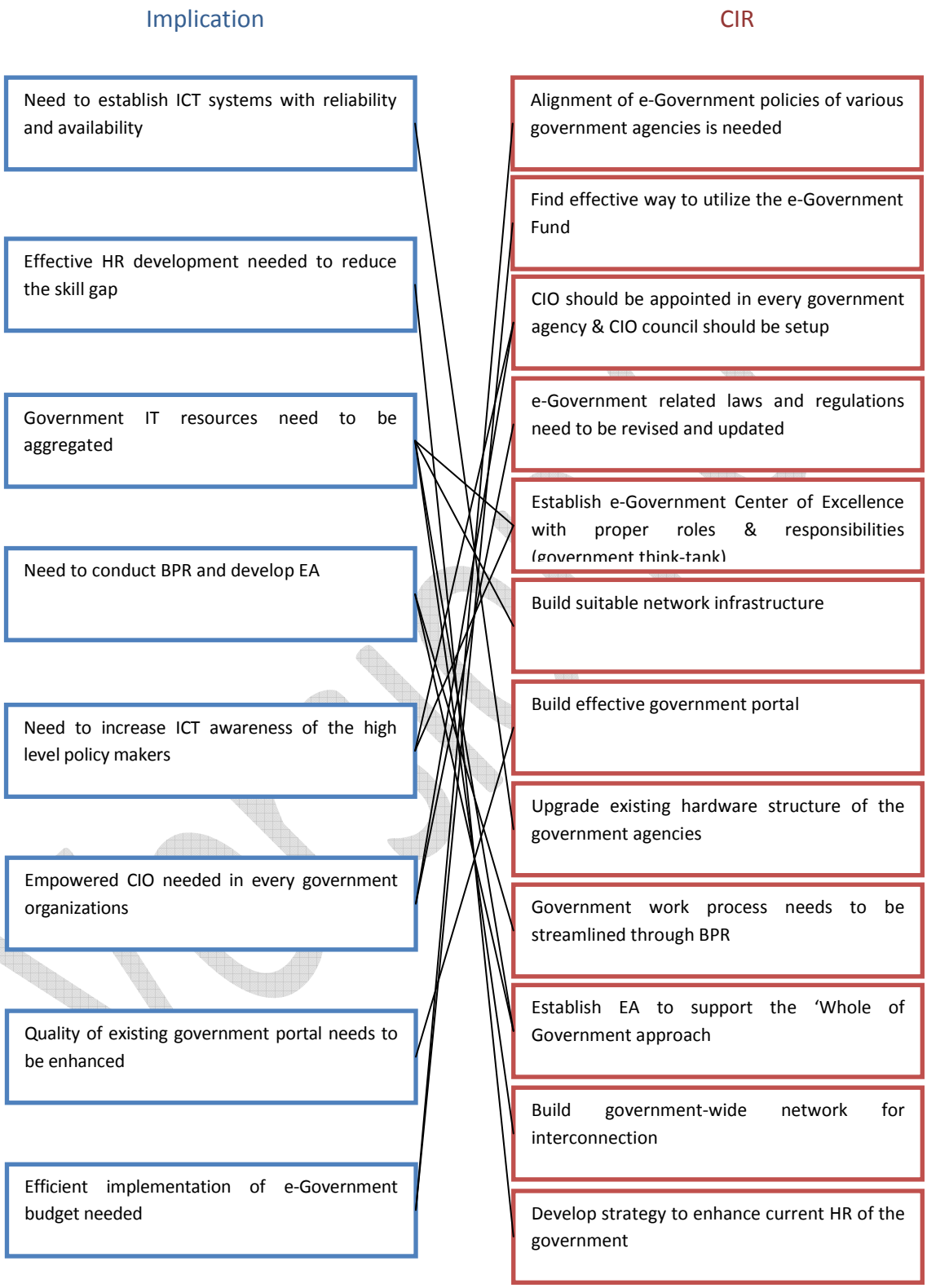


Figure 41: CIR: Result of Qualitative Analysis

The Figure 41 is the CIR diagram of result of qualitative analysis. There are eight implications in the left side of the figure whereas twelve corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1: M (one to many) relationship.

5.1.10. Result of Qualitative Analysis: Citizen Survey and Gap Analysis

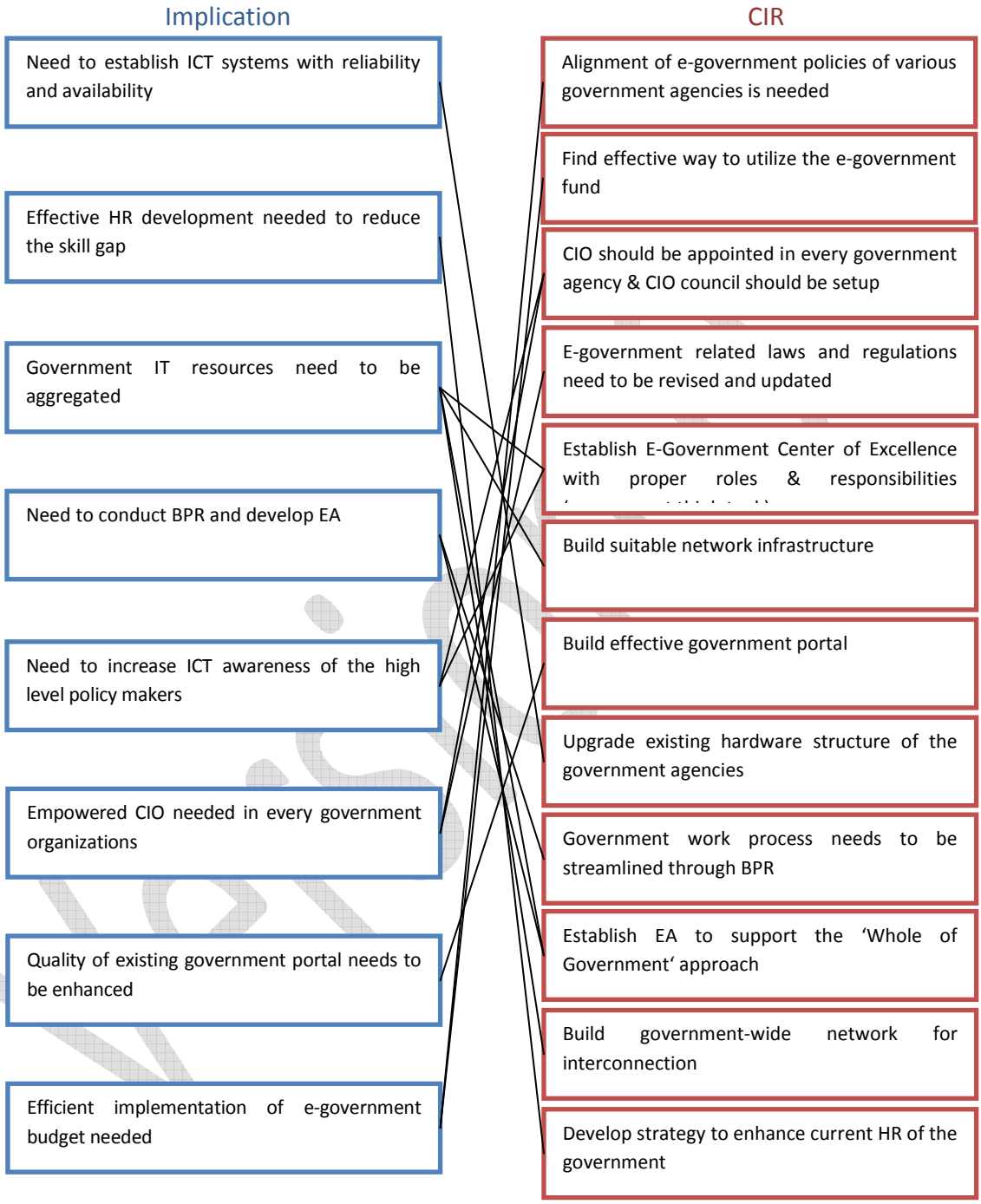


Figure 42: CIR: Result of Qualitative analysis : Citizen survey and Gap analysis

The Figure 42 is the CIR diagram of result of qualitative analysis (citizen survey and gap analysis). There are eight implications in the left side of the figure whereas twelve corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1: M (one to many) relationship.

5.1.11. Result of Quantitative Analysis

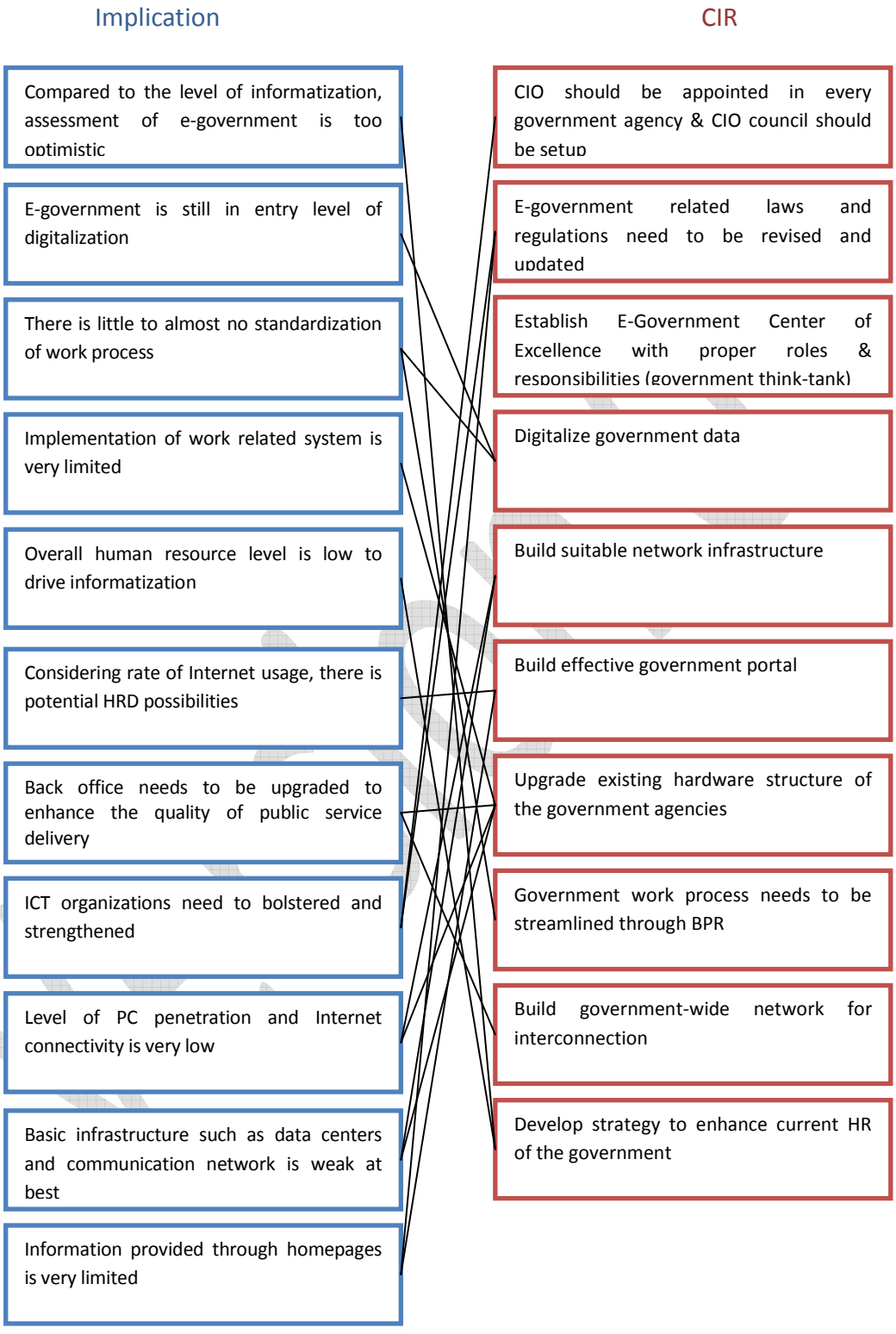


Figure 43: CIR: Result of Quantitative Analysis

The Figure 43 is the CIR diagram of result of quantitative analysis .There are eleven implications in the left side of the figure whereas ten corresponding CIRs are in the right side. The relationship is based upon 1:1 (one to one) and 1: M (one to many) relationship.

5.2. Findings and Considerations (Summarized CIR)

Summarized CIR (Critical Information Requirement) List
Establishing the alignments during the various e-Gov. policy in each department
Building effective government portal
Building government wide network for inter connection
Building suitable network infrastructure
CIO should be nominated in every department & CIO council should be setup
Developing strategy to expand ICT education
Developing strategy to reduce digital divide
Developing strategy to strengthen R&D on e-Government
Developing the strategy to upgrade existing human resource of government
Digitalize government data
Establishing EA to support 'whole of government approach
Establishing e-Government Center of Excellence with proper R&D(Government Think Tank)
Find a effective e-Gov. budget usage
Government work process needs to be streamlined by BPR
Introducing competitive environment in Telecommunication sector
Improving the overall e-Gov. policy & law
Upgrading existing hardware structure of the government and departments

6. Benchmarking

In order to establish e-Government Master Plan in Philippines, it is essential to benchmark global Reading country, along with analyzing policies and requirements related with ICT of Philippines. Thus, in this report, we selected the best-prepared in terms of the e-Government Readiness Index studied by the UN. Korea, which received the highest mark in the world. Result of this study needs to be organized into informatization status, legal status, major projects and success factors of each country, to be utilized as lessons learned when establishing e-Government in Philippines in an efficient manner.

6.1. Case Study of Korea's e-Government

Korea's informatization began in the late 1970s, when major administrative business processes were computerized in the areas including resident registration, real-estate and vehicles. In the 1990s, the focus of informatization shifted to unit-based or function-based processes such as those for passport, patent and procurement administration. From 2000, it was about building a government-wide infrastructure for e-Government, for which 11 initiatives and 31 roadmap projects were implemented.

The e-Government promotion led to enhanced efficiency of public administration by stabilizing electronic processing of government work, and improved economic feasibility, expertise and security of government resource management by constructing government-wide data centers and integrating government information systems. Moreover, it led to reduction of document submission for civil service application by a large extent and increased convenience and participation of citizens in policy-making by providing portal services for civil application or enabling interaction with public offices without having to visit these offices in person.

6.1.1. Korea's Journey to the e-Government

- First Stage (Mid 80s ~ 90)

Korea's strides for the e-Government began in the mid 80's when the 'National Basic Information System' project was first implemented. Through this project, national basic information was systemized into databases for more convenient government administration. This included resident registration, real-estate, vehicles, etc. Now, services of these fields are provided anywhere regardless of the applicant's residence.

- Second Stage (90s ~ Late 90s)

After two decades of striving for informatization, Korea has earned a title as one of the most advanced countries in terms of ICT. It was back in the 1990s when Korea first started to see major achievements in the ICT sector. In the early 1990s, it broke new ground in the world's mobile communications market by commercializing CDMA-based

digital mobile technology for the first time in the world. In the later 1990s, the world's fastest Internet service was available in Korea thanks to a high-speed Internet infrastructure constructed nation-wide. One of the extraordinary achievements in the 1990s was the sector's rate of growth. The number of mobile phone users, which was only 1.64 million at the end of 1995, increased 14 times in 4 years and reached 23.44million by the end of 1999. Likewise, the number of Internet users increased by a multiple of 30times from 0.36 million to 10.86 million during this same period. The broadband Internet service expanded even faster and reached 3.70 million households by the end of 1999, only one year after service was first launched. This was the time of transition when Korea leaped from an under developed country to one of the most advanced countries in terms of ICT.

Though there were no achievements or growth as dramatic and explosive as in the 1990s, progress still continued in the 2000s. In particular, development and use of information services improved significantly both in quality and quantity. While the 1990s were a phase for building a foundation for information service use, the 2000s were a phase for developing information services.

- Third Stage (2001 ~ 2007)

Korea's efforts to implement e-Government were even accelerated in January 2001 by the establishment of the Special Committee for e-Government. The Committee, composed of experts and professionals from the public, private and the academia, is under the Presidency and has continuously supported and monitored the eleven high-payoff initiatives to be completed by the end of 2002. The initiatives were already implemented and in service since November 2002. After the last president got elected, the government established a new roadmap for the "Participatory Government" program with 31 different projects.

- Fourth Stage (2008 ~ Current)

Based on the progress of informatization promotion in each ministry and the level of e-Government development, President Lee Myung-Bak administration, inaugurated in 2008, is now pursuing quality management by the maturing of e-Government through a shift of focus from 'promotion' and 'construction' to 'utilization' and 'connection'. In this regard, the frameworks for national informatization and e-Government implementation were unified under the control of Ministry of Public Administration and Security with improved legal systems. The weight and value of e-Government implementation have changed from enhancing efficiency of public administration through computerization of government works until the 1990s to increasing satisfaction and active participation of citizens into policy-making since the 2000s. In this stage, e-Government is established and considered as the government's key management system that serves as an infrastructure for developing and improving the foundation for a democratic society and national competitiveness.

The main issue in 2009 and 2010 is about global competitiveness. The reason for this is because even though Korea's e-Government development was ranked at or near the top of various recent world ICT indices, its rankings in ICT infrastructure and

political/economic/social environment has been declining since last y 2009.

6.1.2. National Informatization Plan

The National Informatization Master Plan, finalized in November 2008, provides five main goals for achieving an 'advanced and leading country', including the e-Government goal - 'efficient knowledge government'. The 'efficient knowledge government' provides services that can communicate with the citizens and support substantial value-creation of citizens and businesses. It also integrates and interconnects information systems of the entire department and agency in order to provide customer-oriented services and while making operations more efficient.

In terms of quality, the plan aims to increase the e-Government usage rate from 41% in 2007 to 60% in 2012 and climb three notches in UN e-Government Index rankings from 6th to 1st. However, the e-Government usage rate in 2010 was up to 60% and Korea ranked the top in the e-Government Development Index in 2010, already exceeding the goal initially specified in the plan.

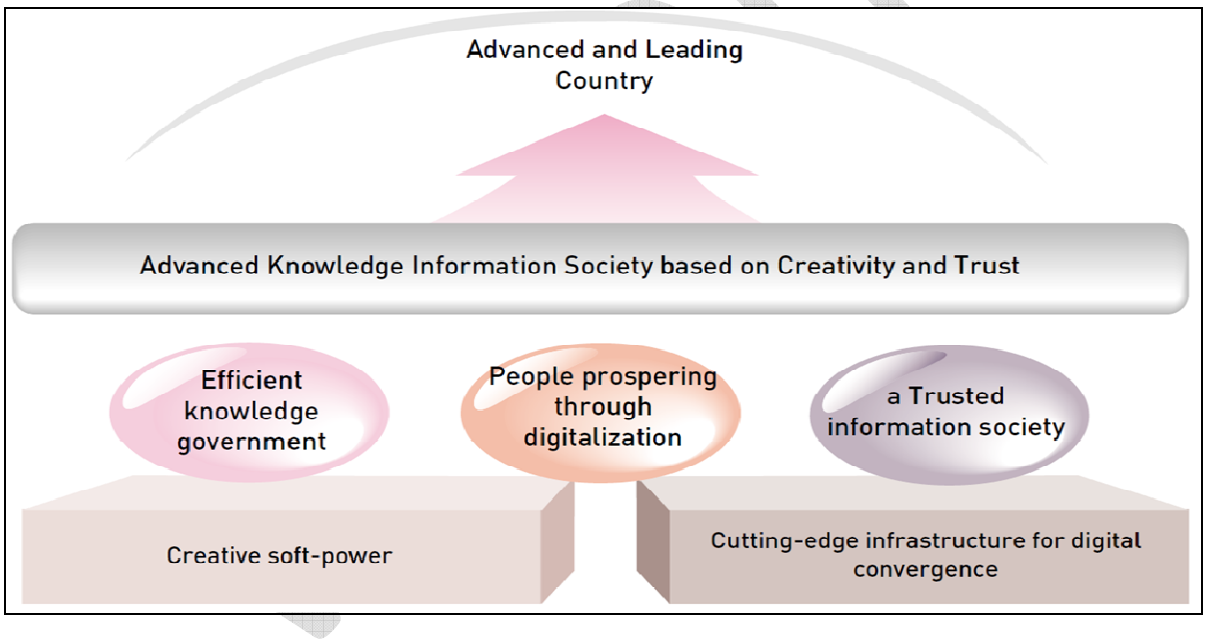


Figure 44: Vision from National Informatization Master Plan

The Figure 44 is the vision of national informatization master plan of Korea. The vision was to be advanced and leading country. There are three main pillars in the master plan i.e. efficient knowledge government, people prospering through digitization, and trusted information society.

As ICT policies are implemented independently by each government organization, plans are established according to each area of national informatization. While the 'National Informatization Master Plan' and 'National Informatization Action Plan' provide a comprehensive direction for national informatization, detailed ICT plans were also

established for each relevant area of informatization

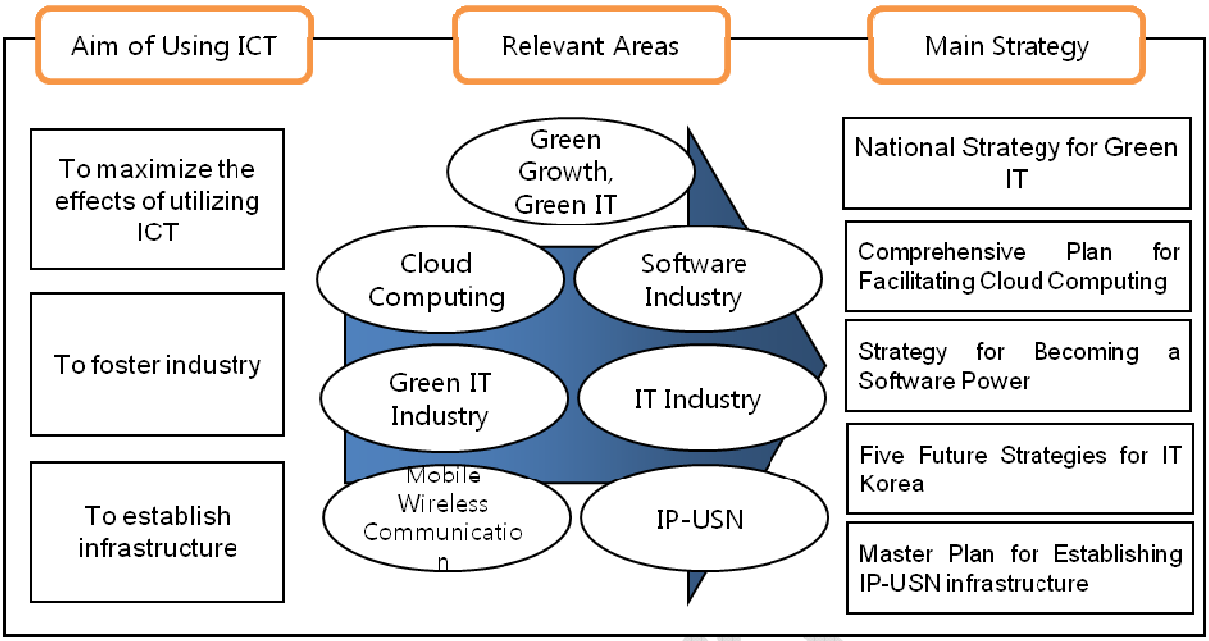


Figure 45 : National Informatization Plan

The Figure 45 shows the national information plan. There are three main entities in the national informatization plan. They are as follows: Aim of using ICT, Relevant areas, and Main strategy. First of all, the aim of using ICT is defined then the areas to be emphasized are decided then finally the corresponding strategies are found.

6.1.3. Result of e-Government

As a result of e-Government implementation, Korea ranked the most developed country in the world in e-Government sector. Also Korea gained the highest level in e-Participation which measures level of online participation of citizens in decision-making for public policies.

Index	Goal	Korea's Rank		
		2008	2009	2010
UN e-Government development index	Measures capacity and will in using e-Government for ICT-based national development	6	-	1 (192)
UN e-Participation Index	Measures level of online participation of citizens in decision-making for public policies	2	-	1 (192)

ITU ICT Development Index	Measures development level of information society and information divide	-	2	3 (152)
IMD World Competitiveness Scoreboard	Measures competitiveness in the area of ICT	14	18	18 (59)

Table 22 : Korea's Rankings in Global ICT indices

Typical e-Government projects such as procurement, customs, tax, immigration evaluated the model country by international organization

System	Operation	Organization	Acknowledgement	year
KONEPS (e-Procurement)	Public Procurement Service	UN	Public Service award	2003
		OECD	Best practice for improving transparency	2004
		WCIT	Global IT excellence Award	2006
UNI-PASS (on-line customs service)	Korean Customs Service	UN	Best Practice for anti-corruption	2001
		WCO	Trophy for IPR protection	2006
		AFACT	e-Asia Award	2007
Home Tax Service	National Tax Service	OECD	Best practice for on-line tax administration	2006
E-people	Ministry Public administration security	World e-Government Forum	Top 10	2006

Table 23 : International Acknowledgement for Korea's e-Government Systems

The Table 23 depicts the acknowledgement of Korean efforts and hardworking in all over the world by international organization such as UN, OECD, WCIT, WCO, AFACT, world e-Government Forum.

6.1.4. e-Government Vision (2003 ~ 2007)

The roadmap of "Participatory Government" seeks to provide a totally integrated and intelligent government services. Below illustration shows that the common functions should be integrated and fully systemized. In addition, the government is trying to architect the e-Government with a common ICT environment standard that will enable all the government organizations to share information and cooperate.

Vision

- Realize the world's foremost open e-Government
- Move from innovating service delivery to network based government

- Move from enhancing efficiency and transparency of public sector to knowledge based government
- Move from realizing sovereignty of the people to participatory government

Objectives

- Public services
  - Raise public service quality through digitalization and providing on line services
  - Raise e-Government service usage rate
- Administrative efficiency
  - Maximize efficiency of public administration by enabling real time administration through integrated information resource management, electronic work processes and information sharing
- Administrative democracy
  - Expand political participation by providing administrative information and strengthening citizens' control of personal information

6.1.5. Criteria for Task Selection

The current administration, in order to check the progress of "President Roh Moo Hyun's administration" project, determined criteria for task selection seeking to set up further upgraded e-Government vision, goal, and project monitoring system.

The tasks have been identified by public pledges, extracted by e-Government Presidential Committee, selected by department, and suggested by citizens. And then those tasks are classified by selection criteria which consist of connectivity with government innovation, effectiveness of government's competitiveness, and satisfying the needs of citizens, feasibility and urgency.

The final tasks have been determined by Committee with consideration to their big ripple effect, securing efficient service and infrastructure. As a result, 4 areas, 10 agendas, and 31 tasks were chosen and reviewed by a specialized committee to be integrated into the e-Government roadmap.

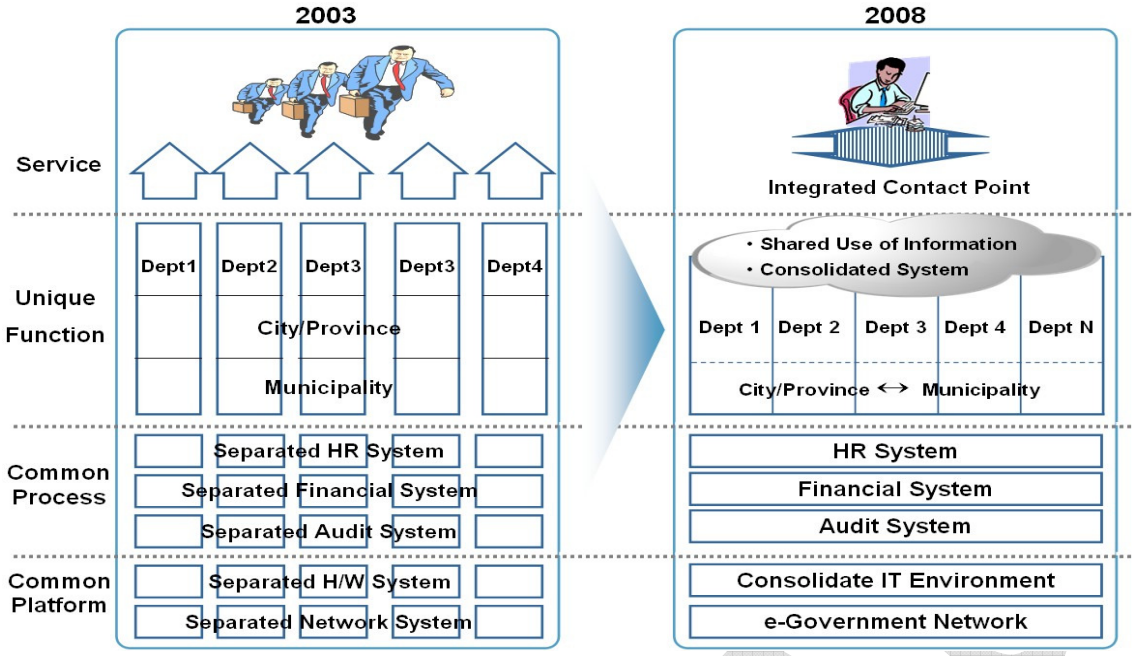


Figure 46 : Service Concept of Korea[17]

The Figure 46 shows the service concept of Korea. In 2003, citizen had to visit many departments for more than one time to get the service done. The different departments used to follow same process again and again. But the service concept was changed in 2008. In 2008, there was no need to make multiple visits by citizens to get service done. The integrated contact point was developed to access information and get the services from government.

6.1.6. The Roadmap of "President Roh Moo Hyun's administration"

As stated above, the Participatory Government selected 10 major agendas, 31 major tasks (and 45 detailed plans) in four areas, such as business method innovation, service innovation, information resource management innovation, and legislative system restructuring. The agendas and tasks are being implemented as scheduled.

Area	Agenda	Task	Detailed Plan
Innovation of the business method	Establishment of electronic business processing	1. Computerize the entire document handling process	1.1. e-Document circulation system 1.2. e-Archiving system 1.3. e-Ledger system
		2. Computerize local governments' finance information	2.1. Computerization of the local governments' finance data 2.2. Adopt more sophisticated way

[17]Government Innovation & e-Government, Presidential Committee on Government Innovation and Decentralization

Area	Agenda	Task	Detailed Plan
			to manage government's finance data
		3. Realize local e-Government	3.1. Informatization in city and province administration 3.2. Advance administration information system for City/County/District
		4. Establish e-Audit system	
		5. Realize e-National Assembly	5.1 Set up a portal for participation in National Assembly activities 5.2. Secure comprehensive security infrastructure for the National Assembly
		6. Establish comprehensive criminal justice system	
		7. Deploy comprehensive information system for HR management	7.1. Set up HR MIS for local governments 7.2. Enhance e-HR management system
		8. Build information system for foreign affairs management	
		9. Real-time management of government tasks (System managing government tasks)	
	Expand sharing of administrative information	10. Expand sharing of administrative information	10.1. Expand sharing of administrative information 10.2. Establish nationwide information sharing strategy 10.3. Extend KMS of administrative bodies
	Re-design the process with focus on services	11. Develop Business Reference Model (BRM)	
Innovation of services for the people	Improve the services for the people	12. Advance Internet civil petition system	
		13. Provide comprehensive national safety management services	
		14. Link registrations of buildings and real estates, improve the way of linking	14.1 Enhance construction administration information use 14.2. Manage and link real estate information

Area	Agenda	Task	Detailed Plan
			14.3. Maintain buildings ledger.
		15. Advance comprehensive national tax services	
		16. Comprehensive national welfare services	
		17. Comprehensive information service on food and drug	17.1. Food and drug safety management services 17.2. Agricultural produce and livestock safety management services
		18. Job information services	
		19. Internet service for administrative adjudication	
	Improve the services for enterprises	20. Single window service supporting businesses	
		21. Comprehensive national logistics service	
		22. e-Trade service	
		23. Comprehensive support services for foreigners	
		24. Support for e-Government's venturing into overseas	
	Electronic participation by the people	25. e-Participation by citizens	25.1. Extend citizens' online participation 25.2. Encourage the use of e-Government services 25.3. Expand online disclosure of administrative information 25.4. e-Voting and e-Election
Innovation of Information Resources Management	Standardization of information resources integration	26. Establish government-wide network	
		27. Advance e-Government's telecommunication network	
		28. Apply ITA to all levels of government	
	Strengthen the information protection structure	29. Set up a structure to protect information	
	Expertise in staff and	30. Supplement staff and organizations dedicated to	

Area	Agenda	Task	Detailed Plan
	organizations dedicated to informatization	informatization	
Restructuring the legislative system	e-Government legislative system restructuring	31. Prepare laws to realize e-Government and to secure safety	

Table 24 : Four Areas with 10Agendas, 31Tasks and 45Detailed Plans for Projects

6.1.7. Organization for the e-Government Project

In the organization for the e-Government project, the President's leadership, coordination and cooperation among government departments and administrative/budgetary/technological supports are crucial to the success of the e-Government. The e-Government Expert Committee under the Government Innovation Decentralization Committee that is the advisory body for the President is comprised of civil servants on deputy minister level and representatives of the private sector.

Administrative supports are provided through coordination and consultations among Ministry of Government Administration and Home Affairs (administrative support), Ministry of Information and Communication (informatization fund and IT support), and Ministry of Planning and Budget (budgetary support and support for government innovation).

Especially the Korean Government organized NCA(National Computerization Agency) which is a statutory agency founded by Article 10 of the Framework Act on Informatization Promotion for the purpose of promoting informatization and to support development of related policies for national agencies and local autonomies.

As the core agency of national informatization entrusted by government and the people with providing policies and technical expertise, NCA is leading the way in the construction of u-Korea towards a first-class nation in information and communication.

More detail mission of NCA is

- Providing expertise in developing and implementing the National Framework Plan on informatization Promotion
- Supporting Information communication standardization and developing / maintaining information systems for inter-agency information sharing
- Supporting information resource management in the public sector
- Supporting supervision, standardization and evaluation of public informatization business

Therefore all projects that each government organization conducts are initiated in this agency, and it could reduce redundancy and manage national resources efficiently.

Organization chart for the e-Government project is as in Figure 47.

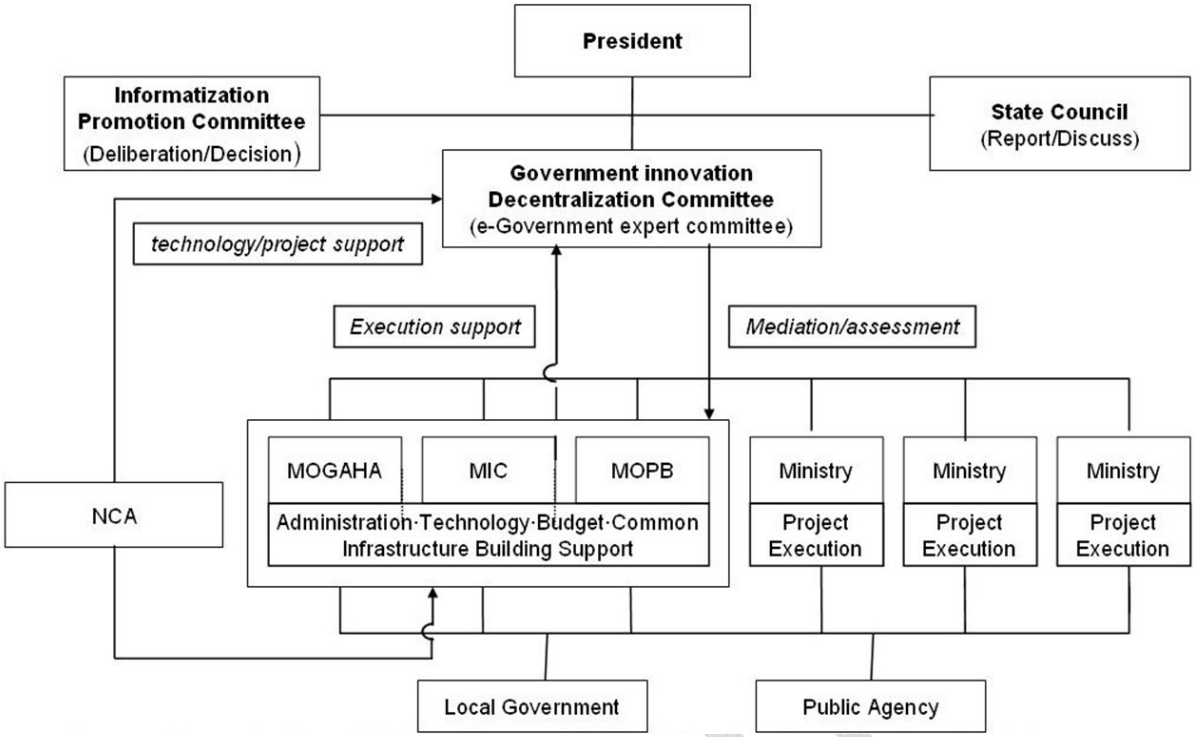


Figure 47 : :Organization Chart for the e-Government Project

In order to provide a new vision for national informatization and coordinate national ICT policies after the government reorganization, the Council on Information Society officially was established in November 2009. Composed of both public and private members, the Council has been promoted and set as a group under the President from the 'Informatization Promotion Council' in the Prime Minister's Office.

The Council on Information Society is the top authoritative body that deliberates on national informatization master plan and action plans, adjusts relevant policies, fosters information culture and carries out projects for closing the digital divide. Moreover, it serves as the national ICT control tower by developing and promoting future-oriented policy agenda in order to lead the country to become an advanced knowledge information society.

- Presidential Council on Information Society
  - Chairmen: Prime Minister and a private-sector expert
  - Members: 15 government members and 14 private-sector members
  - Advisor: Minister of Public Administration and Security

- Working Committee on Information Society
  - Chairmen: Vice Minister II of Public Administration and Security and a private-sector expert
  - Members: 11 government members and 12 private-sector members
  - Advisor: Informatization Strategy Officer or MOPAS

6.1.8. Laws and Regulations on Informatization

6.1.8.1. Initiation of Informatization (1980 ~ 1994)

- Law on computer network expansion and promotion of network use of 1986
  - Developing network for government agencies
  - Developing, distributing and promoting the use of network technologies and devices
  - Developing and fostering of network businesses

6.1.8.2. Expansion of Informatization (1995 ~ 1999)

- Framework Act on Informatization Promotion of 1995
  - Adopting policy direction for informatization promotion
  - Protecting intellectual property and personal information
  - Establishing infrastructure for IT industry
  - Training of IT professionals
- Electronic Signature Act of 1999
  - Promoting informatization and enhancing convenience by determining basic requirements to secure security and reliability of electronic documents and promote their use
  - Adopting basic policies to ensure safety and reliability of electronic signature and to boost its use
  - Adopting policies and technological standardization for effective linking of electronic signature
  - Making other preparations to make sure that electronic signature is secure and reliable and promote its usage
- Framework Act on Electronic Commerce of 1999
  - Defining legal requirements of e-Commerce transactions, securing security and reliability of e-Commerce, and laying the foundations for e-Commerce
  - Adopting international rules on e-commerce
  - Securing security and reliability of e-commerce
  - Developing related technologies and standardization

6.1.8.3. Growth of Informatization (2000 ~)

- Software Industry Promotion Act of 2000
  - Laying the groundwork for the growth of software industry and its competitiveness by determining preparations necessary for promoting software industry
  - Providing support to software start-ups and nurturing entrepreneurs
  - Providing R&D and distribution of software technologies
  - Encouraging the use of software and facilitating its distribution
- Act on Establishment and Use of National Geographic Information System of 2000
  - Adopting basic policy direction for establishment and use of geographic information system
  - Training professional resources about establishment and management of geographic information system

- Using and distributing geographic information system

- Act on Knowledge and Information Resources Management of 2000
  - Defining requirements in management and usage of knowledge/information resources, facilitating, encouraging continuous use by enhancing usefulness of the resources
  - Managing, using and sharing of knowledge and information resources
  - Assessing management of knowledge and information resources
- Act on Digital Divide Reduction of 2001
  - Ensure uninhibited access and use of information for the low-income earners, rural residents, the disabled, the elderly, and women who have difficulties in accessing or using ICT services due to economic/regional/physical/social conditions
  - Ultimately improving their quality of life and realizing balanced national economy
  - Establishing criteria for selecting applicants
  - Providing research, development and informatization education
- e-Government Act of 2001
  - Facilitating projects to realize e-Government by defining basic principles, procedures and implementation methods, and raising quality of life in the era of knowledge and information by enhancing productivity, transparency, and democratic quality of administrative organizations
  - Linking projects to carry out administrative innovation and to realize e-Government
  - Creating innovation of work procedure for informatization
  - Conducting task execution and service delivery through information and communication network
  - Identifying citizens' complaints about operation of e-Government and making quick improvements
- Act on Promotion of Information and Communication Network Utilization and Information Protection of 2001
  - Developing and distributing information and communication network technologies
  - Standardizing information and communication network
  - Facilitating information sharing through information and communication network and boosting Internet use
  - Protecting personal information collected, processed, saved, and used through information communication network, and developing and distributing related technologies
  - Improving security and reliability of network
- Act on Consumer Protection in Electronic Commerce of 2002
  - Defining requirements for fair trading of goods and services through e-Commerce and mail-order sales, to protect consumers' rights, contribute to sound growth of national economy through enhanced market confidence
- Implementation of Enforcement Ordinance and Act on Development of e-Learning Industry of 2004
  - Determining requirements for the development of e-learning and facilitating it

6.1.9. Key Success Factors

Korea's fame as the 'World's IT Powerhouse' was achieved through the large-scale investments in telecommunication infrastructure that started in 1980s as well as through great faith, passion and efforts of the Government and the private sector.

Other nations are paying close attention to Korea's successful informatization, and Korea itself has confidence that it can join the rank of developed countries in the 21st century through moving toward a knowledge and information society.

- Strong leadership of the President who is determined to raise national competitiveness through informatization and effective implementation of its plan
- Sophisticated telecommunication network and a focus on IT and human resource development through "selection and concentration" strategy
  - Construction of high-speed information highway
  - Development IT technology
  - Human resource development
  - Cultivating domestic ICT industry
- Provisions of legal basis in order to promote e-Government initiatives
- Organizing strong and exclusive committee to establish e-Government efficiently.

III. Vision and Strategy

1. e-Government Vision

1.1. Overview

In order to identify the current status of e-Government system and the state of practice of Philippines, research strategies such as survey, interview, questionnaires, case study, visits and bibliographic study were conducted. The Korean e-Government system as a whole was considered as a benchmark. The list of relevant CIRs was identified based upon the implications of various research strategies. The corresponding strategies were identified and categorized into G2G, G2C, G2B and Infrastructure.

A vision is a statement that provides a word picture of what the government intends ultimately in e-Government to become in the span of defined periods. It should have clear, unambiguous picture of the desired state whereas mission statement defines the core purpose of the system. A mission statement can drive entire government from top to bottom. In order to find out the vision for the future of Electronic Government in Philippines and its corresponding mission, the visioning workshop was carried out with the government officials. The NIPA consultant conducted workshop with the presentation on guidelines of developing vision and mission of Electronic Government. Then, the government officials were divided into four groups in order to find out the vision and mission. Each group presented its vision and mission at the end of the workshop. Then finally, the consolidated vision and mission was defined with the consultation of NCC.

The vision and mission set the goal of e-Government projects and helps the people of Philippines to understand the main objective of project and it's significance in nation development. At the end, it would be easier to carry out the e-Government plan effectively and efficiently.

1.2. Vision

A vision is defined as a comprehensive future concept describing images of a success in a system. In other words, it is the future image and destination that the Philippines wants to achieve and reach in the period of 2013 to 2016.

The key words such as efficient administration, enhancing the current administrative services for the citizen, realization of the interoperability, citizen-centered and transparent government are recommended during the workshop. All participants representing each sectors wanted the e-Government project to deliver efficient and transparent administrative services that would increase convenience and living standards of citizens of the Philippines.

With the help of CIR, the recommended keywords were categorized into G2C, G2B, G2G and infrastructures. These key words have the common goal of building e-Government of

Philippines that increases living standards of Filipinos by equipping the country with ICT. By 2016, all the department and government agencies in Philippines would be interconnected via network and will provide citizen-oriented and transparent services for the people of the Philippines. Ultimately, the Philippines would be able to maximize the use of ICT to create values for individuals, organizations, industries and all other parts of society, and create synergy effect through networking. In this respect, the vision statement for the Philippines e-Government is defined as the following:

The e-Government vision **is 'A digitally empowered and integrated government that provides responsive and transparent online citizen-centered services for a globally competitive Filipino nation'**.

1.3. Mission

In the mission statement, key words on purpose of practicing the e-Government, key words on businesses, and key words on values that each member needs to share to achieve the goal were identified. The key words presented at the workshop on vision and mission statement held in the Philippines are as following.

These are the key words presented for purpose of practicing e-Government.

a) Citizen Oriented administration
b) Improving country's competitiveness
c) Higher life quality of citizen
d) Achieving interoperability of administration

These are the key words presented in the business sector.

a) Providing efficient and innovative administration to citizens
b) Simplification of process
c) Expanding accessibility and connectivity
d) Promoting the usage of ICT

These are the key words for sharing value.

a) Reliable and transparent administration
b) Upgrading social behavior
c) Realizing an equitable Society
d) Realizing a safe society

With these above keywords, a mission statement is stated as follows:

The mission statement is **"to provide efficient, responsive and transparent online services for the Filipino people through the integrated and optimum use of information systems and technologies throughout the government"**.

1.4. Future Image

Once the vision and mission for e-Government of Philippines are achieved, the target image of Philippines e-Government provides administrative services to its people through various channels, improving the convenience of the people. It also provides integrated and transparent administrative services for business communities so that they can have greater competitiveness. Within the government, all the departments and government agencies will be informatized, computerized and connected to each other to enhance efficiency in process execution and service delivery. The issues of interoperability would be solved with the help of Enterprise Architecture (EA) and other technologies. The diagram of the future image is given below.

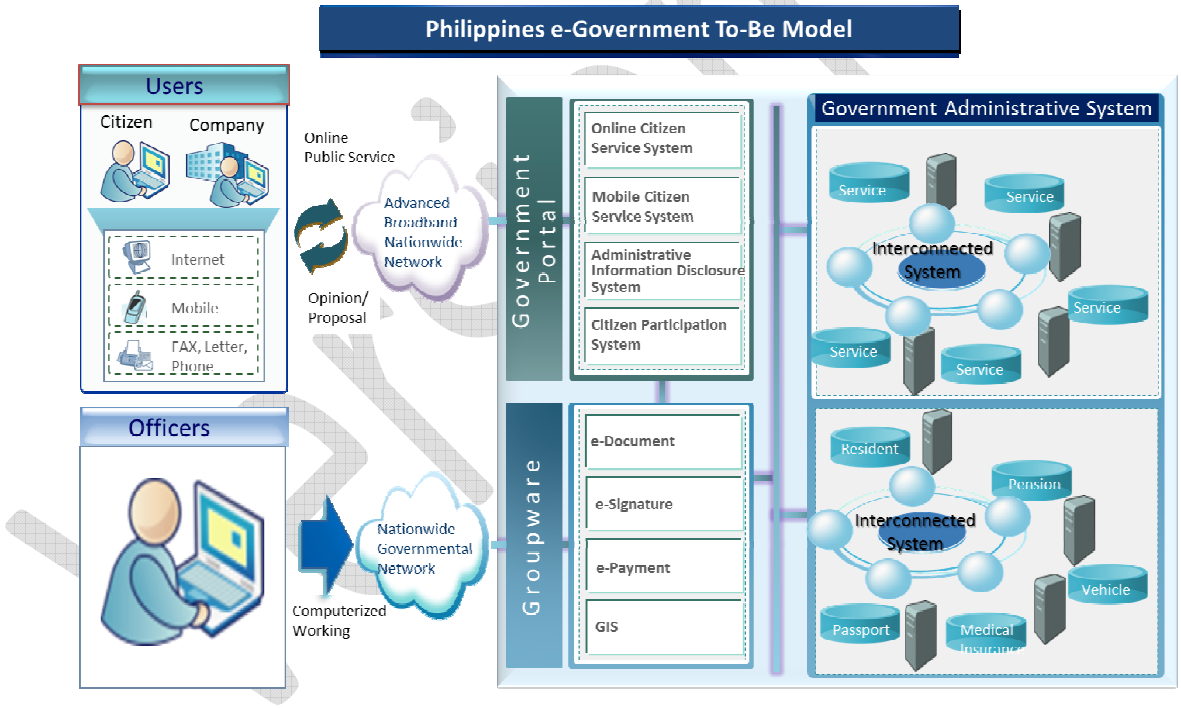


Figure 48: To-Be Model

2. Strategy and Initiatives

2.1. Overview

Once the vision and mission is defined, then there is a need to find out the corresponding strategies. A strategy represents the broad priorities adopted by the government in

recognition of its operating environment and in pursuit of its vision and mission. The strategy gives the answer of "how". The strategies have to be developed based upon the outcome of "As-Is" analysis. It plays the critical role in achieving the mission and vision.

As per the nature of e-Government system, the strategies are required to be categorized into the core building blocks of e-Government system such as G2C, G2B and G2G. The goals of these building blocks and corresponding strategies are needed to be developed. At the same time, the goals and strategies for ICT infrastructures are also required to be developed. It is indispensable to prepare legal and institutional foundations to support the Philippines e-Government system. The detailed goals for each area, strategies to achieve them and the corresponding projects were also identified. The detailed goals in establishing the e-Government in the Philippines are given below.

a) G2C: Provide citizen-oriented services
b) G2B: Provide transparent and rapid services
c) G2G: Interconnected and efficient government
d) Infrastructure: Favorable ICT infrastructure and legal framework

The list of specific strategies and projects to be executed for each of these goals are as following.

2.2. Goal and Strategy

2.2.1. G2C

G2C refers to administrative services that the government provides to its citizens through the establishment of the e-Government system. Its goals and strategies are as following.

Goal:

To build the effective system that provides the online citizen-oriented services to the entire citizens through diverse channel using ICT.

Strategies:

- Online public service
  - Informatizing and computerizing government data and administrative services a nd providing these services through online for easy access and use.
  - Designing a system to increase Internet penetration to entire country.

- Diversification of citizen service
  - Providing administration services through diverse channels such as visits, portal , fax, e-mail, cell phone and fixed telephone

- Providing citizen services that can be accessed by anytime and anywhere

Projects:

Government Portal, E-election & Voting System, NID, e-Tax, Medical and Health Information System, Government for Foreigner Information System, e-Agriculture, e-Community, Social Security System

2.2.2. G2B

G2B refers to administrative services that the government provides to business communities and industries through the e-Government system. Its goals and strategies are as following.

Goal:

To provide integrated information and services to every industry in the country and enhance the enterprise competitiveness through the rapid and transparent G2B service

Strategies:

- One-stop public service (Whole of Government)
  - Providing integrated government administration information to businesses that helps economic activities in Philippines
  - Supporting business activities with rapid &tailored information
- Disclosure the administration information and process
  - Opening government administration information and procedures of business pet itions to enhance business competitiveness
  - Clarifying the procedures of business petitions

Projects:

Business Portal, Philippine Business Registry

2.2.3. G2G

G2G refers to information and administrative services that is provided in government agencies and its departments through the establishment of e-Government. In order to enhance the government working approach, the required process should be improved

and integrated through BPR (Business Process Reengineering). Its goals and corresponding strategies are given below

Goal:

To informatize, computerize and standardize the government administration process and share the administration information among the government agencies to enhance efficiency and effectiveness

Strategies:

- Informatization and Computerization of government administration
  - Digitizing government paper document and computerizing administration proces s
  - Compulsory execution of Business Process Reengineering to enhance govern ment's administration process
- Standardization of government administration
  - Making a standard for administration procedure by executing BRM (Business Reference Model) and introducing a groupware
  - Executing e-Approval and e-Document
- Interconnection of government administration
  - Building national data sharing system among government agencies
  - Establishing an integrated government ICT center

Projects:

E-Document & Archiving System, GEA, National Disaster & Safety Management System, Criminal Justice Service System, Government Performance Monitoring System, NID, GeoPortal

2.2.4. Infrastructure

Infrastructure is the main foundation for the e-Government system that provides advanced services in Philippines. This includes law and Regulation, communication network and equipment, human development, organization, budget etc. Its detailed goals and strategies are as following.

Goal:

To fulfill the requirements for realizing the e-Government which are expanding nationwide ICT infrastructure, strengthening ICT education, and installing favorable laws and organizations.

Strategies:

- Construction of advanced nation-wide infrastructure
  - Building the nationwide communication network and inter government dedicate d network
  - Expanding internet coverage and improving capacity of the ICT infrastructure
- Development of national standard
  - Developing the nation's Unified Code System
  - Establishing system and security standard at the government level
  - Establishing a national standard model of business, IT systems and technology to enhance interoperability and prevent duplication
- National ICT literacy and HRD
  - Establishing HR development programs
  - Providing education opportunities and developing useful ICT education progra m for citizens to facilitate e-Government participation
- Improvement of Law and Regulation
  - Establishing favorable law and regulation on e-Government
  - Establishing favorable laws to prevent redundant ICT investment
- Organization of e-Government Committee
  - Empowering the e-Government project review committee
  - Establishing an authorized organization to promote e-Government systematicall y and efficiently at the government level

Projects:

Enterprise Architecture, IT HRD, Government Integrated Data Center

The Figure 49 depicts the hierarchical structure of vision, mission and its supporting entities for e-Government system in Philippines.

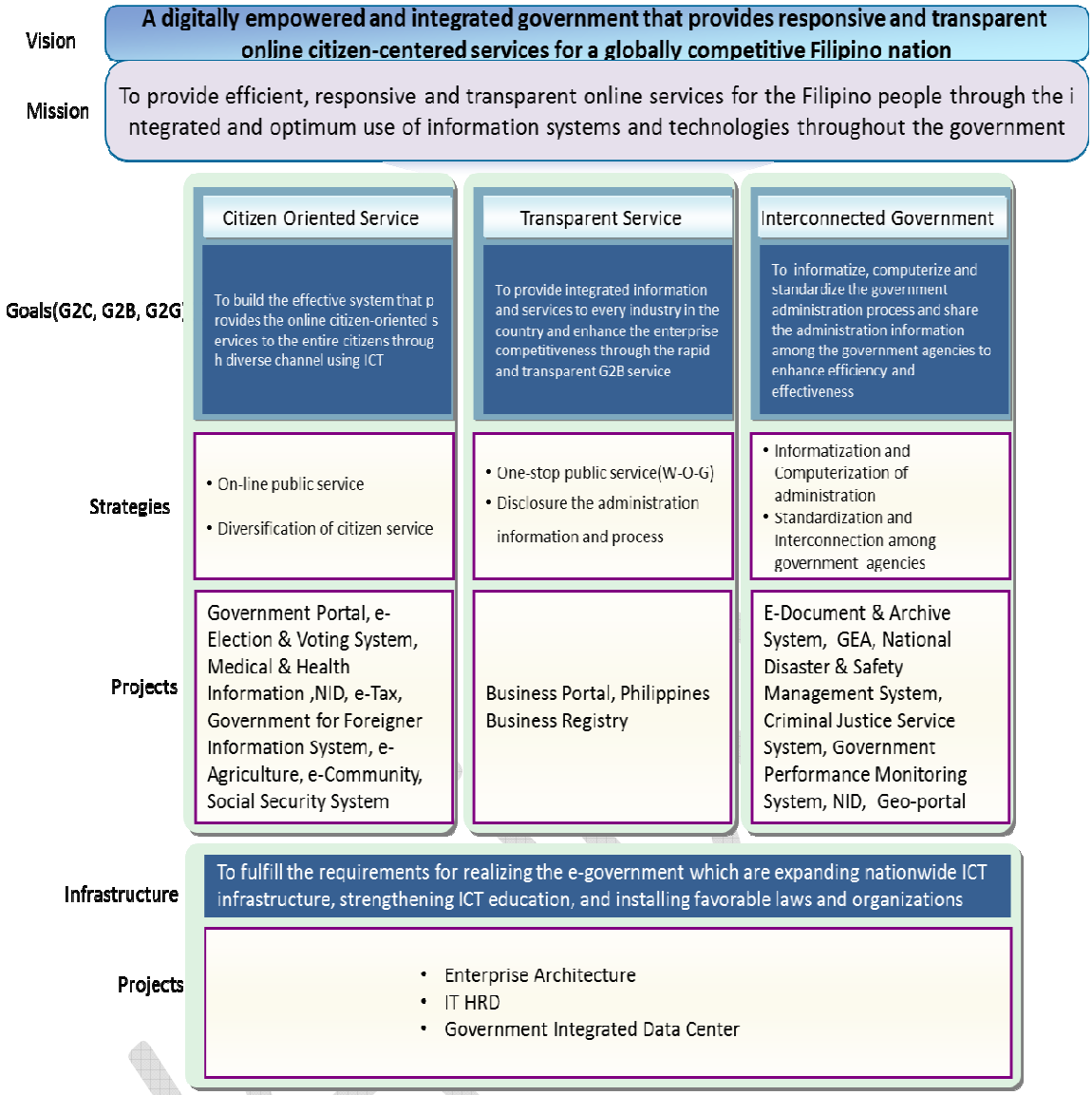


Figure 49: Hierarchical structure

3. Project Identification

The objectives and strategies by each sector were drawn in accordance with the vision, mission and the feedback of Philippines counterparts as well as the future model of e-Government system. To reach the main goal of e-Government, indispensable tasks should be implemented. Here e-Government essential tasks are identified below and these tasks should be evaluated as to their priority because all tasks cannot be executed at once due to limited resource.

3.1. G2C

3.1.1. Government Portal

The Government Portal is a single window lined with e-Government, information providing system, and operation infrastructure in order to maximize efficiency/productivity and provide rapid/high quality administration services to citizens. One website helps to reduce the cost (money/human resource/space) compared to operating separate websites. Also it helps the customers easily find administration services through just one website.

The Government Portal seeks to provide convenient service to citizens by reducing the number of paper documents and office visits. It also promotes administrative democracy and transparency through various services of e-Petition Service Center such as processing civil petition, furnishing administrative information and gathering public opinions.

3.1.2. e-Election & Voting System

The "Electronic Election and Voting System" enhances efficiency in the voting process using electronic devices that will automate current manual voting process. Introducing the e-Election System will enhance efficiency in voting by reducing time required for ballot counting and error counting.

3.1.3. Unified Multi-Purpose Identification system

The Unified Multi-purpose Identification System contains all citizens' basic personal information and provides personal identification via ID cards. It also helps online services for the public, supports prompt actions to civil service and reduces duplicate documents for civil petitions and should be used as the fundamental database for establishing the national policy, because population statistics is fundamental

3.1.4. e-Tax

The e-Tax System is an online tax payment service offered by the national taxation agency for tax payers to file and pay taxes. It also enables citizens to apply for public certificates and receive tax advice at home and work via the Internet and mobile phones.

3.1.5. Government for Foreigner Information System

The "Government for Foreigner (G4F) System" is aimed at improving convenient business service with a one-time business registration which can be applied to all administration services requiring a business registration certificate.

3.1.6. e-Agriculture

E-Agriculture System delivers information about agricultural production and consumption to the people in need of the information such as to farmers, distributers, suppliers and consumers via the Internet. It provides information such as agricultural production, distribution, technology and management. And it also facilitates trade and exchange among areas for developing agricultural economy.

3.1.7. e-Community

The “Electronic Community System” establish self-sustainable local communities that are capable of continuous growth by creating information network environments and improving the income of local residents through e-commerce in agriculture, fishing and tourism.

3.1.8. National Security System

The “National Security System” provides 24/7/365 monitoring service, enhancing government processes, exchanging criminal information online among relevant agencies to prevent the crime and to assist the department to increase the productivity.

3.2. G4B (Automation for Business Activities)

Providing the Single Gateway to support business competitiveness from establishment of companies to operation, it provides one-stop administration service in portal. Business complaints handled, Company established services for Preliminary founders, Home-based establishment, Business contents batch service, and solution for corporate difficulties Electronic document distribution, support consulting, and information about business announcements.

3.2.1. WORKNET (Employment & hiring System)

It provides online information and services to job seekers as well as employers. Jobseekers can receive information on vacancies as well as training opportunities, register with the online and, if needed, get offline service visiting Job Centre. It also offers online test - on job attitudes and vocational interests. It aims to be a "hub" for jobseekers providing vacancy information from all public and private employment agencies. Visitors can also link up to individual service providers for further detailed information.

3.2.2. Procurement System (PhilGEPS)

Through the establishment of a Single Window Government Procurement System the entire process register as contractor ・ bid on public project ・sign contract agreement ・ receive payment for services - takes place via the Internet. The procurement process is open to the public and simplifies government procurement through an Internet-based solution. The GePS solution makes government processes transparent and expands the e-commerce platform.

3.2.3. Medical and Health Information System

This system is designed to empower the physicians and medical professionals to acquire, store, transmit, archive, reconcile and visualize multimodality digital medical information

Hospital Information Systems: Patient registration and order entry, Access to case history and prior studies, Reconciliation of patient data,

3.2.4. Welfare Information Service System

This project conducts the related operation and management of all welfare information systems. It consists of Social Welfare Facilities Information System, Health Institutions Integrated Information system, and Health & Welfare Portals. It also manages call centers and education projects to support local civil servants in the social welfare & health department and social welfare institutions' employees who use the information system.

3.3. G2G

3.3.1. e-Document & Archiving System

“Electronic Document and Archiving System” is the system that supports the document life cycle from creation to disposal & archiving. The system has the input from the document creators which is processed with the well-defined steps with the supports of document management entities such as documents, metadata repository, email and messages and multimedia files.

3.3.2. GEA (Government Enterprise Architecture)

The GEA provides a unified information standard at the central government with its various departments. The extension the features of EA to local governments would be done in next phase. It also bridge the level by defining services and work procedures of

each agency and the relationship between current conditions of ICT and future tasks. Thus it's a solution to reduce the gap of computerization level of the agencies' of by implementing EA. It also ensures information sharing within the administration, standardizes processes, and establishes ICT Governance by developing link information among architectures and by managing ICT resources.

3.3.3. National Disaster & Safety Management System

"National Disaster and Safety Management System" is the system that is used by police, fire and rescue and other similar organization to dispatch resources to handle incidents (disaster).

3.3.4. Criminal Justice Service System

"The Criminal and Justice Service System" provides the legal related services to the citizens and the legal experts. The system is operated in 24/7. The main purpose of the system is to provide legal information and solution of the legal problem to the citizens and legal experts. It also contains the repository of criminal records and the best practices within the country.

3.3.5. Government Performance Monitoring System

"Government Performance Monitoring System" shows the status of the government projects. It also evaluates the performance evaluation of the government officials. The system is well equipped with the critical performance index for accomplishing missions and strategy tasks.

3.3.6. Geo-portal

The "Geo-portal" system considers the geographical related data, information and services. The system interprets different data and provides the results in different ways. The system takes the different inputs such as land data, natural resource data, and satellite derived data and it encodes it into grid or polygon. Then the data is managed for analysis. Then finally the system provides the output through graphs or charts such as color nautical chart and maps such as topographic map, regional map, provincial map, land classification map etc.

3.3.7. Critical National Database Construction (Citizen, real-estate, vehicle)

This project works on NID, real-estate, vehicle and statistics data information. To

register data, there are some solutions: one is offline to gather data through registration form, the other is online to collect data through devices, digital camera, fingerprint live scanner, etc. Collecting all demographic data (include voter) and fingerprints of people registered to have ID card in the whole country and collecting all real-estate and vehicle data.

3.3.8. Integrated National Finance Management System

This project interconnects all finance-related systems that are operating independently in various government agencies. The National Finance Information System (NAFIS) provides real-time financial information and integrates the finances of government agencies into a network that is managed by the system. This project will make the management processes of government finances transparent, more effective and efficient while making the government more accountable.

3.4. Infrastructure

3.4.1. IT HRD(Information Technology-Human Resource Development)

In “IT HRD System”, broad range of targets, such as public servants, citizens and students, should be taken into account. In particular, education for married women, people living in the rural area and the disabled, who have relatively fewer opportunities to get training on how to use a computer, should be included.

3.4.2. Government Integrated Data Center (GIDC)

Government Data Center provides a single facility to house the hardware, software and staff. It would be physically secure (guarded premises with controlled physical access) and protected against natural disasters (fire, floods, earthquake etc.) and malicious attack. It would provide 24 / 7 / 365 service levels (adequate monitoring staff, backup hardware, etc.) and should be equipped with redundant environmental controls

3.4.3. Strengthening e-Government Security

The National Cyber Security is the Central point of government for identifying, preventing and responding to cyber-attacks and threats. In collaboration with the private sector and the military sector, will improve warning systems and response time to security incidents and protect critical national infrastructures

3.4.4. Enhancement of Government Information Network

"The Government Information Network" is the physical network of data that interconnects the State institutions to high speeds, with a secure and high quality configuration of the service. The main purpose of establishment of the government communication network is to obtain the efficient implementation of the e-Government, which includes establishment of national administrative network needed for computerization of regional administration.

3.4.5. IT-Governance (CIO, Committee, Think Tank)

This project diagnoses the current state of HR related IT resources and restructure as well as establish IT governance based on well trained IT specialists. As such, this project will seek to strengthen IT functions, restructure IT organizations and train IT experts in order to achieve IT governance that will promote innovation.

3.4.6. Improvement of e-Government related laws

Along with various e-Government projects that aim to develop better network, build robust means of public service delivery and so on, the success of such projects depends much upon various laws that regulate various industries and government services. As such, the revising and improvement of laws and regulations related to all the e-Government projects needs to be centrally coordinated to avoid conflicts of legal and regulatory nature that could cause confusion and inefficiency in the e-Government and to the public in general. This project breaks down the process of legal revision into 3 groups: offline-center laws and regulations, security system and framework and the base laws and regulations for e-Government.

3.5. Plan & On-Going Projects :

Philippines has already realized the significance of e-Government in the country to promote the economic, social and political development. There are so many ongoing projects to support the e-Government system as a whole. Some of the key projects are as follows:

3.5.1. Philippine GeoPortal Project (One Nation One Map)

This project has been started since December 2011. The National Mapping and Resource Information Authority (NAMRIA) initiated the project with the help of other government departments and agencies. The main objective of this project is to provide services to the citizens, government employees and business communities through interactive single window environment. The sum of Peso 200,000,000.00 is allocated for this project.

3.5.2. Integrated Government (i-Gov) Philippines

This project is a joint project of DOST-ICTO (NCC &TelOf) and DOST-ASTI in addressing basic government needs for transparency, efficiency and governance. The project will increase public trust by improving access to government online services. This also provides the benefits through integration, utilization and enhancement of existing government assets. The sum of Peso 478,475,914.84 is allocated for this project.

3.5.3. Philippine Community e-Center Program

This project has started in June 2011 by the initiation of NCC and ICTO. The project seeks to establish new community e-Centers (CeCs) in municipalities where there are no shared Internet access facilities, transform existing school computer laboratories and Internet cafes, where feasible to become CeCs and enhance and strengthen existing CeCs. The sum of Peso 100,000,000.00 is allocated for this project.

3.5.4. Philippine Digital Strategy

The Philippine Digital Strategy (PDS) is designed with the following purposes: to harness the potential and power of Information and Communication Technologies (ICT) to support the attainment of the Government's agenda and objectives contained in the social contact with the Filipino people and the Philippines Development Plan (PDP) 2011-2016. It also responds to the global trend towards a digital economy and knowledge societies and ensure that country's economy and society is prepared to compete in this digital economy and take advantage of its opportunities.

In addition to above main projects with Philippine Digital Strategies, there are many more ongoing projects in Philippines. The project such as "Government Integrated Financial Management System with budget Peso 63,360,557.50", "National Payroll System (NPS) with budget Peso 77,994,552.50", "Asset Information Monitoring Program with budget Peso 22,332,000.00", "National Justice Information System with budget Peso 100,000,000.00", " e-Business Permit and Licensing System (eBPLS) with budget Peso 30,000,000.00" are the examples of ongoing projects in Philippines. These projects help the country for implementing e-Government system.

IV. Implementation Strategy

1. e-Government Roadmap

In the previous Chapter, prerequisite projects which should be executed for establishing Philippines e-Government were identified, and these projects were incorporated into e-Government road map in the order of their priorities.

To actually launch the predefined e-Government projects, more detailed functions and specific requirements of projects must be defined. Therefore, to facilitate the establishment of Philippines e-Government, details of phase 1 of e-Government roadmap from 2013 to 2016 will be identified in this Chapter. Detailed functions include budget, required manpower and period.

1.1. Overview

Philippines e-Government master plan has set the goals of e-Government to be achieved in 4 years from 2013. Thus, project schedule and action plans must be drawn out to meet the time frame.

In order to set realistic and specific goals, development models of other institutions and those of Korea was taken as reference, and the e-Government development model that fits the Philippine situation was created. After developing the e-Government model for Philippines, the target level for 2016 was determined and conditions needed to achieve such level were defined.

While all the projects defined in the previous Chapter need to be executed, it is realistically difficult to implement them all at the same time due to insufficient budget and system, lack of technical workforce, insufficient awareness among people and infrastructure. Thus, prominent figures from the NCC & DBM of Philippine has evaluated the feasibility of these projects, such as its As Is, To Be, To Be – As Is Gap, Degree of importance, Degree of Urgency, Effectiveness of Innovation, Ease of Implementation, and determined their priorities.

The order of priority was reflected in the roadmap, which the Philippines has to implement to achieve the target level in 4 years. Other essential issues, such as creation of organization, preparation of related laws and regulations, human development plan, and securing budgets were prepared separately.

1.2. e-Government Promotion Stage

The UN-ASPA (UN & the American Society of Public Administration, 2002) has defined the level of e-Government into five-stages according to the level of Internet- and web-based government services. Each stage is as following.

Stage 1	• Emerging web presence • Creation of the government website. Basic and limited level of information is provided in a static manner
Stage 2	• Enhanced web presence • Expansion in government websites. Increased dynamics in information through regular updates of information/contents
Stage 3	• Interactive web presence • Usage of electronic formats. 2-way communications via web (online application, confirmation and response)
Stage 4	• Transactional web presence • Provision of actual online services, process handling and electronic payment
Stage 5	• Fully integrated web presence (seamless) • All services and links are provided on a single government portal, and all the administrative services can be processed on-line

Table 25:e-Government Stage

This measure plays an important role in examining developments in e-Government status of each country. Korea also checks its development stage by evaluating websites of its government agencies and departments every year. In the course of such evaluation, websites that are well-presented and operated are discovered and announced to the public. Through these activities, Korea tries to improve the convenience of its people and make its administrative process more efficient. The e-Government Headquarter of Korea in 2005 announced Korea's e-Government to be in Stage 4 of the UN-ASPA's development stage and some parts are already in Stage 5. Since 2010, Korea enhanced mobile services to safely land in Stage 5. Mobile services allow administrative services to be provided anywhere and anytime.

In order to create the e-Government promotion stage of Philippine, it is important to make general evaluation on its current level of e-Government according to the promotion stage of UN-ASPA. According to the evaluation, Philippine is well in the second stage, expansion in government websites and increased dynamics in information through regular updates of information/contents. It is still not able to Interactive web presence, which is a condition to enter the 3rd stage. But, while some departments are using electronic formats as required in the second stage, its level of 2-way communications is still not smooth. Taking these into account, Philippines e-Government status can be assessed as spreading over the 2nd stage to the 3rd stage.

An ideal stage for Philippines was designed by considering the country's conditions, international standards and research results. This e-Government development stage is comprised of three steps. The reason why Philippines has three stages while UN-ASPA has five stages is because Philippines has great difference in the level of e-Government among each government agencies and their service levels differ greatly as well. Thus, by reducing the stages, all government agencies can achieve higher level of e-Government in a shorter period of time.

First stage is to computerize the internal process of the government. There is just connection amongst government agencies and not big changes in administrative process

are required. With partial online connection, some service application forms or information can be provided on the web. This is where Philippines is currently standing as shown in the previous assessment.

Second stage is to provide more comprehensive and citizen-oriented services through innovation in administrative process via BPR and connected with optical backbone of government agencies. And the integrated services through connection of government agencies should be provided and to handle the citizen's requests online through the web. In this stage, all the government agencies are interconnected and the process on handling integrated services can also be improved. At this stage, it is possible to provide citizen-oriented, customized services.

Next stage, which is the last stage, is same as the final fifth stage of UN-ASPA's model. All processes are integrated and the knowledge-based government is established, realizing the ubiquitous environment where citizens and businesses can get all the services they want wherever they are.

Figure 50 shows four stages of Philippines e-Government stage. For each stage, its respective core value and goal, as well as services and functions needed, conditions required to achieve changes in processes are specified.

First, in order to move up from the 1st stage to the 2nd stage, following conditions should be satisfied.

- Government Integrated Data Center needed
- Enhancement of Government Information Network
- Adapt PKI and Supply e-Signature for strengthening e-Government Security
- Critical national Data base Constructed
- Provision of online administrative services
- Creation of a common platform and standardization for information distribution
- Creation of a responsible body(Presidential level steering Committee, CIO, CIO Counsel, e-Government Research Center) for consistent execution of the plan
- Creation of an information sharing system within the government

Following conditions should be satisfied for Philippines to move up from the first stage to the Second stage:

- 2-way transaction
- Access to services through various channels and multi media
- Integration of administrative process
- Pan-governmental collaborative network for knowledge sharing

Here, continuous expansion of service areas and ICT infrastructure is essential.

Also, as already defined in previous Chapter, the Philippines e-Government Vision statement says **'A digitally empowered and integrated government that provides responsive and transparent online citizen-centered services for a globally competitive Filipino nation**'.

In order to achieve this Vision and Mission statement, the goal is set to enter 'Stage 3 e-Government' by 2016 with consideration to internal competency of Philippine in pursuing the e-Government in the past, changes in external environments, citizen's demand for Computerization and etc.

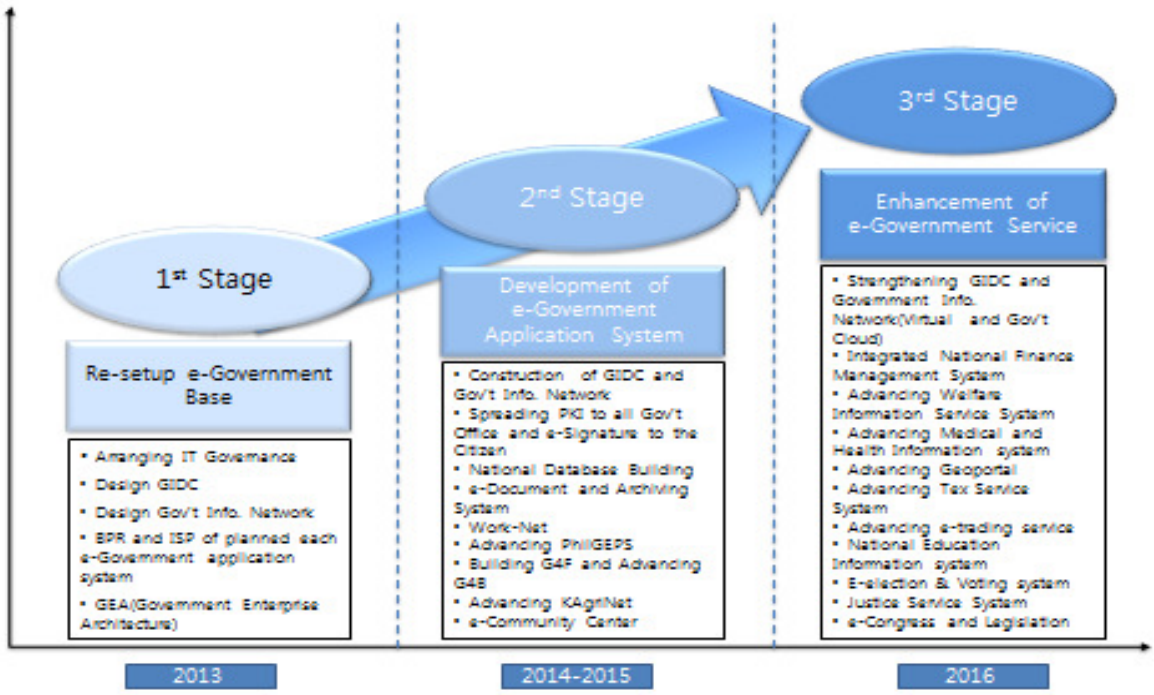


Figure 50 : Stage of Philippine e-Government

1.3. Method of Project Priority Evaluation

The list of projects is defined in previous chapter. These projects drive the Philippines from the current position to the expected position. Hence, these projects are needed to be implemented by Philippines with its strengths and available resources. To implement in an effective manner, all the budget, workforce, organization and other conditions needed to perform the project should be prepared. The goal of the Philippines e-Government master plan creation project is to define projects for 4 years period commencing from 2013. To achieve the goals mentioned in previous chapters within this period, priorities should be evaluated and decided the order of execution for each project.

In order to sort out the order of implementation, Philippines e-Government stakeholders discussed among themselves with help of NCC. They evaluated each project and based

upon the defined criteria and its current situation, the priority was given to each project.

In order to set priority, each project is evaluated based upon the seven parameters such as: As-Is, To-Be, Gap, Degree of Importance, Degree of Urgency, and Effectiveness of innovation and Ease of Implementation. Prioritization is important for the following reasons. 1) It helps the Government achieve suitable resource allocation among investment options. 2) Analytical assessment accompanied with prioritization is useful for creating a linkage between expected outputs of projects and program level objectives. 3) The estimation of expected effects and costs requires the assessment of demand for e-services, since deviation in demand, both in term of the volume and speed of uptake, causes the change in the expected value generated by a given activity. 4) The focus it brings to gauge the level of demand among user group (citizens, businesses and civil servants) will lead the way to stakeholder participation and consultation, which is critical in reducing the occurrence of supply-driven projects.

This set of tables and the information following will allow identification of priority projects for e-Government based on objective scoring system developed by the NIPA Consulting Team for the Philippine e-Government Master Plan Project

1.3.1. Method of Scoring in Project Priority Evaluation Sheets

After getting the outcomes of the As-Is Analysis and defining the vision and mission, the list of forty two relevant projects were recommended to Philippines counterpart. The project priority evaluation sheet was also provided to them for evaluate each project in their local context and prioritize each project respectively. Prioritization helps the government to achieve suitable resource allocation among investment options.

Basically there are five main parameters used in prioritizing the projects. They are as follows: To-Be and As-Is Gap, degree of importance, degree of urgency, effectiveness of innovation and ease of implementation. The explanation of these parameters are given below:

To-Be and As-Is Gap:

This is one of the parameters for project prioritization. The existing status in various relevant areas of the country is revealed through the scale in “As-Is”. And the target or the destination stage of the project is scaled in “To-Be”. The primary stage is scaled with 1 to 2 and advanced stage is scaled with 4 to 5. Similarly, the scale in “To-Be” model is also done.

Degree of Importance:

It is one of the parameters in prioritizing the project. The project is prioritized based upon the importance in the country. Different country has different importance in projects. While using this parameter, it is necessary to rethink in the perspectives of citizens and government. If the degree of importance is very high then scale is 4 to 5 if not then 1 to 3.

Degree of urgency

Urgency is another parameter in prioritizing the project. It is evaluated with consideration to policy, requirements of users, and phase of e-Government implementation. If a project is needed immediately, then scale of 4 to 5 is given, if a project is needed in a short term period such as in the span of 2 to 3 years then the scale of 2 to 3 is given. If a project is needed in a long term then scale 1 is given

Effectiveness of innovation

This is another third parameter. It deals with the effectiveness of the project. It is evaluated based on the objectives and other factors of the project. In general, if entire citizens in the country and government departments are affected by the realization of the project then the scale of 4 to 5 is given. If most of the citizens and government departments are affected then scale of 2 to 3 is given. If very few citizens and government departments are affected then the scale of 1 is given.

The project effectiveness also covers the effect of one project to other multiple projects. Some projects do not affect much. It has the nature of standalone project. But some projects affect much to other projects. Example: The Project for Business Process Re-Engineering (BPR). The BPR affects in Enterprise Architecture (EA), Whole of Government. All these issues are considered during scaling the projects.

Ease of implementation

This is the fourth parameter. It emphasize on the ease of implanting the project in the current context. It is also known as feasibility analysis. There are four parts in this parameters. They are technological realization, institutional realization, social realization and political realization. The feasibility of technological realization is accessed with consideration to the technological level and the capacity of government departments to implement the project. Institutional realization is assessed with consideration to laws and regulations related to the project implementation. The readiness of society for the project is also very important. Society may not accept some of the projects or society may welcome the projects. And finally the political realization indicates the willingness of policy makers and leaders to implement the project. If it is entirely possible to implement the project then the scale of 4 to 5 is given. If it is a little difficult in implementing then the scale of 2 to 3 is given. If it is very difficult to implement the project then scale 1 is given.

The list of prioritized projects was evaluated by NIPA consultants. In spite of the ranking, most of the time the needy projects are not feasible enough to commence them without building other prerequisites. In such cases, the NIPA consultant has provided the recommendation for Philippines counterparts.

The sum of scales of five parameters described above is calculated at the end of the process and this is known as priority rating. This priority rating is used for the project prioritization.

The format of evaluation sheet is shown in Table 26 on the next page. The evaluation sheet was divided into eleven columns. The first column consists of the area or sector of project, second and third column is the project number and project name respectively.

The fourth and fifth column is for “As-Is” and “To-Be” whereas sixth column consists of the gap between them. The seventh column is the degree of importance, and eights column is the degree of urgency. It is expected to give the intensity as per the importance of the projects in Philippines and the urgency of the projects for e-Government system. The effectiveness of project is given in ninth column, and the ease of implementation is given in tenth column. Finally the sum of numbers of each column is given in eleventh column. This number gives the priority rating of each suggested project. The brief explanation of each column is given below.

- As-Is Index

On a scale of 1 – 5 with 1 being the lowest and 5 being the highest, mark the level of the project in its current state.

- To-Be Index

On a scale of 1 – 5 with 1 being the lowest and 5 being the highest, mark the level of the project that you wish to attain in the next 2 – 3 years.

- To-Be/As-Is Gap Index

Calculated automatically by subtracting the As-Is index value from the To-Be index value. Do NOT fill in.

- Degree of Importance Index

On a scale of 1 – 5 with 1 being the lowest and 5 being the highest, mark the importance level of the project.

- Degree of Urgency Index

On a scale of 1 – 5 with 1 being the lowest and 5 being the highest, mark the urgency level of the project.

- Effectiveness of Innovation Index

On a scale of 1 – 5 with 1 being the lowest and 5 being the highest, mark the expected level of effect the project will have on the government and the public as a whole. Note that score of 1 means that the project is basically for internal improvement only.

- Ease of Implementation Index

On a scale of 1 – 5 with 1 being the hardest and 5 being the easiest to implement, mark the level of difficulty of the project in its implementation. Please take into consideration various factors such as legal processes needed, political situation, ease of budget appropriation, social and other impediments and so on, not just the technical aspects.

Area	Project No.	Project Name	As Is (1-5)	To be (1-5)	To be - As Is Gap	Degree of Importance (1-5)	Degree of Urgency (1-5)	Effectiveness of Innovation (1-5)	Ease of Implementation (1-5)	Priority Rating (SUM)
INFRA	1	GIDC(Government Integrated Data Center)								
INFRA	2	Enhancement of Government Information Network								
INFRA	3	Strengthening e-Government Security								
INFRA	4	IT-Governance(CIO, Committee, Think Tank)								
INFRA	5	Improvement of e-Government related laws								
INFRA	6	IT HRD(Citizen & IT Expert)								
G2G	7	Integrated National Finance Management System								
G2G	8	e-Document and archiving System								
G2G	9	Local Government Administration System								
G2G	10	GEA(Government Enterprise Architecture)								
G2G	11	Government HR Management System								
G2G	12	NEIS(National Education Information System)								
G2G	13	Critical National Database Construction(Citizen, real-estate, vehicle)								
G2G	14	National Disaster & Safety Management System								
G2G	15	Criminal-Justice Services System								
G2G	16	Budget & Accounting System								
G2G	17	GPMS(Government Performance Monitoring System)								
G2G	18	Multi-Purpose Identification System								
G2G	19	GeoPortal(One Nation, One Map)								
G2G	20	e-Congress(e-Legislation)								
G2G	21	Construction & Building Management System								
G2C	22	Online Citizen Participation								
G2C	23	Government Portal								
G2C	24	Tax Service System(e-TIS)								

G2C	25	**WORKNET(Employment & hiring System)**								
G2C	26	**Welfare Information Service System**								
G2C	27	**Medical and Health Information System**								
G2C	28	**Food Information Management System(e-Nutrition)**								
G2C	29	**Drug Information Management System(iDTOMIS)**								
G2C	30	**G4B (Automation for Business Activities)**								
G2C	31	**Procurement System(PhilGEPS)**								
G2C	32	**Import & Export System(e-Trading services)**								
G2C	33	**Transportation & Traffic Management System**								
G2C	34	**E-Election & Voting System**								
G2C	35	**G4F(Government for Foreigner)**								
G2C	36	**National Logistics Information Service System**								
G2C	37	**e-Agriculture(KAgriNet)**								
G2C	38	**e-Library**								
G2C	39	**e-Community Center**								
G2C	40	**PICWIN(Interactive Climate & Weather Information Network)**								
G2C	41	**Social Security System**								

Table 26 : Project Priority Evaluation Sheet

1.4. Result of Project Priority Evaluation

As the first step for making evaluation in Philippines, all projects were evaluated according to evaluation criteria of previous section. Then everyone's markings were tallied into a single chart. This evaluation result went through internal deliberation within the NIPA Consultant Team and the final result was generated in Table 27.

Area	Project Name	As Is (1-5)	To be (1-5)	To be - As Is Gap	Degree of Importance	Degree of Urgency (1-5)	Effectiveness of Innovation (1-5)	Ease of Implementation (1-5)	Priority Rating (SUM)
INFRA	**Strengthening e-Government Security**	1	4	3	5	5	5	4	22
G2G	**e-Document and archiving System**	1	4	3	5	5	5	4	22
G2C	**Government Portal**	3	5	2	5	5	5	5	22
INFRA	**Enhancement of Government Information Network (Virtual Gov't Cloud)**	2	4	2	5	5	5	4	21
G2C	**e-Community Center**	4	5	1	5	5	5	5	21
G2G	**Disaster Recovery & Business Continuity System**	1	4	3	5	5	5	2	20
G2C	**G4B (Automation for Business Activities) Business Portal (Phil Business Registry, e-LGU Business Permit & Licensing System)**	3	5	2	4	5	5	4	20
INFRA	**IT-Governance (CIO, Committee, Think Tank)**	1	4	3	5	5	5	2	20
INFRA	**GIDC (Government Integrated Data Center)**	2	5	3	4	5	5	3	20
G2G	**Critical National Database Construction (Citizen, real-estate, vehicle, OFW, immigrants)**	3	5	2	5	5	5	3	20
G2C	**G4F (Government for Foreigner) (investments and tourism)**	4	5	1	4	5	5	4	19

G2C	**WORKNET (Employment & Hiring System)**	4	4	0	4	5	5	5	19
G2C	**Procurement System (PhilGEPS)**	4	5	1	4	5	5	4	19
G2C	**e-Agriculture (KAgriNet)**	4	5	1	4	5	5	4	19
G2G	**GEA (Government Enterprise Architecture)**	1	4	3	4	5	5	2	19
G2C	**Medical and Health Information System**	2	4	2	3	5	5	3	18
G2G	**Integrated National Finance Management System**	3	4	1	4	5	5	3	18
G2C	**Welfare Information Service System**	4	5	1	4	5	5	3	18
INFRA	**Improvement of e-Government related laws**	3	4	1	5	5	5	2	18
INFRA	**IT HRD (Citizen & IT Expert)**	3	5	2	5	3	4	4	18
G2G	**GeoPortal (One Nation, One Map)**	3	5	2	5	1	5	4	17
G2C	**Tax Service System (e-TIS)**	4	5	1	4	2	5	5	17
G2G	**NEIS (National Education Information System)**	1	4	3	3	5	3	3	17
G2G	**Budget & Accounting System**	3	4	1	3	5	5	3	17
G2C	**E-Election & Voting System**	5	5	0	3	5	5	4	17
G2C	**National Disaster & Safety Management System /Project NOAH**	4	5	1	3	5	5	3	17
G2C	**National Security System (Preventive and Surveillance)**	2	4	2	3	5	5	2	17
G2G	**Multi-Purpose Identification System**	4	5	1	4	5	5	2	17
G2C	**Online Citizen Participation**	2	4	2	3	1	5	5	16
G2C	**Transportation & Traffic Management System**	4	5	1	3	2	5	5	16

G2G	**Government HR Management System**	2	4	2	3	5	5	1	16
G2C	**Import & Export System (e-trading services)**	3	4	1	4	3	5	2	15
G2C	**Drug Information Management System**	2	4	2	3	1	5	3	14
G2G	**GPMS (Government Performance Monitoring System)**	2	3	1	3	5	3	2	14
G2G	**Justice Services System**	2	4	2	2	3	5	2	14
G2C	**National Logistics Information Service System (Port Logistics)**	3	4	1	4	1	5	2	13
G2G	**e-LGU**	2	3	1	4	1	4	3	13
G2G	**e-Congress (e-Legislation)**	2	3	1	3	1	5	2	12
G2G	**Construction & Building Management System**	1	2	1	3	1	5	2	12
G2C	**Food Safety Management System**	2	4	2	1	1	5	2	11
G2C	**e-Library**	4	5	1	3	1	3	3	11

Table 27 : Results of Project Priority Evaluation

Table 27 shows the outcome of project evaluation activity. It shows the priority rating of each project. The projects such as "Strengthening e-Government Security, e-Document and Archiving System and Government Portal" come under the list of higher priority as compared to other projects. Each one of them scores 22. The projects such as "Enhancement of Government Information Network and e-Community Center" are also belonging to the higher priority as compared to other remaining projects with their scores 21. Like this, the Table 27 shows the different levels of priority with their corresponding scores.

Table 28 shows the final project evaluation. There are three columns in Table 28. The first column consist the name of project. The second column shows the area or sector of each corresponding project. The third column describes the project in order to understand the scope and purpose of the project. The project with * indicates the ongoing projects in the Philippines.

Project Name	Area	Project Description
Strengthening e-Government Security	INFRA	- Preventing cyber-attacks - Analyzing and reducing cyber threats and vulnerabilities - Disseminating threat warning information through alerts and warnings - Coordinating cyber emergency response activities - Private security (PKI)
e-Document and archiving System	G2G	To provide efficient solutions to create, process, store and distribute documents among government agencies electronically.
Enhancement of Government Information Network (Virtual Gov't Cloud)	INFRA	Physical network consisting of two main parts, the central government and local government.
Disaster Recovery & Business Continuity System	G2G	This consists of primary center and disaster recovery center. The main task of this system is as follows: -To back up entire government data and information -To provide service continuously even primary center goes down
GIDC (Government Integrated Data Center)	INFRA	A single facility to house the hardware, software and staff. The main task of the system is as follows: -To provide disaster prevention facility -To provide security system -To integrate information resources with high operability
Unified Multipurpose ID* (National Identification card)	G2G	To develop all citizens' basic personal database for sharing among government units, provide personal identification via a single ID card to improve efficiency of online services to the public.

Government Portal*	G2C	A gateway for citizens to access the online services provided by the government
Critical National Database Construction (Citizen, real-estate, vehicle, OFW, immigrants)	G2G	Digitalization of NID, real-estate, vehicle, OFW, immigrants data and others identified as critical by the government
Online Citizen Participation	G2C	This will enable public participation in policy-making. It will offer e-Public hearings, electronic survey capabilities and other consensus building tools.
e-Community Center*	G2C	To reduce digital divide by encouraging the local residents in rural areas to use ICT tools in their daily activities and business.
IT HRD (Citizen & IT Expert)	INFRA	The main task of the system is as follows: - To provide online ICT training course to citizens - To upgrade the local ICT experts with latest technology
Business Portal	G2B	A single gateway to support business competitiveness
WORKNET (Employment & Hiring System)	G2C	To provide online information and services to job seekers as well as employers.
Procurement System (PhilGEPS) *	G2C	To establish a single window for the government procurement system
Import & Export System (e-trading services) *	G2C	To provide a convenient and cost effective solution for customs clearance
National Logistics Information Service System (Port Logistics)	G2C	To integrate all information related to port logistics network and provide one-stop service and strengthen IT infrastructure of port logistics with web-based portal service.
Philippine Business Registry (PBR)*	G2B	This aims to facilitate the registration of businesses. Each business will be assigned a Business Registry Number. This will also be integrated to the e-Local Government Unit (eLGU) business permit system.

e-LGU*	G2C	Aside from the business permit system, this will also integrate other local government systems dealing with real property tax, treasury operations management, building permit, occupancy permit, etc.
IT-Governance (CIO, Committee, Think Tank)	INFRA	To diagnose the current state of HR related IT resources and restructure as well as establish an IT governance based on well trained IT specialists.
e-Agriculture (KAgriNet)	G2C	To provide information such as agricultural production, distribution, technology and management. It also facilitates trade and exchange among areas for developing agricultural economy.
G4F (Government for Foreigner)	G2C	The main purpose of this system is to motivate foreigners to invest in the country. Aside from an investment window, it will have a tourism window as well.
Improvement of e-Government related laws	LEGAL	The revising and improvement of laws and regulations related to all the e-Government projects needs to be centrally coordinated to avoid conflicts of legal and regulatory nature that could cause confusion and inefficiency in the e-Government and to the public in general.
GEA (Government Enterprise Architecture)	G2G	To provide the specification of facilities of information sharing among the government organizations and also give the future direction for e-Government.
Medical and Health Information System	G2C	This system is designed to empower the physicians and medical professionals to acquire, store, transmit, archive, reconcile and visualize multimodality digital medical information.
Drug Information Management System	G2C	A system for the receipt, validation, evaluation, approval and dissemination of drug safety and effectiveness data to provide safe and quality drug.
Food Safety Management System	G2C	To manage and share food safety information scientifically and systematically
Government Integrated Financial	G2G	This will provide real-time financial information and integrate the finances of government agencies into a network to support government financial information sharing and e-Bill and e-

Management Information System* (GIFMIS)		Payment services.
Budget & Accounting System	G2G	A system that will perform all financial processes online and connects financial systems of various government agencies to produce meaningful integrated information.
Social Protection Support Initiative (SPSI) *	G2C	It will consist of Social Welfare Facilities Information System, Health Institutions Integrated Information System, and Health & Welfare Portals.
Geoportal (One Nation, One Map)	G2G	To provide the official geographic-related data and information interactively.
Tax Service System (e-TIS)	G2C	The main task of this system is as follows: -To provide online tax return services, covering from reporting and filing for tax return -To provide e-Billing services for every tax item -To issue certificates through Internet
NEIS (National Education Information System)	G2G	provide information sharing with citizens and processing of education administration duties such as school affairs that school administrators and civil servants must coordinate and process, social welfare for students, human resource management, budget allocations, and real estate holdings
E-Election & Voting System	G2C	To enhance efficiency in the voting process using applicable electronic devices.
National Disaster Risk Reduction and Management System	G2C	To assist the National Disaster Risk Reduction and Management Council (NDRRMC) in monitoring disasters, hazards, accidents and related incidents, and in taking the appropriate action during such incidents.
Project NOAH*	G2C	To collect the climate and weather related data through various sensors and distribute them through various communication channels.
Crime Prevention and Surveillance	G2C	The main tasks of the system are as follows: - To provide security facilities with different channels

		- To monitor government services - To manage criminal information and sharing among departments
Transportation & Traffic Management System	G2C	Provide traffic and road condition information to vehicles and allow for efficient management of transportation and traffic of vehicles, especially in congested area.
Justice Services System	G2G	To provide citizens and legal experts with legal information and solution to legal problems. It also contains the repository of criminal records and the best practices within the country.
Government HR Management System	G2G	A standardized personnel management system for hiring, promoting, compensating, training, and providing social welfare benefits to civil servants.
GPMS (Government Performance Monitoring System)	G2G	To monitor the performance of government projects and personnel. The system also evaluates the degree of achievements in goals, strategies and defined targets of each project and each government agency.

Table 28 : Project with its Description

(* Ongoing Project)

1.5. Implementation Strategy of Project

For the successful implementation of Philippine e-Government Master plan, it has to follow the following directions.

- Strong empowerment needed for steady propelling e-Government Project and overcome obstacle and barrier.
- Increase the ICT budget for building strong e-Government Infrastructure. It is key SOC(Social Overhead Capital) of digital era.
- For speedy and more fair coordinating of e-Government Issue, Presidential level Steering Committee launched as soon as possible
- For increase the expertise in e-Government implementation, e-Government Research Center launched as soon as possible (Benchmarking NIA of Korea)
- For reducing duplicate of investment and keeping interoperability of e-Government, system, Government Enterprise Architecture project implemented before the big system development.
- For reducing the 'Trial and Error' and increase the efficiency of system operation, every system development project should do ISP (Information Strategy Plan) and BPR (Business Process Reengineering) before the system development.
- For the resolving the shortage of IT expert in Government, recruit new expert from Academy and Market
- For the successful implementation, introduce PMU (Project Management Unit) and QA (Quality Assurance)

1.6. e-Government Roadmap

The results from the assessment above are summarized into the roadmap below according to each stage, so that it can help the Philippines establish the e-Government in a realistic and efficient manner and jump to the 3rd stage of e-Government model by 2016. First of all, goals and strategies for each sector of e-Government and projects to achieve them are as following:

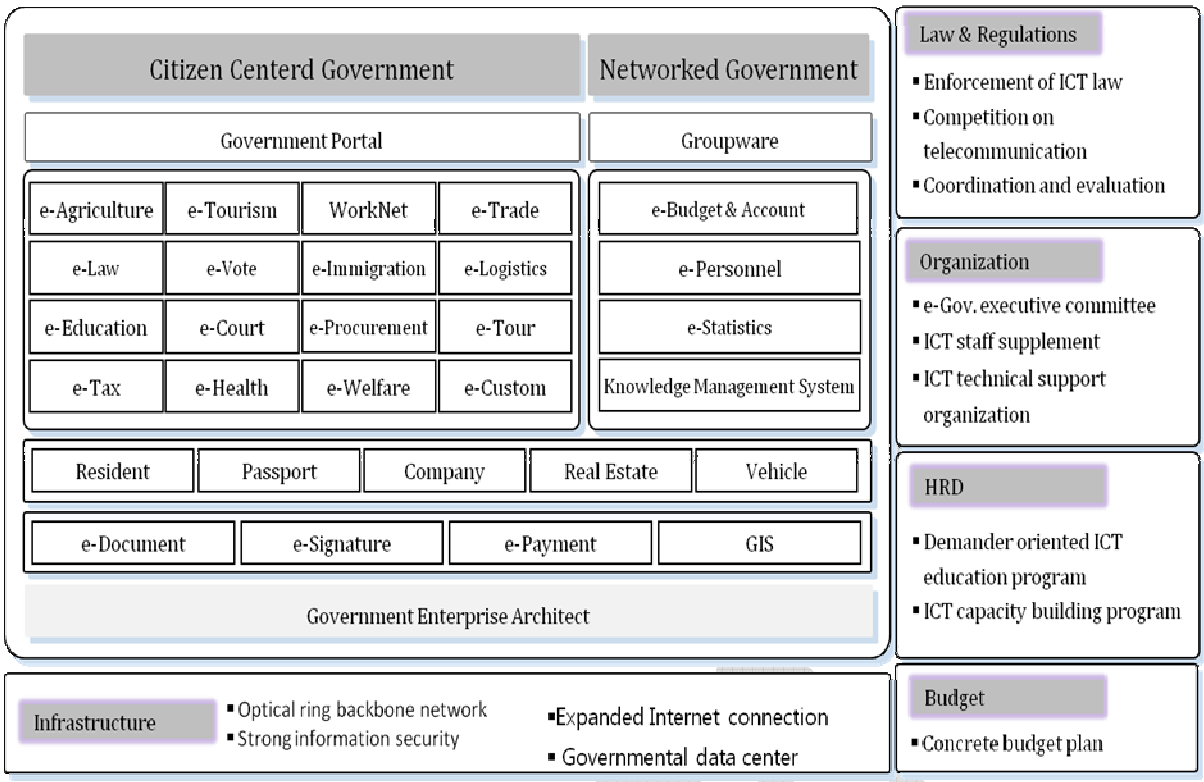


Figure 51 : Building blocks of e-Government(model)

Its priorities and schedule are based on the 4-year plan as following:

Sector	Stage 1 : Re-setup e-Government Base	Stage 2 : Development of e-Government Application System		Stage 3: Enhancement of e-Government Service
	2013	2014	2015	2016
Infra structure	IT Governance GIDC Enhancement of Gov't Info. Network Strengthening e-Gov't Security Improvement of ICT related Law ICT HRD			
G2G	Gov't Enterprise Architecture BPR and ISP of G2G Projects	National Database Building e-Document and Archiving System		Integrated National Finance System

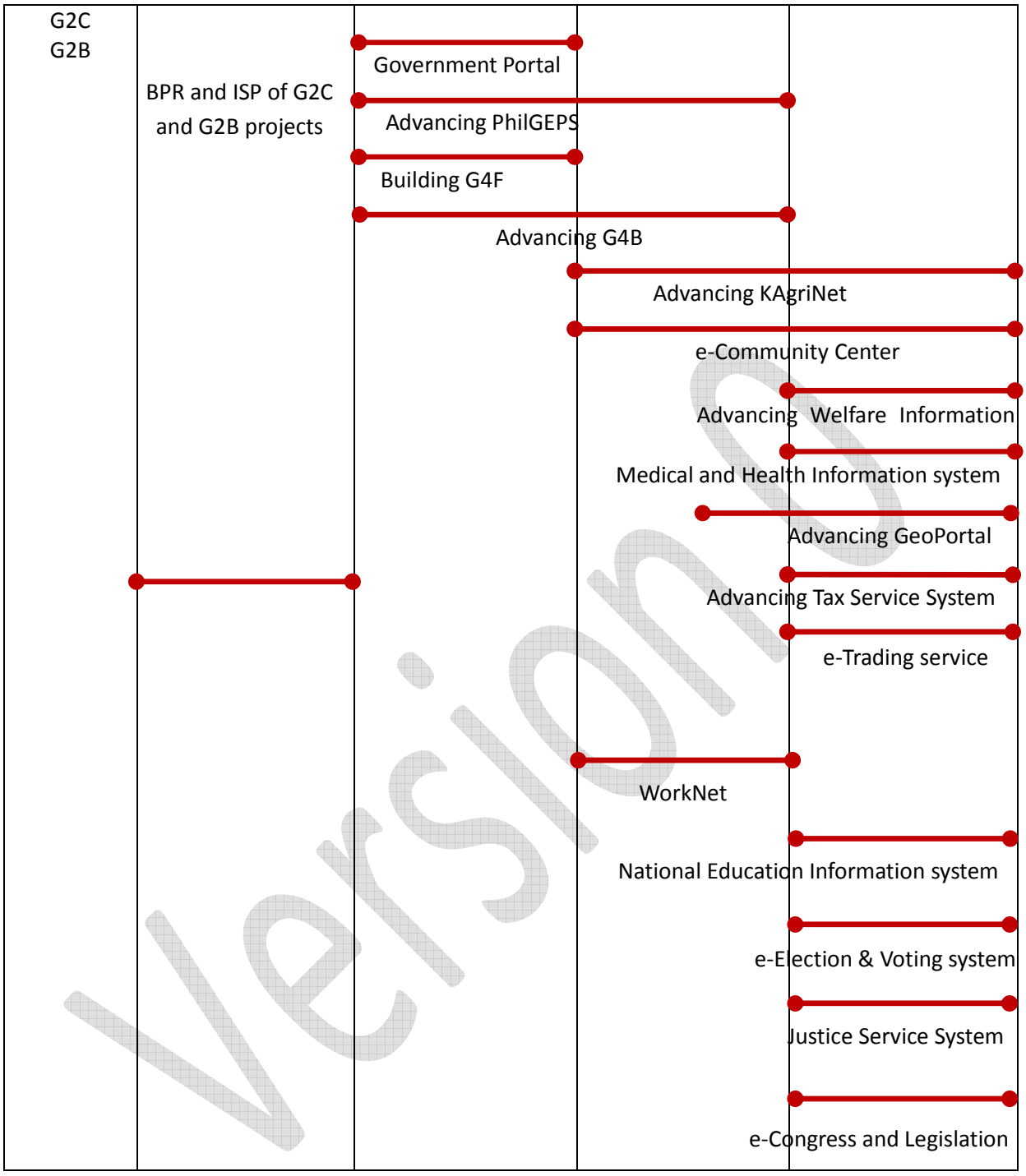
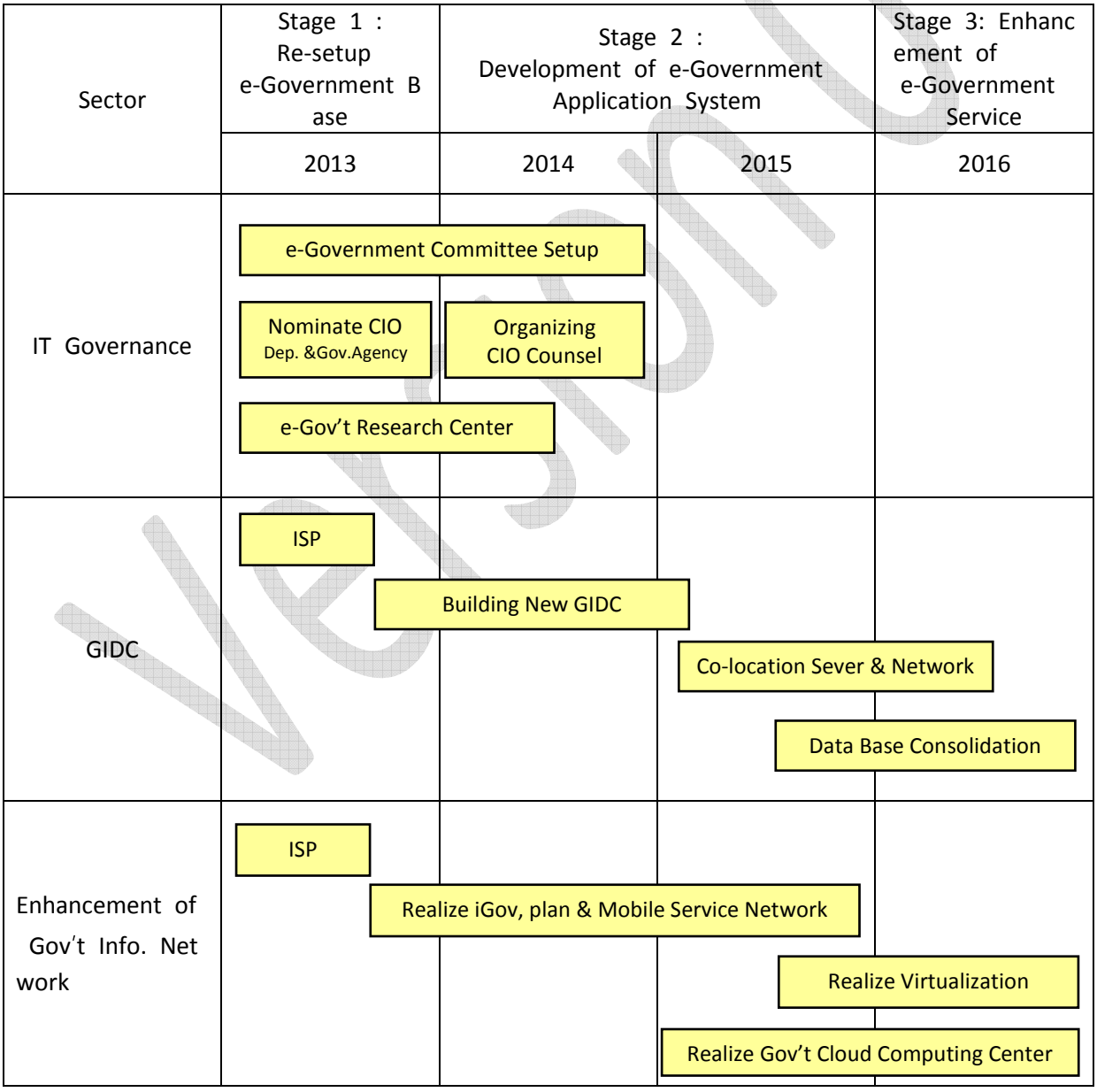


Figure 52 : Roadmap of Philippine e-Government

The following detailed roadmap is drawn up with detailed steps for each project according to the roadmap of e-Government above. In the infrastructure sector, IT Governance, GIDC, Enhancement of Gov't Infomation, Network, Strengthening e-Gov't Security, Spreading PKI to all Gov't Office and e-Signature to the Citizen, Setup e-Gov't budget and performance monitoring plan, Improvement of ICT related Law, ICT HRD related project should be implemented in Step 1. The ICT infrastructure needs to be continuously implemented from the first phase. Creation of the executing body (IT Governance-CIO, Presidential level Committee, e-Government Research and Development Center-Think Tank), introduction of laws/institutions and ICT training should be implemented in the first phase to support other projects and to establish the e-Government more efficiently. Also, these projects needed big budget. So, from the start to the end, strong empowerment needed.



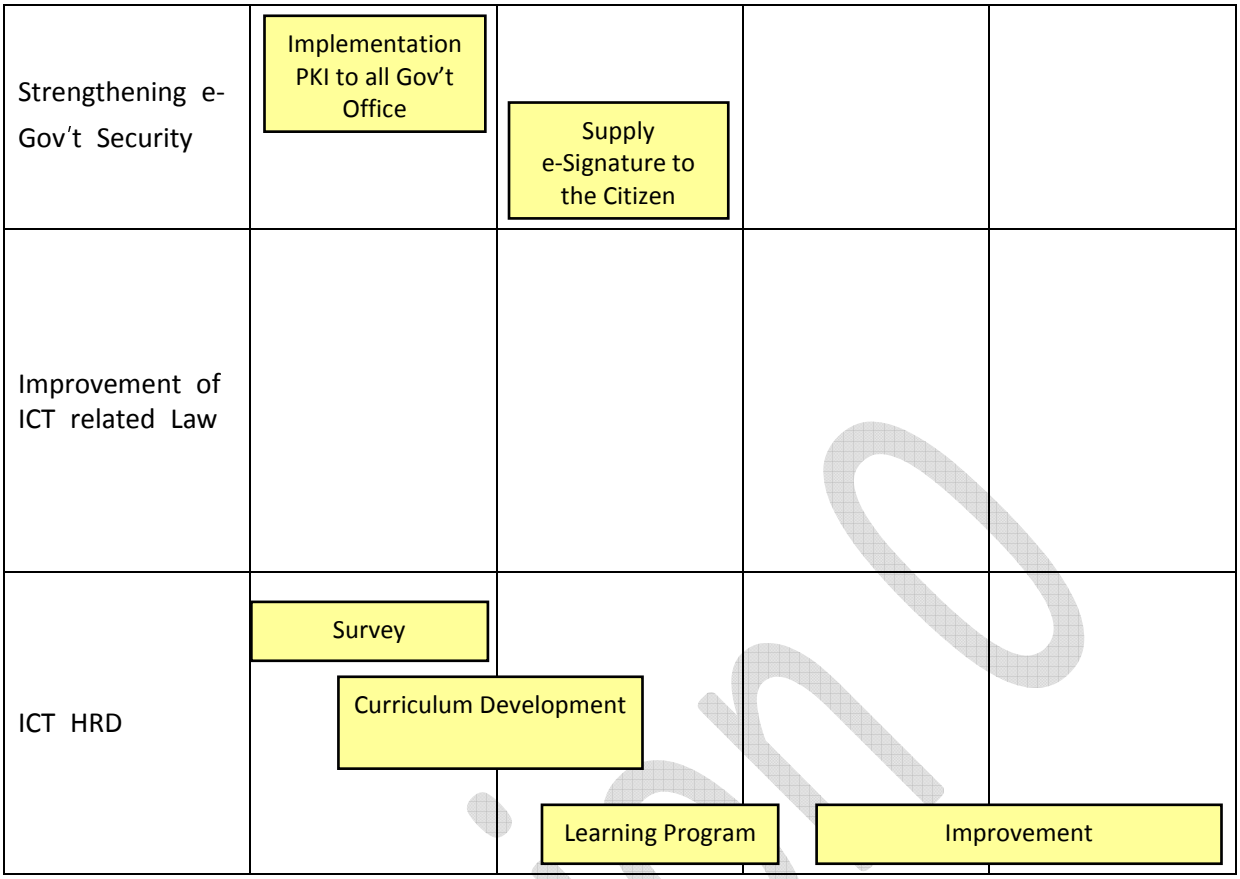
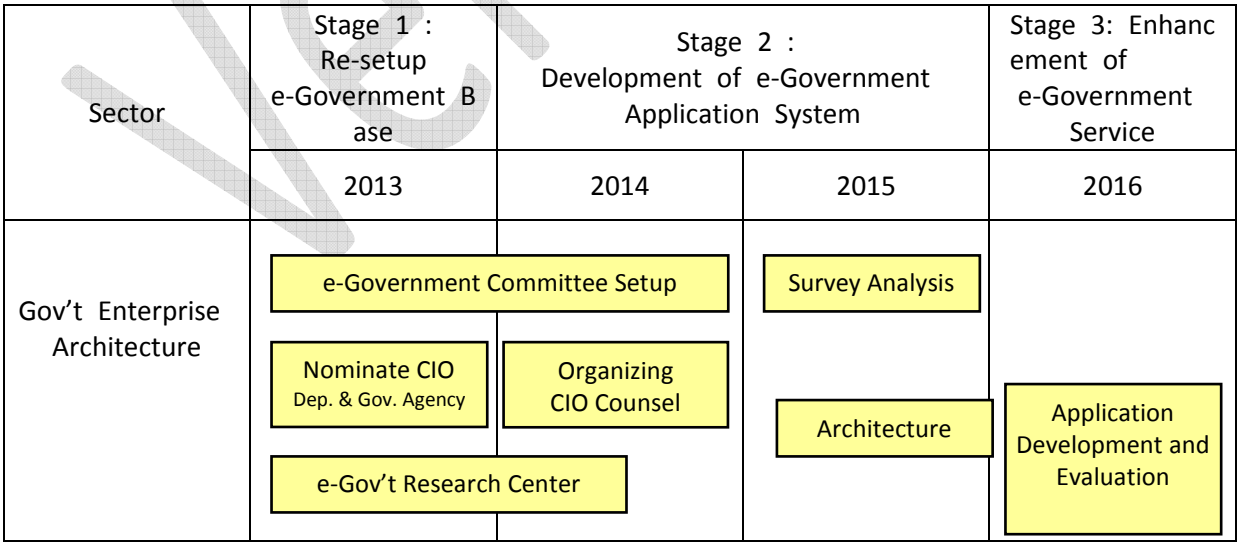


Figure 53 : Detailed Roadmap of Infrastructure

G2G related priority projects which is consisted of following projects – Gov't Enterprise Architecture, National Data Base Building, e-Document and Archiving System, Integrated National Finance System. Also, all System Building related projects should go through the BPR/ISP stage before the System Development. This is necessary so that the projects can be executed in a more efficient and systematic manner.



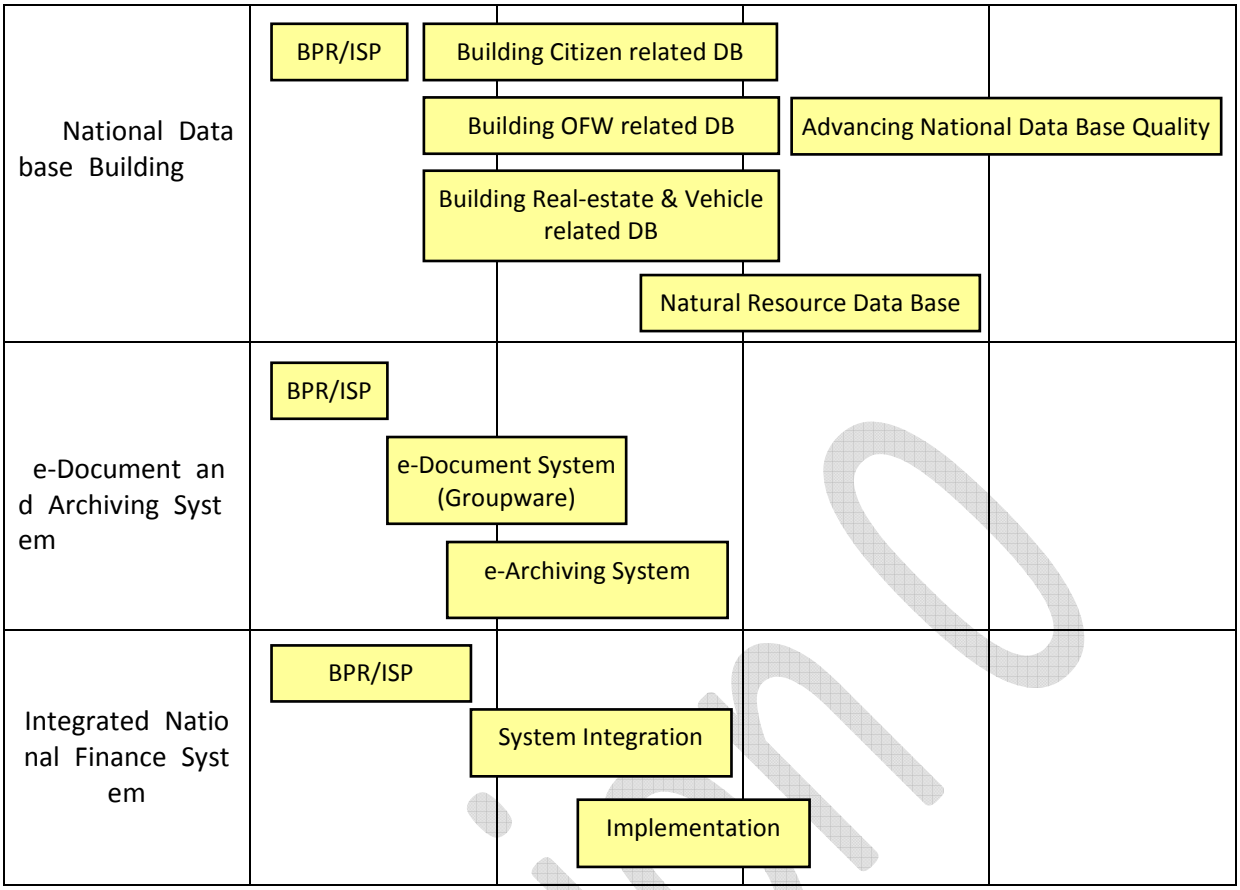


Figure 54 : Roadmap of e-Government service (G2G)

Sector	Stage 1 : Re-setup e-Government Base	Stage 2 : Development of e-Government Application System		Stage 3: Enhancement of e-Government Service
	2013	2014	2015	2016
Gov't Representative Portal	BPR/ISP	System development	System Interface	
Advancing PhilGEPS	BPR/ISP	System Development	Implementation	

Building G4F (foreigner, OFW)	BPR/ISP	System Development Data Base Building & Service		
Advancing G4B	BPR/ISP	System Development Data Base Building & Service		
Advancing KAgri Net		BPR/ISP	System Development	Data Base Building & Service
e-Community		BPR/ISP	System Development	Data Base Building & Service
Advancing Welfare Information Service System			BPR/ISP	System Development Data Base Building & Service
Medical and Health Information System			BPR/ISP	System Development Data Base Building & Service

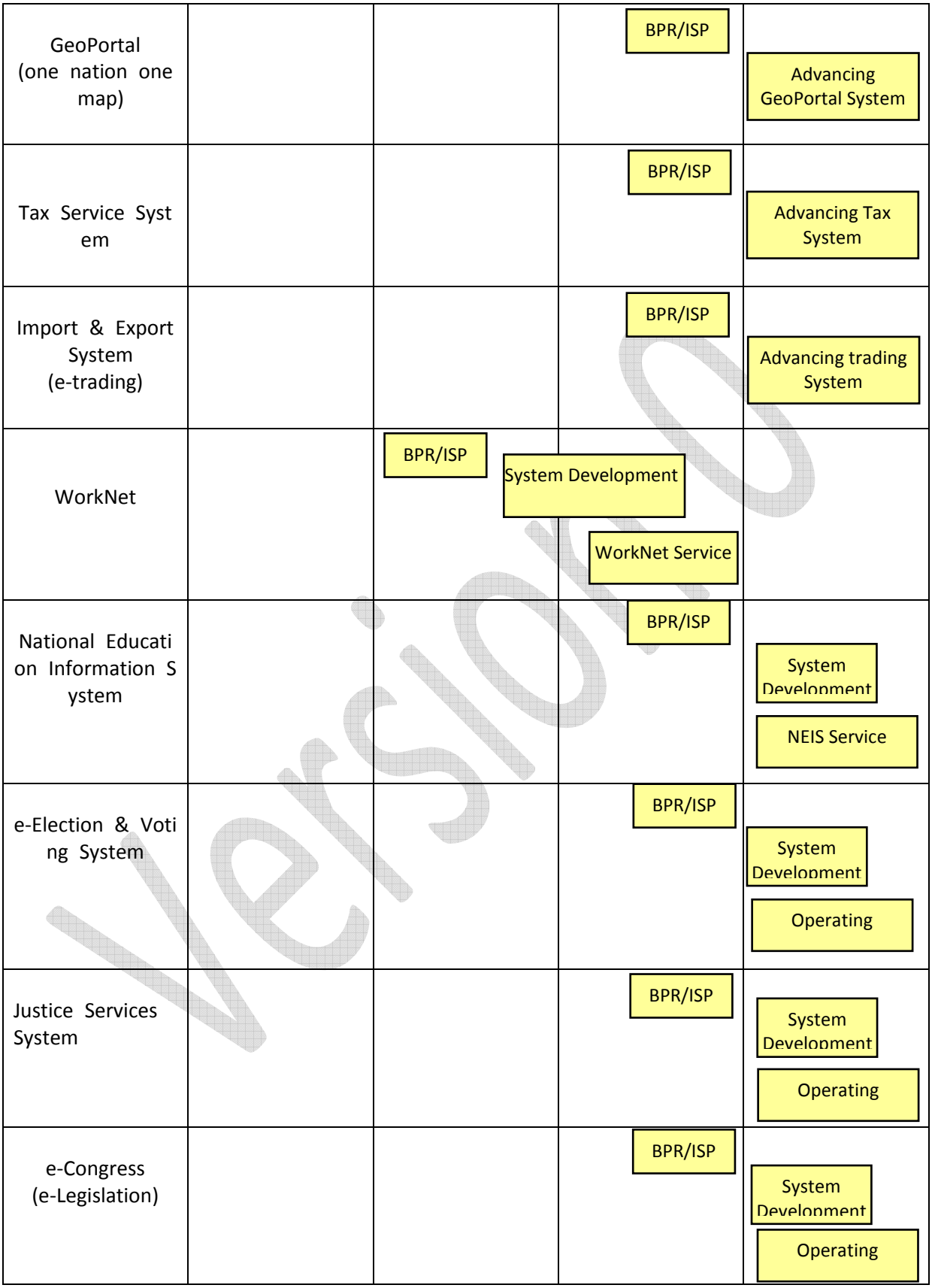


Figure 55 : Detailed Roadmap of e-Government service (G2C, G2B)

Detailed plans such as tasks and schedules are specified separately for those projects to be executed in phase 1 as marked in the detailed roadmap above.

When the actual project is carried out according to this roadmap, the Philippines will be able to achieve the level of e-Government as it initially aimed. In order to realize the e-Government, not only the implementation of target projects is required, but also the creation of the e-Government organization, preparation of laws/system and training of ICT personnel as described in the evaluation criteria above are essential. Through these, technical and systematic feasibility can be enhanced.

In order to create an environment where the e-Government project can be executed smoothly, the Philippines needs to make the following preparations as identified.

2. Legal Framework

It is the global incontrovertible fashion that paper documents which used not only public but also private sector are being converted to digital documents and more services are processed through computer such as conducting administrative work online. Growing usage of computer will soon evolve the working process to become more efficient where citizens would use their computer to access government websites and get things done directly.

This kind of changes in working method however cannot be expanded without justifying the reason for adoption to the users. It also requires the government to establish a systematic foundation to accelerate the change. The government should thereby build the groundwork to nurture domestic ICT industry and provide convenient administrative services for civil applicants who would no longer have to visit administrative bodies in person. This is also the objective of the e-Government. However to justify the cause, it is first necessary to institutionalize and reform related laws and systems.

This Chapter will state the legal framework which will be the systematic foundation necessary for creating e-Government of the Philippines. Legal framework has been drawn from the analysis of Philippine legal system and benchmarking studies in the previous analysis.

Only the system and basic contents that should be included in the law and ordinance will be stated here because the details should be adjusted to fit the circumstances of Philippines.

2.1. Ideal model from benchmarking

2.1.1. Laws on National Informatization Promotion

In order to carry out e-Government and informatization project in an efficient and consistent manner, the following laws must be enacted to build the supporting legal framework that would integrate scattered informatization services within the government and promote informatization of government and private sector.

- Law on Informatization Promotion

Law to improve living standards of the people and support economic growth by promoting informatization, building foundation for ICT industry and consolidating the ICT foundation

- Law on e-Government Creation

Law to improve living standards of people in the age of informatization by stating the basic principles of electronically processing administrative work which will promote efforts to establish e-Government and enhance productivity, transparency and democracy of administrative bodies

- Law on Disclosing Administrative Information

Law to secure the right to know for citizens, increase citizen's participation in state affairs, and secure transparency of national administration by stating regulations on civil rights to request for information held and managed by public organization, and their responsibility to disclose its information

2.1.2. Laws on ICT Industry Promotion

Launch of e-Government is ultimately for the development of the nation and wellbeing of its citizens. By promoting the ICT industry, more job opportunities will be created, which will increase the living standards and ultimately contribute to the growth of economy from export of accumulated knowledge. To achieve the above objective, legal framework to promote ICT industry must be enacted. The following are the necessary laws.

- Law to Promote Software Industry

Law to increase living standards and achieve economic growth by building the foundation for S/W industry development and enhancing its competency

- Law to Promote Online Digital Contents Industry

Law to increase living standards and achieve economic growth by building the foundation for online digital contents industry and enhancing its competency

- Law on e-Transaction

Law to secure safety for consumers and promote e-transaction in the age of informatization by setting up basic policy on e-transaction such as granting equivalent legal efficacy on e-Documents, securing credibility of e-Transaction, protecting the consumers, and promoting e-transaction

- Law on Automation of Trading

Law to enhance industrial competency and promote economic growth by automating trading process which will simplify its process, speed up circulation of trading

information, cut lead time and cost

- Law on Intellectual Property Rights

Law for the protection of intellectual creation of human that has value such as literature, art, music, play, published material, database and computer program. The specific laws enacted to balance the profit of creator and interests of public are copyright law, patent law, utility model law, design law, and trademark law

2.1.3. ICT Infrastructure Construction

To promote national informatization efforts, issues that arise in the process of informatization should be solved systematically such as the gap between rural and urban district, leakage of personal information, invasion of telecommunication network, identification theft on the Internet. These kinds of issues could become a major roadblock for building an e-Government. Therefore, these problems should be solved systematically to secure safety and earn credibility for effective settlement of e-Government. The following laws should be enacted to resolve such issues.

- Law to Narrow the Informatization Gap

Law to increase the living standards and achieve balanced development by providing ICT access to those with limited access for economic, regional, physical, or social reasons such as low income family, people living in fishery and farming regions, physically challenged, senior citizens and female

- Law on Protection of Personal Information

Since the promotion of sharing administrative information after the passage of e-Government Law, more and more personal information DB are being shared. This law prevents illegal usage and distribution of personal information, protects the right of information subject and encourages appropriate usage

- Law on e-Signature

Law that grants legal efficacy to online e-signature such as fingerprint scan and password equivalent to written signature or legal seal on paper document

- Law on Protection of Telecommunication Secrecy

Law to protect telecommunication secrecy and promote freedom by allowing access for only certain people and after going through strict legal procedure

- Law on ICT Network Usage Promotion and Information Protection

Law to enhance living standards and improve public welfare by building the foundation for informatization society through promotion of ICT network usage and protection of telecommunication service users

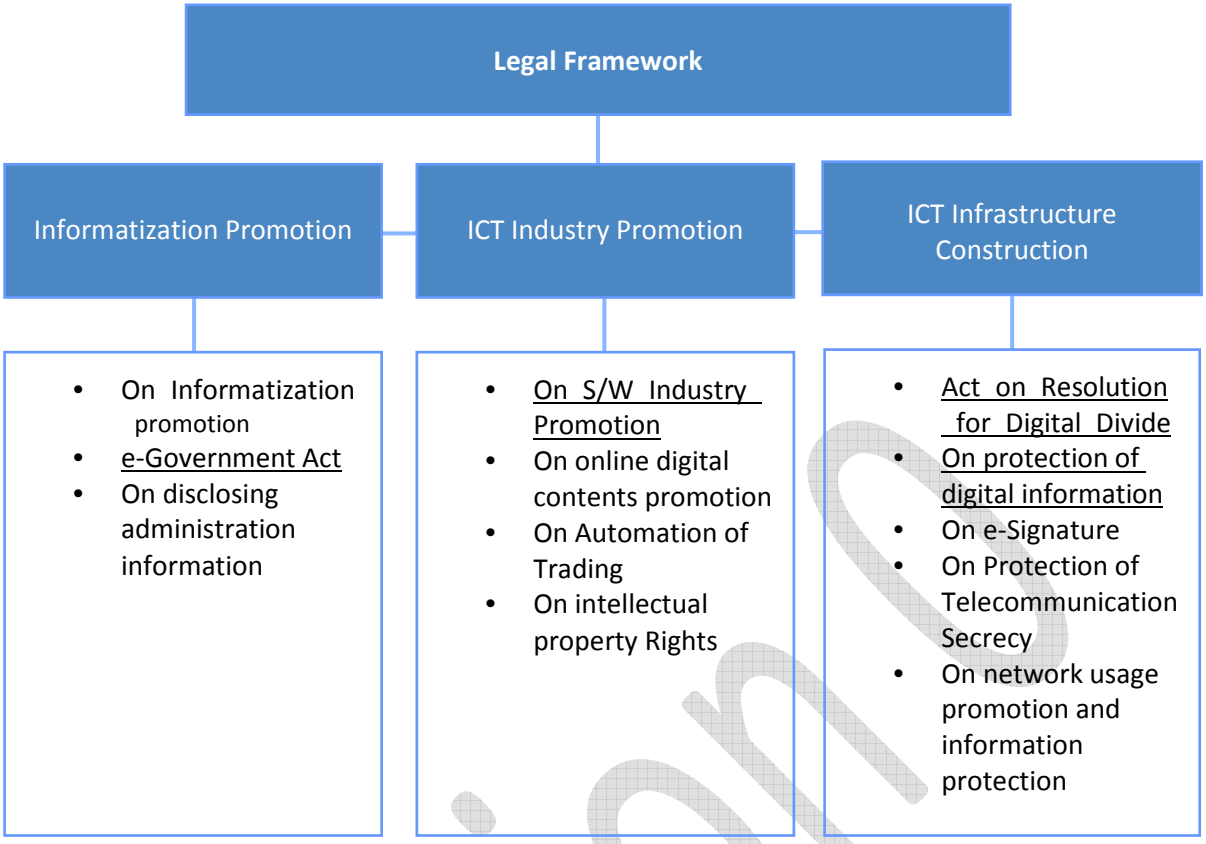


Figure 56 : Ideal model of legal framework

2.2. To-Be Model

Through current status analysis, it has been found that there are 3 categories of legal framework which Philippines already legislated. They are Laws on government Informatization, Laws on Promotion for environment of ICT Utilization, and Laws on prevention of adverse effect from informatization. The result of benchmarking studies, additional prerequisite laws are founded through comparing existing laws of Philippines and Korea.

	Philippines	Korea
Government Informatization	▪ EO 322, Establishing the NCC ▪ PD 1408, Conferring civil service eligibility on electronic data processing ▪ EO 386, Establishing a National Crime Information System Freedom of Information Bill	▪ **e-Government** ▪ **Informatization promotion** ▪ **Disclosure of administration information** ▪ e-Archive
Promotion of ICT utilization	▪ RA 8792, Act providing recognition and use of e-commerce ▪ RA 9184, Act providing for modernization, standardization and regulation of procurement ▪ EO 264, Establishing the Information and Electronic Commerce	▪ e-Signature ▪ e-Commerce ▪ Intellectual property rights ▪ Promotion of communication use and protection of information ▪ **e-Transaction**

Prevention of adverse effect from informatization	▪ Cybercrime Preventions Act ▪ Data Privacy Act	▪ **Protection of digital information** ▪ **Resolution of digital divide** ▪ Protection of communication secrecy ▪ Protection of communication network facility
Promotion of ICT industry	• N/A	▪ Electricity and communication business act ▪ Promotion of digital contents ▪ Promotion of Software industry

Table 29 : Comparison of existing Laws

2.3. Prerequisite Laws

Based on the comparison of existing laws and ideal model, 6 kinds of laws are Schedule for legislation of prerequisite laws defined above are depending on implementation of e-Government projects related to each law. Therefore the order of legislation is Law on Informatization Promotion first, and then Law on e-Transaction, Law on Protection of Digital Information, Law on e-Government, Law on resolution of digital divide and Law on Disclosing Administrative Information.

2.3.1. Law on Informatization Promotion

The following should be included in the law to promote informatization, create the foundation for ICT industry and consolidate the ICT foundation.

- Establish a plan and system to promote informatization

Establish informatization promotion plan and policy, create informatization promoting committee, and appoint informatization promotion head

- Promote national informatization

Execute public informatization and dissemination of information culture, and protect information such as the right of user and intellectual property rights

- Create foundation for ICT industry

Conduct ICT standardization, nurture ICT talents, support ICT related agencies, cooperate internationally on informatization promotion

- Consolidate ICT foundation

Manage high speed national network, interconnect ICT network

- ICT Promotion Fund

Raise fund and manage resources, usage, and operations

2.3.2. Law on e-Transaction

The following should be included in the law to protect consumer rights and enhance market credibility by stating regulations on fair transaction of goods and services on the Internet.

- e-Transaction and internet sales

Electronic document usage and storage of transaction record, securing credibility of online payment, cooperation with delivery service company, operation of cyber mall and complaint of telecommunications service companies, supply of information on identity and transaction condition, application withdrawal and limitation on indemnity, responsibility of telecommunications mediator, prohibited acts, etc.

- Consumer rights protection

Insurance contract on consumer damage compensation, consumer protection guideline on e-transaction, registering system for blocking spam ads, etc

- Survey and supervision

Violation survey, disclosed information search, information disclosure on acts of violation, evaluation, fairness of certification, etc.

- Revision measures and penalty levy

Recommendation on correcting act of violation, revision measure and penalty levy, application of consumer damage dispute mediation

2.3.3. Law on protection of digital information

In conformity with maturing e-Government, to exchange the administration information including personal information should be increased drastically. Thus digital information needs to be protected from illegal use and harmful spill. This law prevents illegal usage and distribution of digital information, protects the right of information subject and encourages appropriate usage. Consecutively this law enhances living standards and improves public welfare by building the foundation for informatization society through promotion of ICT network usage and protection of telecommunication service users

The following should be included to prevent illegal usage and dissemination of digital information, protect the right of information subject and encourage appropriate usage.

- Collection and processing of personal information

Collection of personal information, ownership scope and announcement of personal information, writing the subject of personal information file, securing safety of personal information, usage and restriction on supply of processed data

- Reading and revising of processed information, etc.

Viewing of processed information, limitation and revision of viewing, appeal of dissatisfaction, application by proxy

- Penalty and guidance supervision

2.3.4. Law on e-Government

The following principles should be included in the law to create and operate e-Government which is focused on the convenience of the public, electronic processing of major services, internet disclosure of administrative information, joint usage of administrative information, private information protection and technological development for creating e-Government and outsourcing of operations.

- Principle on achieving and operating e-Government

Focused on convenience of the public, work reforms, electronic processing, disclosure of administrative information, joint usage of administrative information, private information protection, prevention on redundant S/W development, outsourcing of technological development and operations

- Computerization of administrative management

Writing, sending, receiving, acknowledgement of e-document, certification of e-signature, joint usage of administrative information, administrative knowledge management, reconstruction of work in administrative body, standardization, building of ICT network, security measures, opinion gathering through ICT network, working online, remote computing and training, enhancement of ICT technology utilization skill of public servants, etc.

- Electronic service for application

Electronic processing of application, checking online necessary documents, application without visiting in person, identification check, electronic notification and announcement, etc.

- Reduction of document work

Less paper documents, plan to reduce document work, report of reduction results, document reduction committee, etc.

- Execution of e-Government Projects

Establishment of mid to long term e-Government project plan, achievement evaluation, execution of test projects

- Distribution and spread of informatization system, support of informatization promotion fund

2.3.5. Law on Resolution of Digital Divide

The following should be included to guarantee that everyone not only use the ICT but also can be provided administration service regardless of discrimination in the country.

- Support to educate the rural area including senior citizens and female
- Support to expand the Internet access in remote and isolated area
- Strategy of expansion of communication network facility
- Strategy to support the telecommunication fare

2.3.6. Law on Disclosing Administrative Information

The following should be included to guarantee the right to know for the citizens, allow people to participate in state affairs, and secure transparency in national administration

- Obligation of person requesting for information disclosure and public organization that hold the information

Obligation of person requesting for information disclosure and public organization that hold the information, disclosing of administrative information, writing and sharing of information index

- Information disclosure process

Information not to be disclosed, method for requesting disclosure, decision whether to disclose information, deliberation committee on disclosing information, notification of decision whether to disclose information, partial disclosure and electronic disclosure, cost payment

- Process to appeal for dissatisfaction

Objection application, administration judgment, lawsuit, request not to disclose information by 3rd party

- Information disclosure committee

Establish information disclosure committee, form the members, oversee the system, request for data submission, report to national assembly

2.3.7. Role and Responsibility of ICT Organization

Although the role and responsibilities of government agencies should be stipulated in national laws and decrees, the role and responsibility of ICT organization described in next chapter should be legislated by the national leader in order to propel the e-

Government initiatives continuously regardless of regime change.

- The e-Government Steering Committee and e-Government Agency should be independent institutions for efficient execute the e-Government initiatives
- The roles and responsibilities of the e-Government institutions are depicted next chapter.

3. Organization

3.1. Organization Model

As per the outcomes of current state analysis and As-is analysis as a whole, it is understood that the National Computer Center (NCC) in the Philippines has been playing key roles in developing digital government in the country. It shows that Philippines has already built an indispensable institutional fundamental for steering digital government initiatives and resources to reduce the redundant investigation and it also has the role as national operation committee similar with the working committee under the Digital Government Interagency Committee.

In spite of all these initiatives in Philippines, the rigid role and responsibility of government agency related with digital government should be clearly stated in terms of securing budget, HRD, and establishing national ICT infrastructure, etc. The following Figure 57 shows the "To-Be model" of digital government organizations through the result of benchmarking and other outcomes. The e-Government steering committee has the role of coordination and control of the whole e-Government initiatives with full responsibility and this working committee, e-Government Agency, should execute, and evaluate national ICT policy in order to prevent overlapped projects and conduct national informatization initiatives in an efficient and consistent manner.

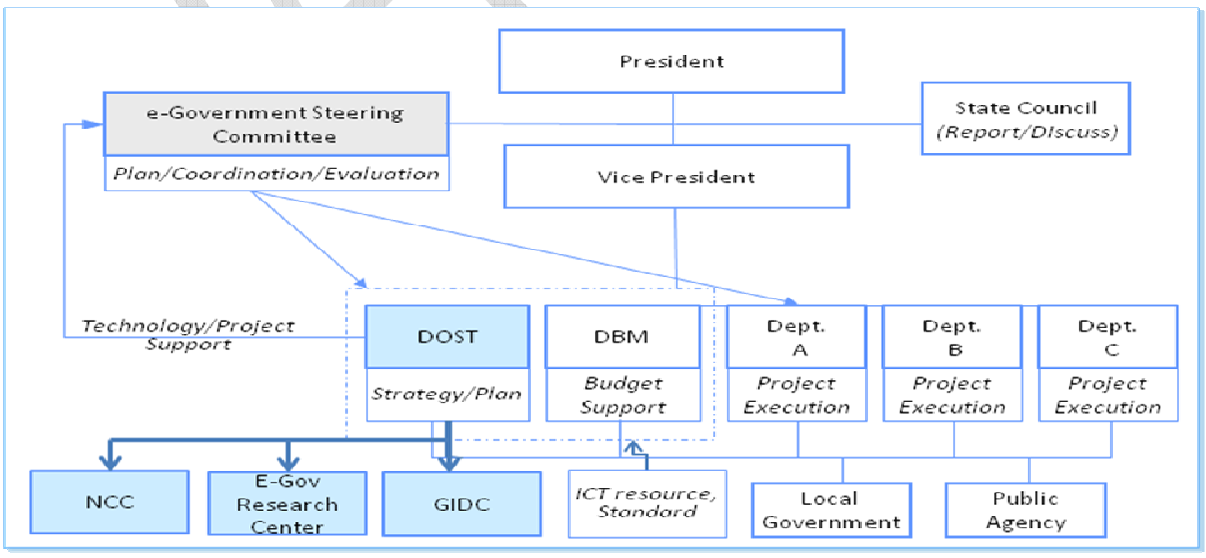


Figure 57 : To-Be Model of e-Government Organization

3.2. R&R (Roles and Responsibilities)

Detailed roles and responsibilities of each government agencies in pursuing the e-Government are as following:

3.2.1. President

- Strong leadership and ownership for implementing e-Government
- Clarifying of roles and responsibilities

3.2.2. e-Government Steering Committee

- Establishing vision and goal of e-Government
- Basic planning for e-Government
- Selecting project and operating multi-ministries related projects and nation-wide key projects
- Appropriately distributing budget and human resources for e-Government
- Building favorable law and regulations for e-Government
- Monitoring and evaluating each e-Government project
- Developing basic plans of government-wide common infrastructure
- Committee should consists of about 5 to 7 ICT experts from industry and academia, about 7 to 10 secretaries of departments and under 20 ICT staffs and general management staffs from respective departments

3.2.3. National Computer Center (NCC)

- Supporting e-Government executive organization and participation
- Approving and monitoring the general terms of interconnection between networks
- Monitoring projects operated by the each agency
- Preparing, submitting and implementing long-term and short-term ICT plan, annual program and budget
  - Supporting the discovery, public bidding, screening and selection of projects to receive governmental support
  - Supporting the selection of successful bidder and signing contracts
  - Supporting the project management and supervision, evaluating results and conducting publicity activities

- Supporting the distribution and proliferation of developed services

- Preparing and submitting periodic report on the plan and programs operated by t he center to the Committee
- Establishing ICT standards
- Making the National Framework Plan on ICT promotion in both public and priv ate sectors
- Creating ICT Development Center
- Developing and implementing HRD program for ICT
- Coordinating with R&D policy and GIDC

3.2.4. Research & Development, Policy (R&D, Policy)

- Conducting research on policy
- Encouraging and finding the best practices on policy and trying to use in nation al context

3.2.5. Government Integrated Data Center (GIDC)

- Managing government data
- Protecting government data from intruders
- Facilitating the flow of information among the departments

3.2.6. Department of Science and Technology (DOST)

- Determining and setting technical standard and certifying network equipme nt
- Managing communication licenses
- Planning and establishing a nation-wide information infrastructure
- Approving and monitoring tariffs of dominant operators in the market
- Contacting and working with international organizations and institutions rel ated to communications and information

4. HRD (Human Resource Development)

Capacity building is one of the main components of e-Government system. It includes the development of human resources, updating the capabilities of existing human resources so that the entire e-Government system would run smoothly. The absence of human resource in e-Government system cannot be imagined. It has become the mandatory step in e-Government. As per our "As-Is" analysis, Philippines is very strong in human resource. The use of existing human resources in the development of e-Government system is one of the big challenges in Philippines.

In order to establish e-Government in a country, the constituents who are not only operators but users have to be changed their mind sets and working behavior. In this regard, HRD is another essential element for successful implementation of the e-Government.

4.1. General

4.1.1. Strategy

The Human Resource Development (HRD) should be broad enough to cover entire key actors of the country. The actors such as government employees, citizens, professors, students and business communities should be considered while developing human resource system in the country. In particular, education for married women, people living in the different remote islands in Philippines and the disabled, who have relatively fewer opportunities to get training on how to use a computer, should be included.

The training on ICT should be designed in such a way that the ICT awareness should be increased among the citizens, computer literacy should be improved and the digital divide should be reduced.

To achieve these goals, Philippines should:

- Introduce a computer-related curriculum for the secondary education and above
- Introduce an internationally certified ICT Certificate
- Introduce a training program to develop ICT experts
- Expand the provision of e-learning
- Conduct ICT training on public servants according to their level and improve co mputer literacy
- Establish ICT-related departments at universities and provide supports
- Introduce programs for the elderly, housewives and handicapped people
- Introduce the Informatization Village and improve computer literacy

The benefits of above activities would be expected to:

- Improve the computer literacy

- Increase the need of computer utilization
- Foster the ICT industry
- Improve the abilities of operation
- Standardization of operating equipment
- Bridging digital divide through e-learning and informatization village or island
- Increase ICT-related human resource
- Improve quality of ICT curricula
- Eradicate computer illiteracy

4.1.2. Training course

The course should be designed to bridge the literacy gap between male and female. The women should be encouraged to participate in such training course. The central as well as local government should play the key role in providing ICT training to women and the handicapped with the help community, schools and village offices.

In general, courses on informatization are comprised of: basic IT course that teaches the basics of computer; developer course on how to develop a system; system administration course for system introduction and for system operation managers; multimedia specialist and mastery course.

To develop the ICT resources, Philippines has to introduce the following type of step-by-step ICT training courses.

- Basic IT courses for regional Residents, Students, Public Staff, etc.
  - Basic computing course
  - Microsoft office
  - Homepage designing
- Developer Courses
  - Web programming course
  - Web design course
  - Java programming course
  - C programming course
  - Visual C++ professional course
  - Fundamental of SQL
  - Mobile programming course
- System Administrator Courses
  - Internet courses
  - Security courses
  - Windows administrator courses with latest operating systems

- Open source software
- System programming course
- DBMS course

- Multimedia Specialist Courses
  - Graphics and publishing design course
  - Flash course
  - Auto CAD course
  - Animation course
- Mastery Courses
  - Security master course
  - PC master course
  - Network master course
  - Web master course
- e-Government courses
  - National CIO course
  - National informatization expert course
  - e-Government course
  - Telecommunication policy course
  - National informatization policy course

To accomplish the fast implementation of Philippines e-Government, the internal process of the government must be computerized. For this, the issue of educating the government officers responsible for each government process is important. For the quick adaptation of the civil servants to the computerization, the following strategy should be utilized.

- Stage by stage implementation of the education system
  - Provide basic IT education for all the civil servants by distributing PCs
  - Increase IT specialists through IT education matching each specialized process
  - Increase IT literacy rate by educating in stages
- Implementation of Chief Information Officer (CIO) system
- Promotion and Compensation system linked to the IT education and its outcome
- Increased usage of computer
  - Limit use of paper where computer has been distributed
  - Implement groupware so that computer is used for exchanging electronic documents and communication

4.2. Target of Education

4.2.1. Training for Policy Makers

A training program for policy makers in e-Governance needs to be drafted and needs to be focused according to the requirements of the policy makers at the top. This may include communication of the following:

- Vision, Mission, Strategies, Policies guidelines, frameworks, roadmaps
- e-Governance Technology Architecture, framework, guidelines
- Funding Strategy
- Human Resources Strategy for project leadership, implementation, operations
- Security Policy, Framework, guidelines
- Policy on integrated services (ownership, responsibility, etc.)
- Process Reengineering
- Policies, strategies and guidelines for outsourcing of e-Government projects
- Policies and guidelines on managing content
- Policies on employment generation through e-Government
- Prioritization policy
- Policy on interoperability
- Policy on spread of access
- Concepts of "Whole of Government"

4.2.2. Training for CIOs

The CIO should be equipped with the latest technology and the best practices in the world. A training program for CIO's (Chief Information Officer) is another issue to be addressed. This training program needs to be focused according to the requirements of the CIO's and may include the following:

- Defining the System Architecture
- Software and Hardware Policies
- Protecting Information and Resources
- Employee Privacy
- Copyright Issues
- Computer and Network Security
- Policies for Encryption
- Content for e-Governance
- Optimum Utilization of computer Resources

- Telecommunication and business Laws
- Infrastructure
- Awareness : spreading the information about the Government Initiatives
- Technology Issues
- Marketing and Distribution of Services
- e-Governance initiatives in various States
- Global e-Governance Developments
- Whole of Government
- Enterprise Architecture
- Business Process Reengineering (BPR)
- Security aspects such as DOS, DDOS

  Research on e-Government

4.2.3. Training for specific projects

There may be specific requirements for training in certain specific projects for the same IT module-training programs needs to be worked out. Such programs can be need based and outsourced when required. In the case of Philippines the courses such as: Disaster Management, Tourism, Fishing Technology and Oceanography would be more suitable. A few suggestive programs include.

- Decision Support and Expert Systems
- Knowledge Management and Dataware housing
- Geographical Information System
- System Analysis, Design and Development
- Evaluation of IT Projects
- Database Management System
- Project Management
- Strategic Management
- Organizational Behavior and Management of Change
- Technology Management
- Creativity and Innovation
- Quality Management and Government
- Disaster Management
- Tourism
- Fishing Technology
- Oceanography

4.2.4. General ICT skills

There may be specific requirements for training in certain specific projects for the same ICT module-training programs needs to be worked out. Such programs can be need based and outsourced when requires. A few suggestive programs include:

- Office Automation
  - Text Processors
  - Spread Sheet etc
  - Multilingual Support
- Software
  - Operating System and Distributed Operating System
  - RDBMS
  - DBMS and Advanced DBMS
  - Application Software : Java, CGI, etc
- Networking
  - Basic Components, Topologies
  - LAN, WAN, MAN, Network Security and Protocols
  - Internet, Intranet and Extranet
  - OFC, ISDN, xDSL, CDMA, WILL, Cordec, VSAT
  - Wireless Transmission, Mobile and Radio Communication
  - Broadcast Systems, Satellite Communication
- Hardware
  - Basic Hardware
  - Clients, Nodes and Servers
  - Routers, Bridges etc
- Cloud Computing
  - Introduction of cloud computing
  - Features of cloud computing

Besides the above general ICT skills, the program on medical transcription would be more suitable for Philippines. This program would help the nation to work on outsourcing job.

4.2.5. Special Training programmers for specialists:

A high level of expertise may be required in certain programs depending upon requirements. Such programs can be need based and outsourced when required. These generally include the training of specialists in certain areas. A few suggestive programs where such expert training may be required include:

- Security
- Languages
- Quality
- Project Management
- System Analysis
- ISP& BPR
- Legal Aspects
- PKI
- Payment mechanism
- Decision Support System
- Data warehousing
- GIS & GPS
- Networking

4.2.6. Advanced courses on HRD, architecture, language technologies

A need for advanced level training exists in certain areas for government officials. This includes:

- High Level Designs
- Architecture
- Payment Mechanism
- PKI
- Language Technologies
- Wireless Technologies to integrate various islands in Philippines
- Smart Card Technologies
- Cloud Computing

V. Recommendation for Success

The Philippines stand in 110th rank in maturity of ICT infrastructure as per UN 2012 report. It is because of weak Infrastructure, low level of PC penetration and shortage of electricity etc.

But, the fixed telephone lines, wireless communications and broadband Internet are the key technologies in Philippines. The mobile telephone service has dominated the entire market of Philippines. It has covered 94.7% of total municipalities whereas fixed telephone line has covered only 53.9%. In spite of high coverage and continued expansion in mobile services there are still many municipalities deprived from mobile services. Reducing the gap between "have" and "have not" among the municipalities is the big challenge for the government of Philippines.

The backbone network is based upon the fiber optics technology that provides domestic as well as international broadband connectivity covering 63 provinces (79%). 761 cities and municipalities (50%) are considered to be covered with fixed or mobile broadband Internet service. The 3G connectivity is only limited in urban centers and boundaries.

Philippines has strong infrastructure in agriculture and fishery and beautiful scenery for tourism industry. If e-Government and these current strong points are linked to each other, the Philippines would be able to place itself on the top in South East Asia. Finally, the Philippines will be in higher rank in e-Government development index.

Depending on the result of analysis, it is found that the government of Philippines has tried to bridge the gap between each Department and Government Agency in order to interconnect and to provide the interactive environment for information sharing. This needs a strong power for propelling in the e-Government initiatives continuously.

In order to implement the e-Government projects that suit the current conditions of Philippines and execute them most effectively, key success factors were identified based upon the analysis of ICT status of Philippines. Lessons learned from the cases of Korea that have already established the e-Government and are further developing it were taken into consideration as well.

There are many factors to realize the e-Government successfully.

1. Organizational Factor

- Strong standing of the implementation organization

- Presidential level e-Government Steering Committee needed

- The Committee is consist of 5 Undersecretary, 10 Professor, 2 NGO, 3 Business fields

- This Committee meets 1 day or half day in every week

- Each Department has to appoint CIO (Chief Information Officer) for leading e-Government

- For coordinating e-Government emerging issues, CIO Council is required to be organized under the e-Government Committee which consists of each Department CIO and Local Government CIO

- Organizational and institutional system that allows effective and continuous imple mentation of the e-Government plan regardless of change in regimes

  - For this, e-Government Research Center is needed to be set up in the DOST

  - Their main roles is R&D (Research and Development) of e-Government Policy

2. Managing Factor

- Advancing communication network based on forecast of future demand and bold introduction of cutting edge technologies
- Fostering domestic ICT workforce by expanding participation of domestic ICT in dustry

3. Task and Project Factor

- Building strong Infrastructure has to be done with first policy
- More high concerning about Mobile e-service
- For the Overseas Filipino Workers(OFW), portal site has to be built as soon as possible
- Geo-Portal system(one nation one map) is important and basic system for the fut ure, so more strong empowerment needed and assisted by e-Government Steering Committee
- PKI and e-Signature has to be introduced and adopted to all e-transaction for m ore secure e-Government services
- For increasing efficiency and effectiveness in public administration, there is a ne ed to introduce e-Document system and Digital Archiving system as soon as pos sible.

4. Measuring Factor

- Government has to emphasize more on reducing digital gap

- e-Government project monitoring, progress assessing and managing the performance has to be carried out by monitoring progresses regularly and step by step
- Establish a system that assesses usage status after the completion of the project, and compares performance against the original plan, and reflects the assessment result to the future projects
- Assessment of performance against original plan for aggressive and continuous progress of the project is required and implementation of an accurate incentives /remuneration system is to be thought based upon performances

Every year, each Department and Government Agency has to evaluate the e-Government progress and their task Innovation

This master plan may be reviewed and amended by the e-Government steering committee every year in accordance with technological developments and expansion of services as a result of the rapid change in the information technology sector.

The changed details in the e-Government master plan should be put in statutory form and stored and managed in a database. Also the results of implementing the amended plans should be reported and evaluated. Through executing this procedure, the e-Government master plan will continuously evolve so that the e-Government in Philippines can be established in a more efficient and effective way.

VI. Action Plan

As per the outcomes of the "As-Is" analysis and based upon the "To-Be" model for Philippines e-Government, forty-one projects were identified in the area of infrastructure, G2G, G2B and G2C. The main objectives of these projects were to achieve the vision and mission of e-Government in Philippines. The fifteen projects were prioritized out of forty-one projects The prioritization was done based upon the standard parameters mentioned in previous sections. The detail action plan was made for high prioritized project. Each project in this section is equipped with the definition of the project, purpose, functional diagram with functions, budget and expected benefits. The definition and purpose gives the introduction and objective of the project where as functional diagram helps to identify the different prime entities and their roles in the system. The budget covers the financial part of the project and expected benefits cover the outcome of the project. The budget estimation was done based upon the Korean e-Government experiences and consulting of e-Government project in developing other countries .

1. Strengthening e-Government Security

Definition

In collaboration with the private sector and the public sector, it will improve warning systems and response time to security incidents and protect critical national infrastructures. To establish an e-Government as a viable service to all citizens, new e-Government services must be continuously developed and expanded with special security measures and legal frameworks that will allow citizens to safely and conveniently access online government services.

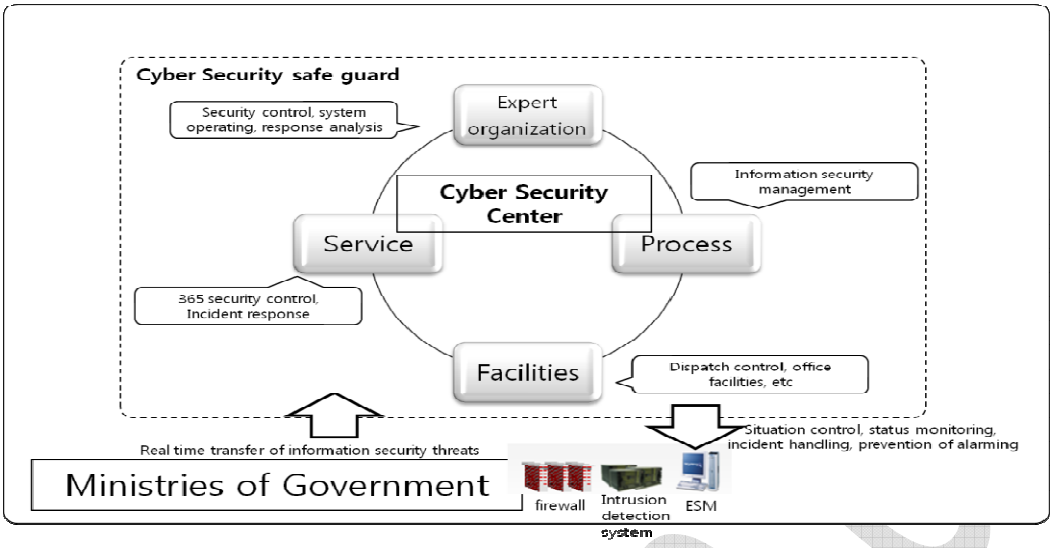
A *public*-key infrastructure (PKI) is a system for the creation, storage, and distribution of digital certificates which are used to verify that a particular public key belongs to a certain entity. The PKI creates digital certificates which map public keys to entities, securely stores these certificates in a central repository, and revokes them if need The Public Key Infrastructure uses public key to enhance confidentiality and authentication in an open network environments that requires high security. Therefore, confidentiality and authentication are critical to prevent adverse effects of digitalization

Purpose

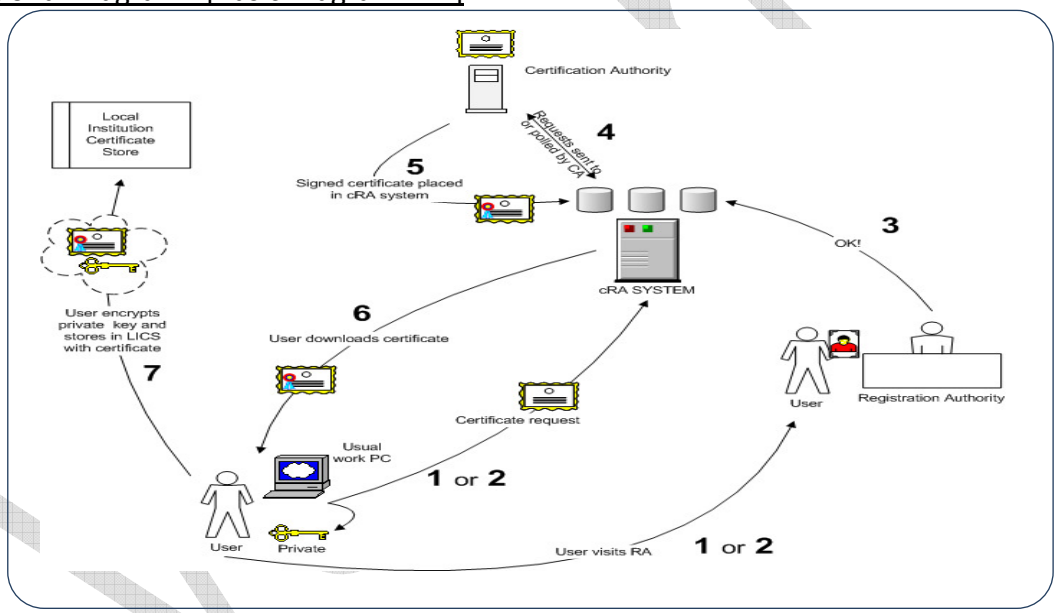
In order to create a market-based government with Internet-based services that fully supports private business, e-Commerce between the public and private sector must be fostered and expanded. In tandem with this, Internet security must be upgraded to achieve these strategic goals, government procurement and any other Internet-based government service must be integrated into an online Single Window.

Functional Diagram

Functional Diagram 1 [Basic Diagram of Cyber Security Center]



Functional Diagram2 [Basic Diagram PKI]



Functions

- The National Cyber Security is the Central point of government for identifying, preventing and responding to cyber attacks and threats.
- To protect whole of Government e-document, data and systems
- [PKI]To certificate authority(CA) that both issues and verifies the digital certificates
- [PKI]To register authority which verifies the identity of users requesting information from the CA

Schedule

Table 1. Schedule of Strengthening e-Government Security

Task	2013		2014		2015		2016	
[PKI]Survey of current State & Future Model (Architecture)Design	↔							
[PKI]Implementation PKI to all Gov't office	←	→						
[PKI]Supply e-Signature to the Citizen			←	→				
Cyber security Center Model Design	←	→						
Construction National Cyber Security Center			←	→				
Building S/W, H/W &Evaluation				←	→			
Cyber attack Simulation & evaluation					←	→		

Budget

Table 2. Budget of e-Government Security (presumption)

Types	2013	2014	2015	2016	Total (USD)
[PKI]ISP	300,000				300,000
[PKI]Design & Implementation	500,000	1,000,000	1,500,000	2,000,000	5,000,000
[PKI]Infrastructure(security solution, H/W, S/W)	500,000	1,500,000	2,000,000	2,000,000	6,000,000
Cyber Security Model design	500,000				500,000
Construction National Cyber Security Center		7,000,000	5,000,000	1,000,000	13,000,000
Total	1,800,000	9,500,000	8,500,000	5,000,000	24,800,000

Expected Benefits:

- Government practices more transparent and accessible to contractors and businesses.
- Improved stability, efficiency, and reliability of Data and manage the national important information securely

2. Electronic Document and Archiving System

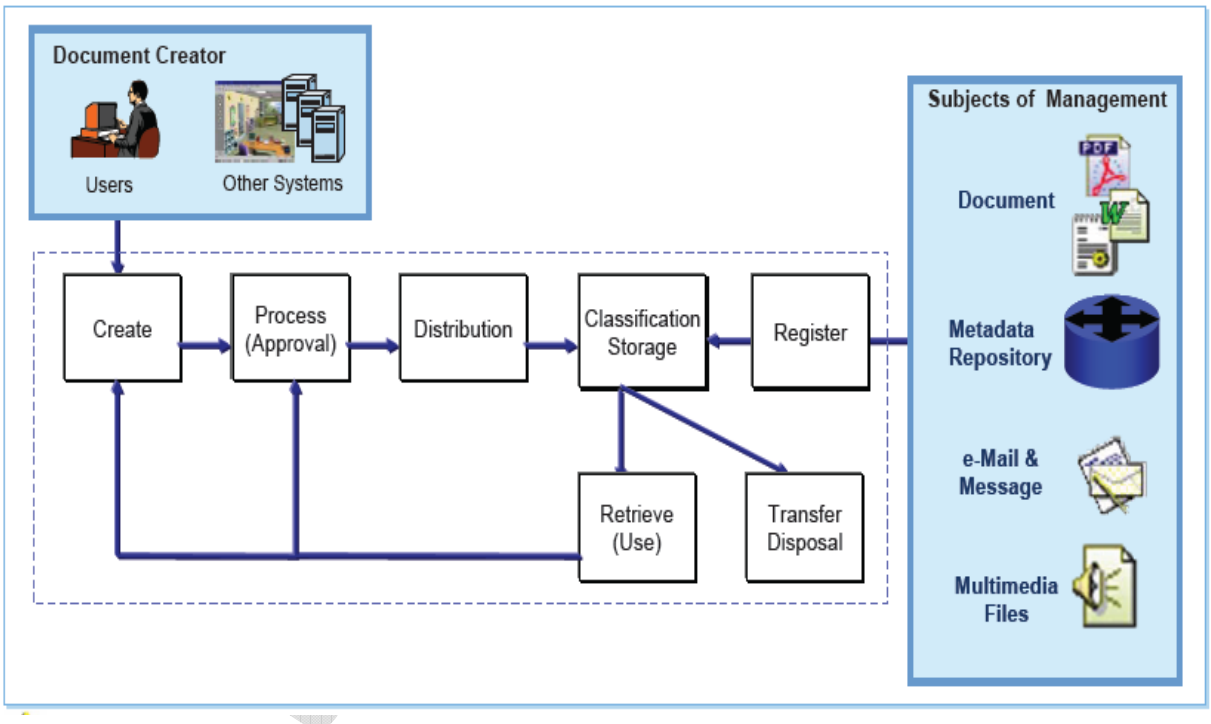
Definition

"Electronic Document and Archiving System" is the system that supports the document life cycle from creation to disposal & archiving. The system has the input from the document creators which is processed with the well defined steps with the supports of document management entities such as documents, metadata repository, email and messages and multimedia files.

Purpose

The main purpose of this system is to provide efficient solutions to create, process, storage and distribute the documents among government agencies electronically. It also provides the effective way of managing the increased volume of documents.

Functional Diagram



Functions

- To support e-document distribution within the government agencies in independent homogeneous groupware
- To support e-document distribution within administration in independent heterogeneous groupware
- To approve e-approval distribution
- To manage internal and external document separately

Schedule

Table 1. Schedule of Electronic Document and Archiving System

Task	2013		2014		2015		2016	
Document Analysis	←	→						
Architecture Design		←	—	→				
Application Development			←	→				
Evaluation			←	→				

Budget

Table 2. Budget of Electronic Document and Archiving System(presumption)

Types	2013	2014	2015	2016	Total (USD)
Analysis	100,000				100,000
Architecture Design	200,000	300,000			500,000
Application Development and Evaluation Process		3,000,000			3,000,000
Total	300,000	3,300,000			3,600,000

Expected Benefits:

- Development of system that provides interactive environment for managing document
- Removing the redundancy in the system and providing security in managing

3. Government Portal

Definition

The "Government Portal" is a gateway for citizens' to access the services provided by the government. The portal is designed in such a way that it enhances the citizens' convenience by reducing the number of physical visits and documents. It is also used for promoting administrative democracy and increasing transparency.

Purpose

The main purpose of the government portal is to develop a single window system, information system, and required infrastructure for providing maximum efficiency and productivity of the administrative process with high quality to the citizens'.

Functional Diagram

Functions:

- Offering information on civil petitions, agencies-in-charge, required documents, and relevant laws and institutions.
- Applying and issuing of civil petitions through one government portal.
- Sharing information among agencies.
- Real-time processing of the civil petitions.
-

Schedule

Table 1. Schedule of Government Representative Portal

Task	2013		2014		2015		2016	
Business Process Reengineering & Information Strategic Planning	←	→						
Analysis	←	—	→					
Design & Development		←	—	—	→			
Evaluation				←	→			

Budget

Table 2. Budget of Government Representative Portal (presumption)

Types	2013	2014	2015	2016	Total (USD)
BPR Activity	200,000				200,000
Analysis	500,000				500,000
Application Development	300,000	400,000			700,000
Evaluation Process		100,000			100,000
Total	1000,000	500,000			1,500,000

Expected Benefits

- Convenience for citizens to get the government services.
- Reduce the volume of paper based documents and time of processing.
- Increase the transparency of the administration with the real-time features.
- Reduce government expenses though information sharing.
- Reduction of operational and maintenance costs since every information is provided through a single portal.
- Improve the online service index of UN e-Government development by operating this portal with high Internet penetration

4. Enhancement of Government Information Network

Definition

The Government Information Network is the physical network of data that interconnects the State institutions to high speeds, with a secure and high quality configuration of the service.

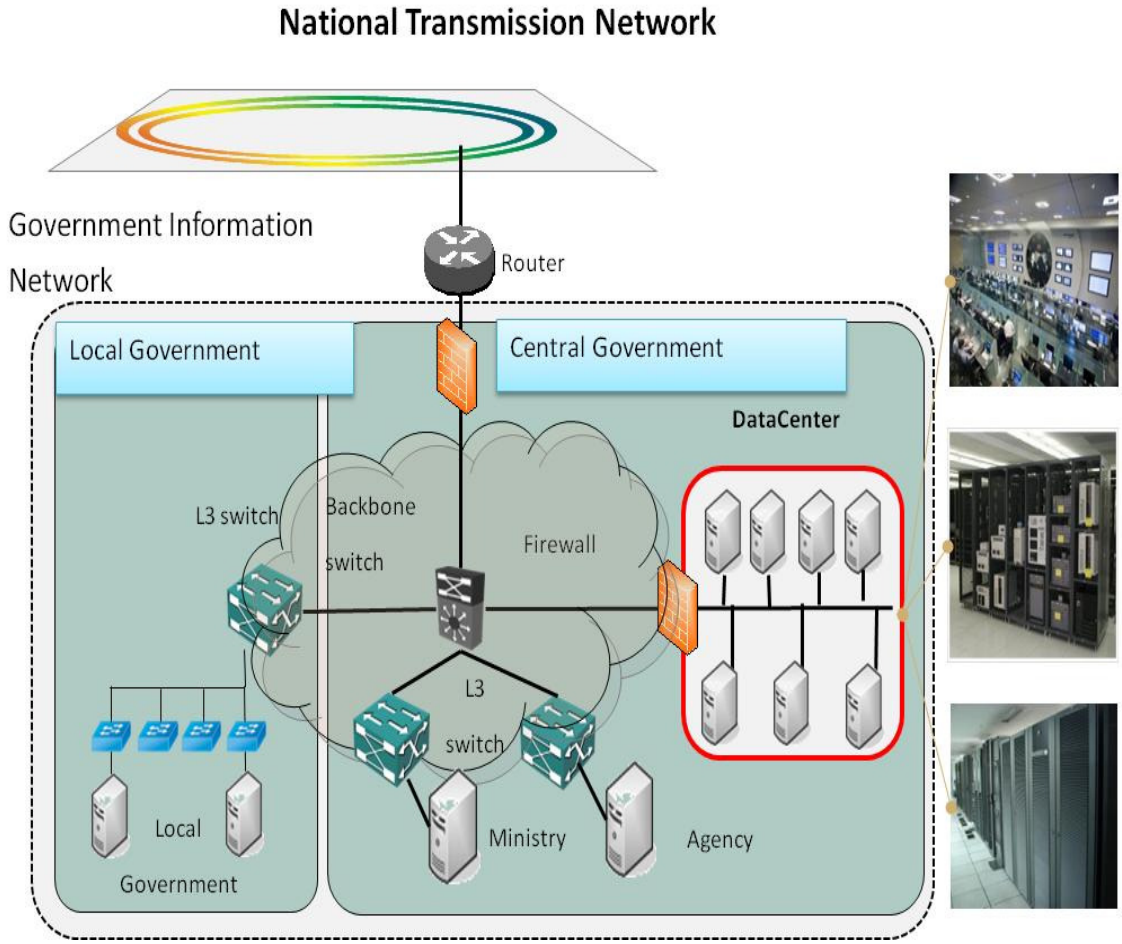
Purpose

The main purpose of establishment of the government information network is to obtain the efficient implementation of the e-Government, which includes establishment of national administrative network needed for computerization of regional administration.

Foundation for the development and promotion of the IT industry can be prepared by building the information network. It provides the IT services and benefits of the e-Government for people living in rural areas, and also narrows the digital divide between urban and rural areas

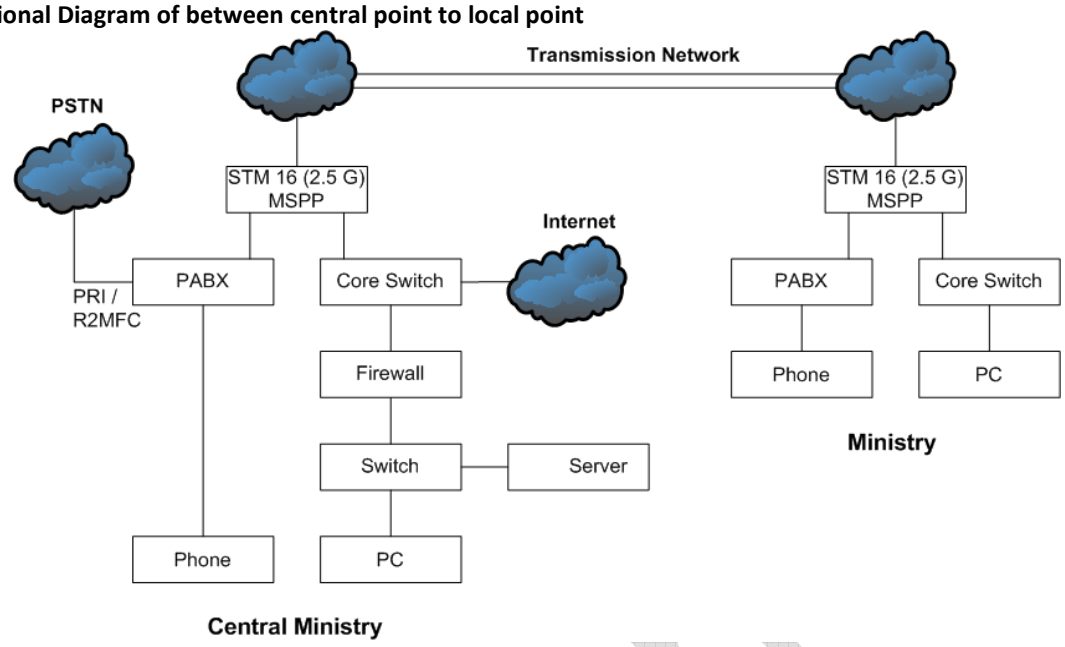
Functional Diagram 1 [Basic Diagram of Government Information Network]

Functional Diagram of Information Network



Functional Diagram 2 [Basic Diagram between central point to local point]

Functional Diagram of between central point to local point



Functions

- The information network project is not only about building the backbone network, but it is also code standardization, ITA (Information Technology Architecture), windows language standardization, etc.
- Construction of information network may include not only the construction of network, but also the distribution of PCs, printers and other peripherals, and electricity, road and etc.
- According to our current analysis, SDH/SONET STM-16 is recommended for government information network in the Philippines. However, it can be changed depending on the amounts of network traffic, which will be used for government organizations, and the existing technical methods.
- When the network is designed at the beginning, it is necessary to consider PBX with data network together.

Schedule:

Table 1.Schedule of Government information network(presumption)

Task	2013		2014		2015		2016	
Feasibility Study	←	→						
Cable Construction		←	—	—	—	→		
Equipment Installation						←	—	→
Field Test							←	→

Budget:

Table 55.Budget of Government information network

Types	2013	2014	2015	2016	Total (USD)
consulting	300,000				300,000
Network backbone	10,000,000	10,000,000	10,000,000		30,000,000
Equipment Installation			1,500,000	1,500,000	3,000,000
Total	10,300,000	10,000,000	11,500,000	1,500,000	33,300,000

Expected Benefits:

- Building fundamentals of interconnection between government agencies by secure and uninterruptable dedicated network
- Improve international competitive power using the Information Highway called by New Social Overhead Capital
- Increase the efficiency of whole society through the large exchange of information between the government agencies
- Improved efficiency and effectiveness by reducing the lead time required in service delivery
- National network with reliability through construction of another crossing cable
- Easier communication and narrowing the digital divide by securing a patch that connects to the rural and mountainous areas
- Easier implementation of future technology like IPv6, WiMax, home network and IP-media through implementation of state-of-the-art IP technology
- Preparation of the detour when severance of Terai's optical cable is occurred
- Easier and higher speed access to agencies and telecentres like using WiMax and WLL without satellite access with high rental fee

5. e-Community Center

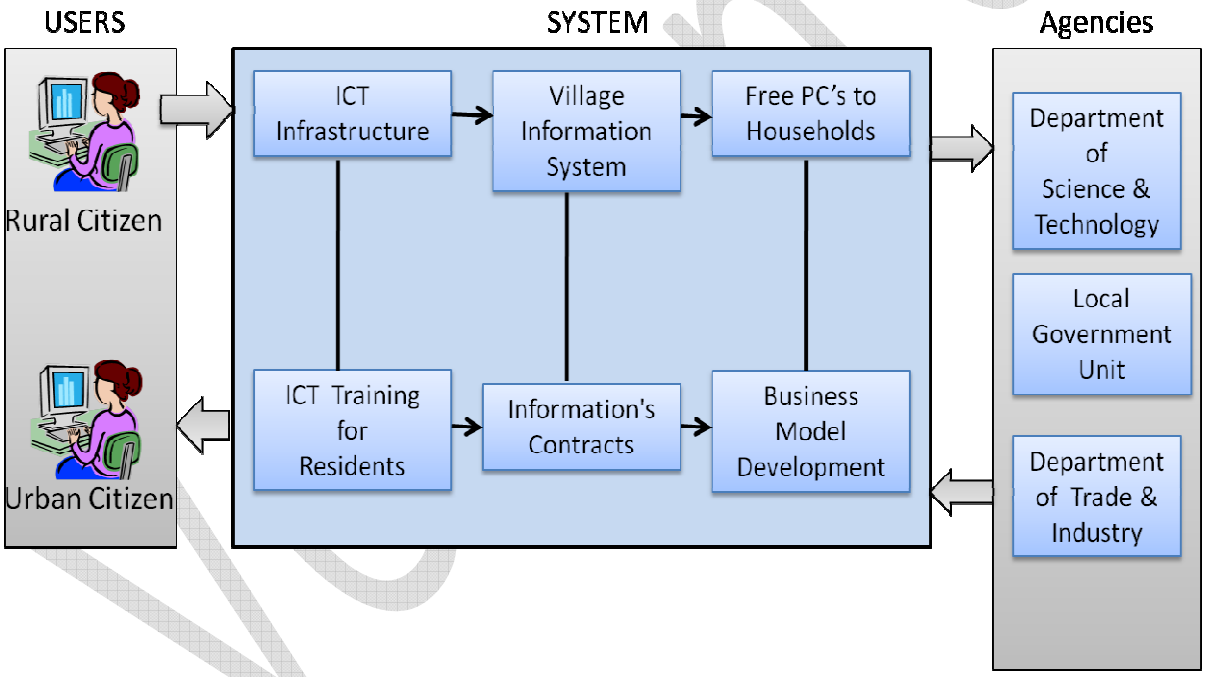
Definition

The "Electronic Community System" establish self-sustainable local communities that are capable of continuous growth by creating information network environments and improving the income of local residents through e-commerce in agriculture, fishing and tourism. The project includes various components such as ICT infrastructure, village information system, free PCs to households, ICT training for local residents, information contracts and business model development

Purpose

The main purpose of this system is to reduce digital divide by encouraging the local residents in rural area to use ICT tools on their daily activities and business.

Functional Diagram



Functions:

- Motivate local citizens to use ICT tools.
- Provide online sites that will attracts buyers of local goods and promote tourism of the local area
- Train local residents in the usage of ICT tools such as the PC and Internet
- Develop business models for local area agric
- cultural producers in the rural area

Schedule

Table 1. Schedule of e-Community Center

Task	2013		2014		2015		2016	
Business Process Reengineering & Information Strategic Planning					←	→		
Analysis, Design and Development						←	→	
Training							←	→
Evaluation								← →

Budget

Table 2. Budget of e-Community Center (presumption)

Types	2013	2014	2015	2016	Total (USD)
BPR Activity			200,000		200,000
Application Development			500,000	500,000	1,000,000
Equipment Purchase			500,000	500,000	1,000,000
Training			500,000	500,000	1,000,000
Evaluation Process				500,000	500,000
Total			1,700,000	2,000,000	3,700,000

Expected Benefits

- Reduce digital gap between urban and rural areas.
- Increase the income of rural area inhabitants
- Raise e-Government index of UN evaluation

6. National Disaster and Safety Management System

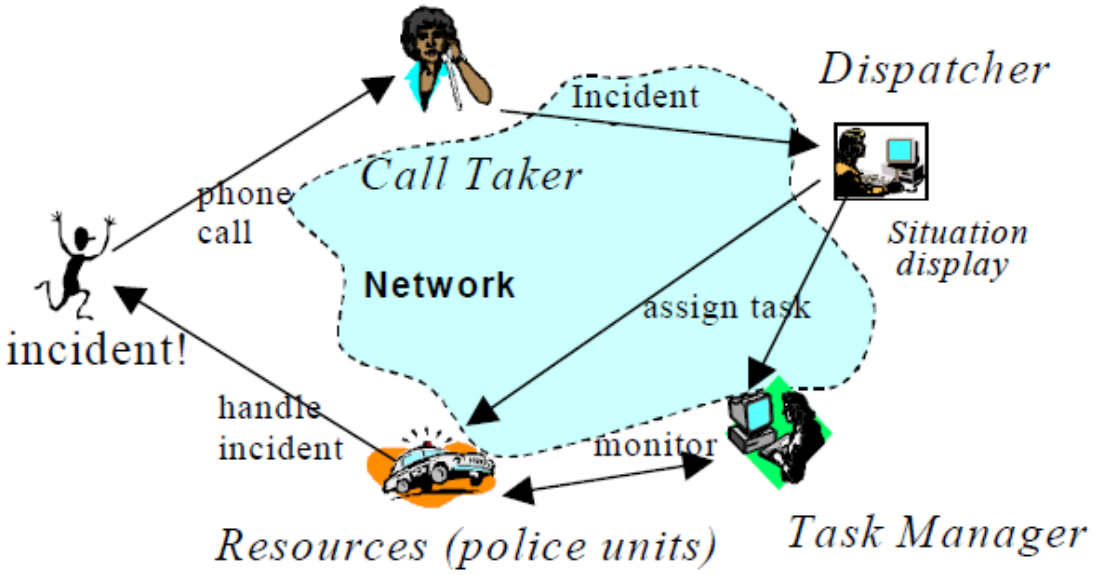
Definition

"National Disaster and Safety Management System" is the system that is used by police, fire and rescue and other similar organization to dispatch resources to handle incidents (disaster). The system is distributed over the Internet with different components dedicated to different roles. The different roles could be rescuing the citizens and their properties from the natural disasters such as floods, tsunami, typhoon, earthquake etc. The system is matured enough to forecast the national natural disaster also so that it would be easier to mitigate the impact of disaster. The entire activities of the functional diagram are automated.

Purpose

The main purpose of this system is to provide rescue services to entire affected citizens in Philippines through the use of ICT. It provides the service in 24/7 hours to the citizens. It handles natural as well as human made disaster effectively.

Functional Diagram



Functions

- To provide rescue services to the citizens whenever disaster such as floods, tsunami, typhoon, earthquake etc. occurs in Philippines
- To provide service continuously with ICT

Schedule

Table 1.Schedule of National Disaster and Safety Management System

Task	2013		2014		2015		2016	
Feasibility Study	←	→						
Analysis of Primary and Data Recovery Center		←	—	→				
Design & Testing				←	—	—	→	
Implementation & Evaluation							←	→

Budget

Table 2. Budget of National Disaster and Safety Management System(presumption)

Types	2013	2014	2015	2016	Total (USD)
Analysis	2000,000				2000,000
Development	1000,000	5000,000			6000,000
Design & Testing		1000,000	3000,000		4000,000
Implementation & Evaluation				300,000	300,000
Total	3000,000	6000,000	3000,000	300,000	12,300,000

Expected Benefits

- Preventing disaster and improving national image
- Mitigating the impact of disaster
- Forecasting the disaster

7. G4B (Automation for Business Activities)

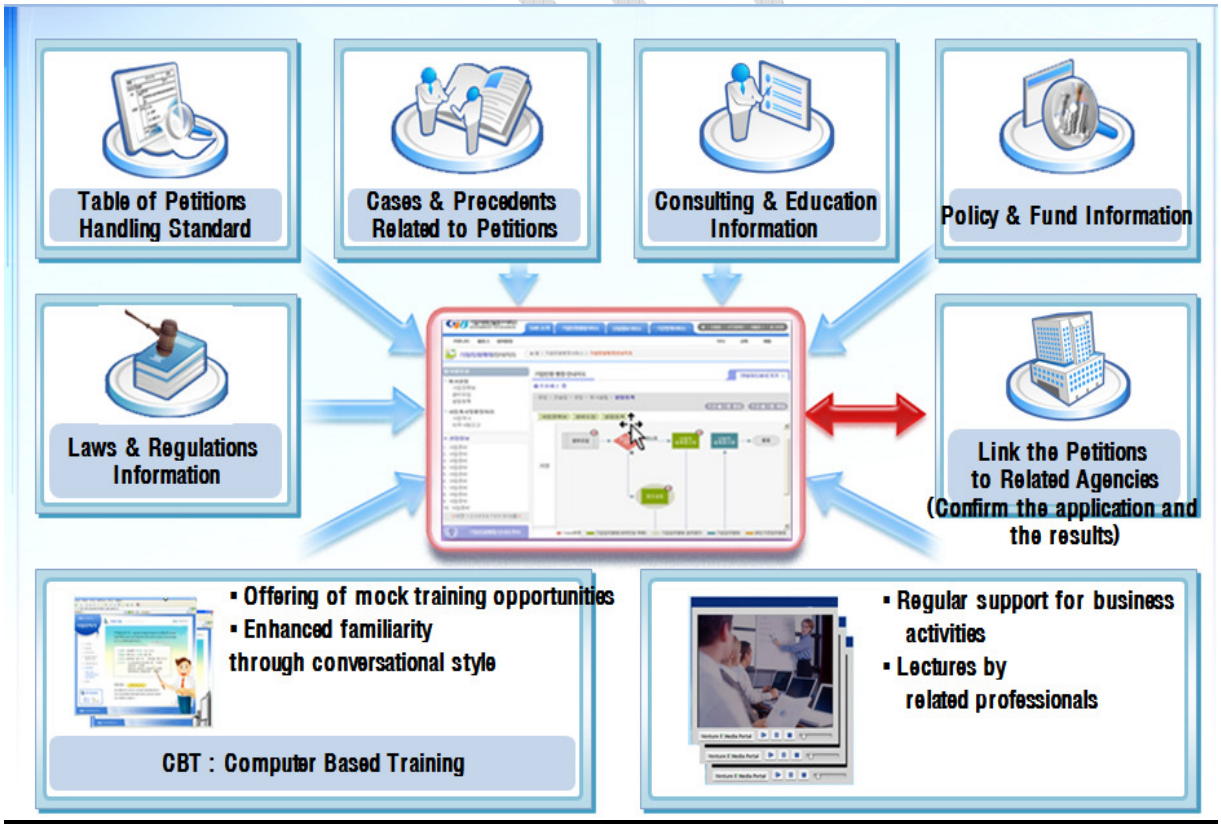
Definition

Providing the Single Gateway to support business competitiveness from establishment of companies to operation, it provides one-stop administration service in portal. The G4B system is aimed at supporting business with convenience and enhancing the country's international confidence by supporting high quality business configuration of service

Purpose

Realization of a single service channel for business customers. Offering of unified, comprehensive service through co-operation and adjustment among governmental agencies so that businesses can perceive them as a “single government". Business complaints handled, Company established services for Preliminary founders, Home-based establishment, Business contents batch service, solution for corporate difficulties Electronic document distribution, Support consulting, information about business announcements

Functional Diagram



Functions

- Business process re-engineering (BPR) for the business petitions
- More guidance maps for business petitions administration, Analysis of on-line petitions administration service
- Integrated improvement plan to enhance the use of the industrial information
- On-line petitions handling linkage with other agencies (Confirmation of the petitions and results)

Schedule

Table 1. Schedule of G4B

Task	2013		2014		2015		2016	
Survey of current State	←	→						
System &Application Development			←	→				
DB Building & Service development				←	→			
Service upgrade					←	→		

Budget

Table 2. Budget of G4B (presumption)

Types	2013	2014	2015	2016	Total (USD)
ISP	300,000				300,000
System & Infrastructure Development		10,000,000	300,000	300,000	10,600,000
Application Development		1,000,000			1,000,000
DB Building		1,000,000	1,000,000	500,000	2,500,000
Service		3,000,000	3,000,000	300,000	6,300,000
Total	300,000	15,000,000	4,300,000	1,100,000	20,700,000

Expected Benefits:

- Enhancement enterprises' convenience and satisfaction at the administrative services through the comprehensive on-line guidance service for petitions administration and industrial information in the point of business user
- Improvement of the efficiency of the administrative tasks through reducing time for simple guidance and consultation and enhance the administrative transparency by offering on-line service
- Improvement of productivity of civil servants by converting to the value creation tasks

8. IT-Governance Development

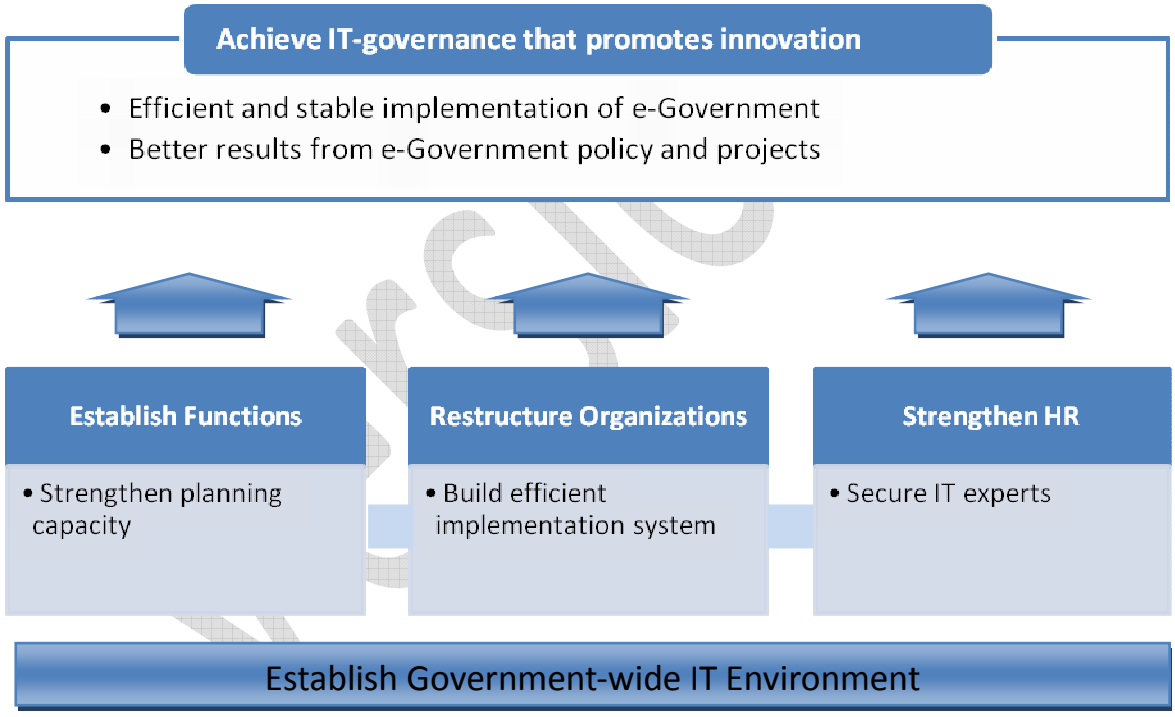
Definition

While many realize the importance of IT governance, it is still a prevalent notion that IT and e-Government should just play the support role and limited to automation of menial work. The importance of IT governance in its ability to transform the work processes is lost on many in the government, especially the strategic value of IT governance that could innovate government work.

Purpose

The main goal of this project is to diagnose the current state of HR related IT resources and restructure as well as establish an IT governance based on well trained IT specialists. As such, this project will seek to strengthen IT functions, restructure IT organizations and train IT experts in order to achieve an IT governance that will promote innovation.

Functional Diagram



Functions:

- Innovate work processes and efficiency by strengthening informatization HR resources.
- Reinvigorate meeting of CIOs in the government agencies for information sharing and closer co-work.

- Train and develop ICT capabilities of public servants in IT related positions, leading to higher work productivity and stronger professionalism
- Monitor and manage IT related HR resources

Schedule

Table 1. Schedule of IT-Governance Development

Task	2013		2014		2015		2016	
Business Process Reengineering & Information Strategic Planning	←	→						
Analysis, Design and Development		←	→					
Training			←	→				
Evaluation				←	→			

Budget

Table 2. Budget of IT-Governance Development (presumption)

Types	2013	2014	2015	2016	Total (USD)
BPR Activity	200,000				200,000
Application Development	250,000	250,000			500,000
Training		500,000			500,000
Evaluation Process		100,000			100,000
Total	450,000	850,000			1,300,000

Expected Benefits

- Reduce the capability gap of HR resources among different government organizations.
- Raise the capability and capacity to work for IT related HR resources.
- Strong and stable implementation of e-Government and IT projects in all government organizations.
- Raise efficiency and work productivity by strengthening the IT related HR resources.

9. GIDC(Government Integrated Data Center)

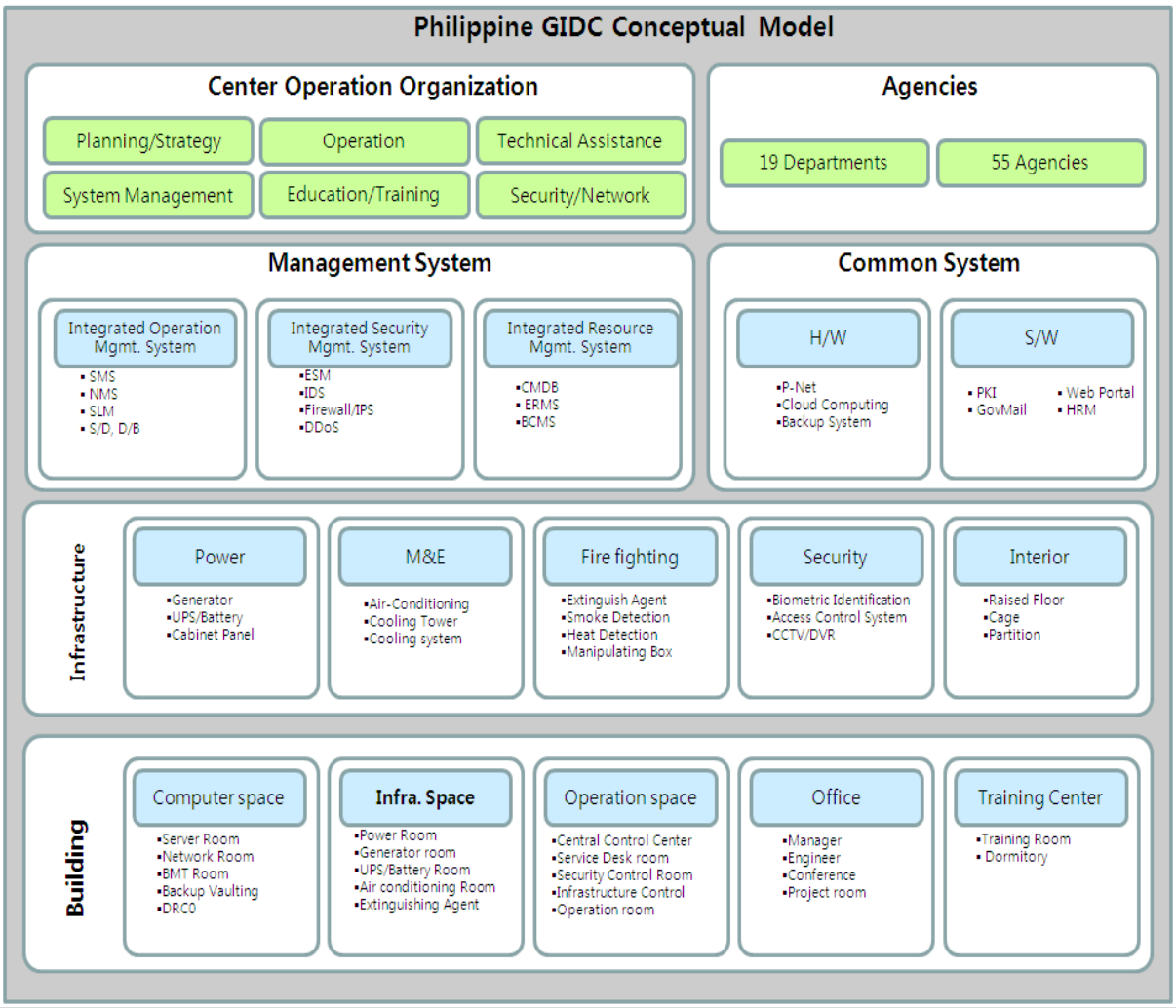
Definition

"Government Integrated Data Center" provides a single facility to house the hardware, software and staff. It is physically secured (guarded premises with controlled physical access) and protected against natural disasters (fire, floods, terrorism, earthquake etc.) and malicious attack. It would provide 24 X 7 X 365 service levels (adequate monitoring staff, backup hardware, etc.) and should be equipped with redundant environmental controls

Purpose

The main purpose of data center is to preserve the government's data and provide it to the government organization with maximum security and highly interoperability. The data center also provides other features like hardware and software, ICT training center, Internet access, technical supports and networking.

Functional Diagram



Functions

- To provide " Integrated Data Center for Government"
- To provide "Lump- sum purchasing system of Government IT resources"
- To establish "Disaster Recovery Mechanism Center"
- To establish "Integrated Internet Access Gateway"
- To provide required training facilities as a "ICT Training Center"
- To provide the technical support to nation as a "Technical support Center"

Schedule

Table 1. Schedule of Data Center

Task	2013		2014		2015		2016	
Deployment of GIDC	←							→
Expansion of GIDC*					←			→
Settlement of GIDC *							←	→
IDC for Central Government Agency	←							→
GIDC (2nd) for Central Government Agency*					←			→
DRS Backup Center for GIDC(1st & 2nd)*							←	→

Note *: The tasks may require more than above mentioned period.

Budget:

Table 2. Budget of Data Center (presumption)

Types	2013	2014	2015	2016	Total (USD)
Consulting for Survey	300,000				300,000
Model Design		300,000			300,000
Construction Building		30,000,000	30,000,000		60,000,000

Infrastructure Development (S/W, H/W, Network)			3,000,000	2,000,000	5,000,000
Server Moving & System Consolidation				1,000,000	1,000,000
Training				1,000,000	1,000,000
Total	300,000	30,300,000	33,000,000	4,000,000	67,600,000

Expected Benefits:

- Improved stability, efficiency, and reliability of Data Center
- Reduced operation and maintenance cost through centralized installation
- Increased overall efficiency through the increase of the number of equipment managed by single administrator
- Manage the national important information securely
- Provide integrated Internet access gateway
- Provide technical solution center for entire country

10. Critical National Database Construction

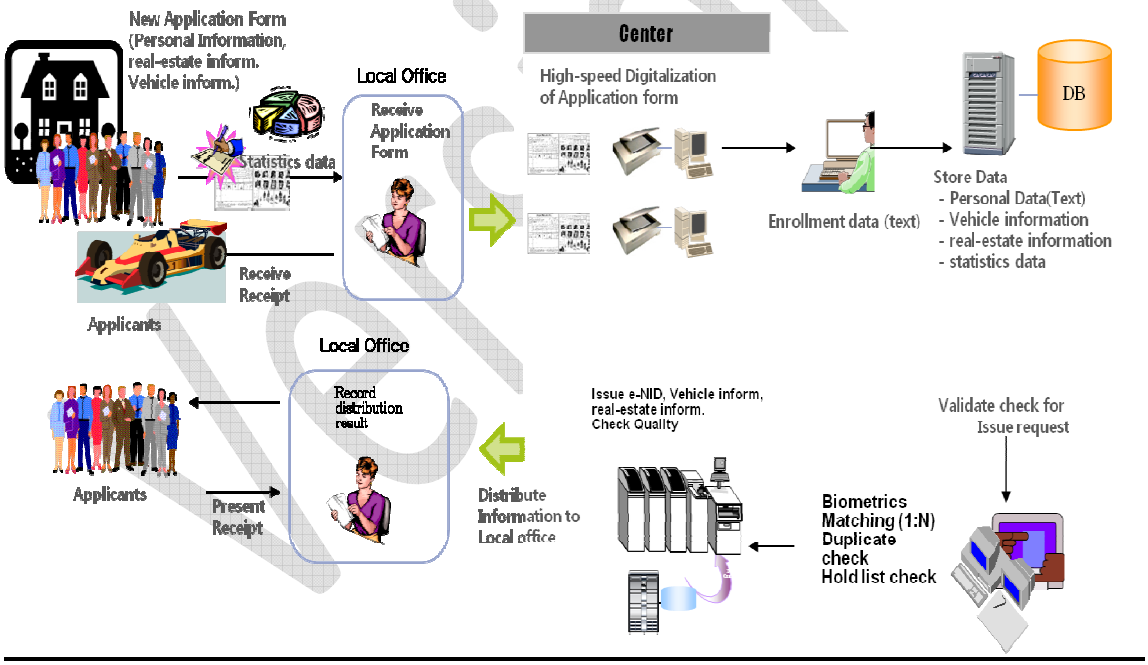
Definition

National Database provide the identification, e-Governance and secure documents that deliver multi-pronged goals of mitigating identity theft, safe-guarding and facilitating the public. Digitalization NID, real-estate, vehicle and statistics data information.

Purpose

The main purpose of this system is to provide the unique identification to the entire citizen. To register data, there are some solutions, one is offline to gather data through Registration form, the other is online to collect data through devices, digital camera, fingerprint live scanner, etc. Collecting all demographic data (include voter) and fingerprints of people registered to have ID card in the whole country. And collecting all real-estate data and vehicle to paperless work,

Functional Diagram



Functions

- To support demographic data(include voter) and fingerprints of people, real estate data and vehicle registered in the whole country.
- Checking, issuing, storing information of ID card registrations receive from province units.
- Updating information to backup data center and Scanning registration forms collected from province office
- Providing and facilitating civil service to the citizens

Schedule

Table 1. Schedule of Critical National Database Construction

Task	2013		2014		2015		2016	
Survey of current State	←	→						
Building Citizen & OFW related DB		←	—	—	→			
Real-estate & Vehicle related DB		←	—	—	→			
Natural Resource DB			←	—	—	→		
Advancing National DB						←	—	→

Budget

Table 2. Budget of Critical National Database Construction(presumption)

Types	2013	2014	2015	2016	Total (USD)
ISP	300,000				300,000
Infra (Digital input Device & Server, Etc)	5,000,000	5,000,000			10,000,000
Infra(Storage, solution, Network)	1,000,000	3,000,000			4,000,000
DB for Citizen Building	2,000,000	2,000,000	1,000,000		5,000,000
DB for OFW Building	2,000,000	2,000,000	1,000,000		5,000,000
DB for Real-estate &Vehicle	2,000,000	2,000,000	1,000,000		5,000,000
Natural resource DB		3,000,000	3,000,000		6,000,000
Total	12,300,000	17,000,000	6,000,000	0	35,300,000

Expected Benefits:

- Convenient on personal identification by unique number
- Utilization of crime inspection using the schema of citizen database
- Utilization of Authentic information about the citizen and movement of residents from one location to others
- Establishment of efficient government utilizing national administration service such as election, security, and taxation
- Improve productivity through the use of quality data

11. G4F

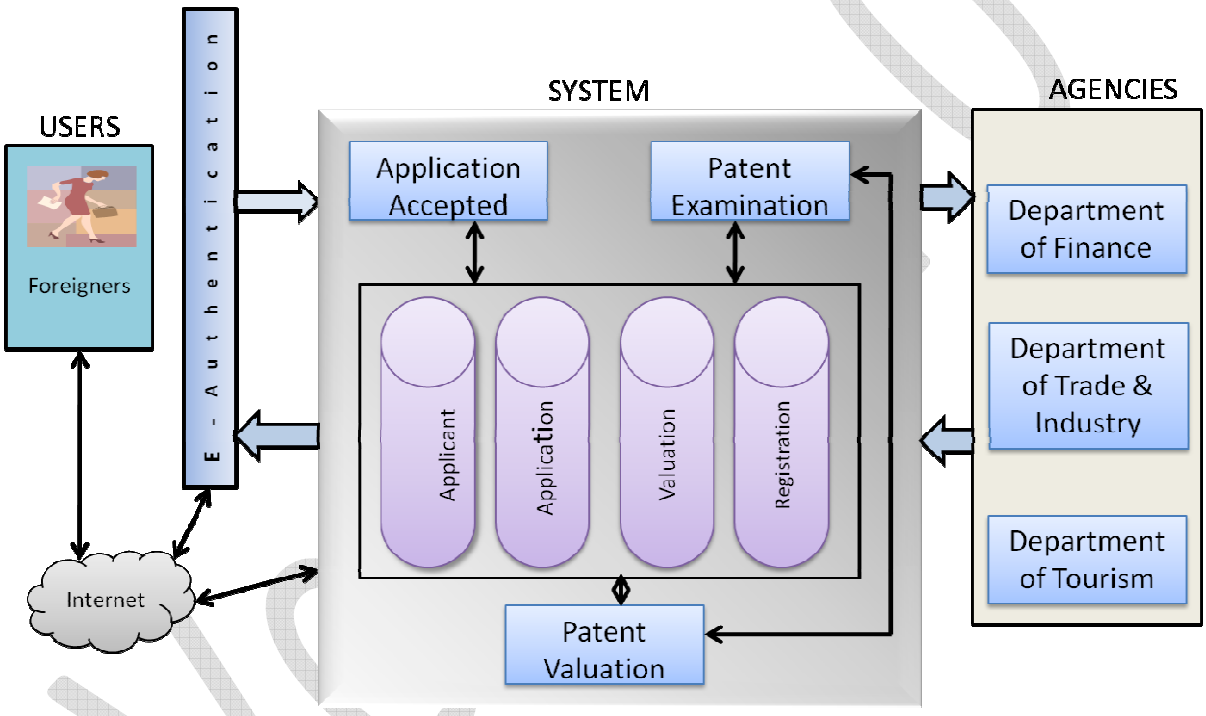
Definition

The "Government for Foreigner (G4F) System" is aimed at improving convenient business service with a one-time business registration which can be applied to all administration services requiring a business registration certificate.

Purpose

The main purpose of this system is to motivate foreigners to invest in business by improving efficiency on administrative process and sharing information among departments.

Functional Diagram



Functions:

- Offering information on investment opportunities, amenities for foreigners, job searching, hiring workers, immigration and so on.
- Also offer counseling for investments and clear investment policies for foreign investors including incentives and related information.
- Provide a common information system for related government organizations to develop and maintain consistent and user-friendly foreign investment policies
- Real-time processing of government services on foreign investment activities.

Schedule

Table 1. Schedule of G4F System

Task	2013		2014		2015		2016	
Business Process Reengineering & Information Strategic Planning	←	→						
Analysis	←	—	→					
Design & Development		←	—	—	→			
Evaluation				←	→			

Budget

Table 2. Budget of G4F System (presumption)

Types	2013	2014	2015	20-16	Total (USD)
BPR Activity	260,000				260,000
Application Development	780,000	2,500,000			3,280,000
Infra Establishment	2,100,000	12,900,000			15,000,000
Evaluation Process		100,000			100,000
Total	3,140,000	15,500,000			18,640,000

Expected Benefits

- Convenience for foreign investors who would like to make investments in the Philippines.
- Reduce the volume of paper based documents and time of processing for investment.
- Increase the transparency of the administration with the real-time features that will also allow for faster investment decisions.
- Reduce government expenses though information sharing.
- By utilizing the G4F system, monitor and receive feedback from foreign investors.

12. WORKNET

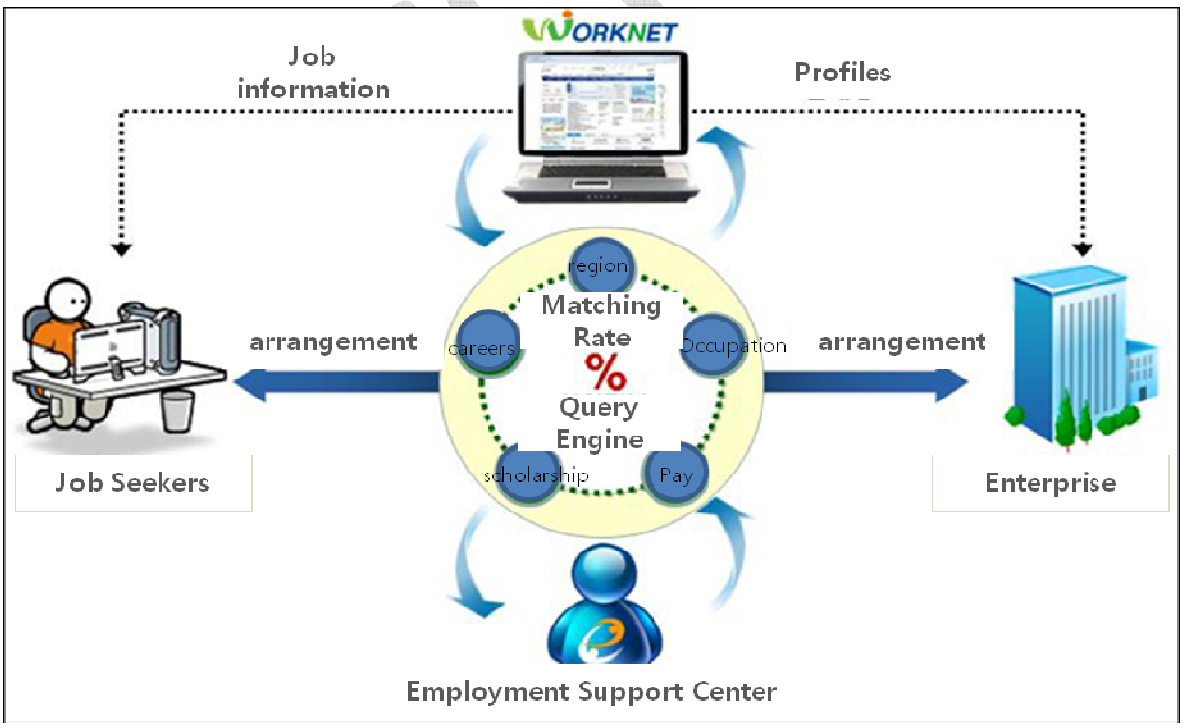
Definition

It provides online information and services to job seekers as well as employers. Jobseekers can receive information on vacancies as well as training opportunities, register with the online and, if needed, get offline service visiting Job Centre. It also offers online test - on job attitudes and vocational interests. It aims to be a "hub" for jobseekers providing vacancy information from all public and private employment agencies. Visitors can also link up to individual service providers for further detailed information.

Purpose

For the recruitment of civil servants by government agencies, each agency will post a public notice of recruitment in the major dailies. Job applicants will have to hand in their resumes and job applications directly to the human resources department of the agency before the deadline. Thousands of job application forms and resumes must be screened and then approved by superior sand then categorized according to the government department that the applicant selected. Necessary documents for the interview of applicants who have passed the screening process are organized

Functional Diagram



Functions

- The public notice of recruitment is posted on the Internet and Job applicants can apply by filling in an online application.
- Resumes and job applications is met, the applications can be organized and printed out efficiently through several simplified processes.

Schedule

Table 1. Schedule of WORKNET

Task	2013	2014	2015	2016
Survey of current State	←			
System & Infra Building	←	→		
Application Development	←	→		
Building DB & S/W,H/W Evaluation	←	→	→	
Advancing DB & application development			←	→

Budget

Table 2. Budget of WORKNET (presumption)

Types	2013	2014	2015	2016	Total (USD)
ISP	300,000				300,000
G4F portal Service page		500,000	300,000	200,000	1,000,000
Infra(Web Server, Storage, solution, Network)	1,000,000	2,000,000			3,000,000
DB for Workplace	1,000,000	1,000,000	500,000	1,000,000	3,500,000
DB for employee	1,000,000	1,000,000	500,000	1,000,000	3,500,000
Total	3,300,000	4,500,000	2,300,000	2,200,000	11,300,000

Expected Benefits:

- After the deadline for submission of resumes and job applications is met, the applications can be organized and printed out efficiently through several simplified processes.
- To manage the hiring, promotion, and compensation of civil servants in a fair and systematic way

13. Procurement System

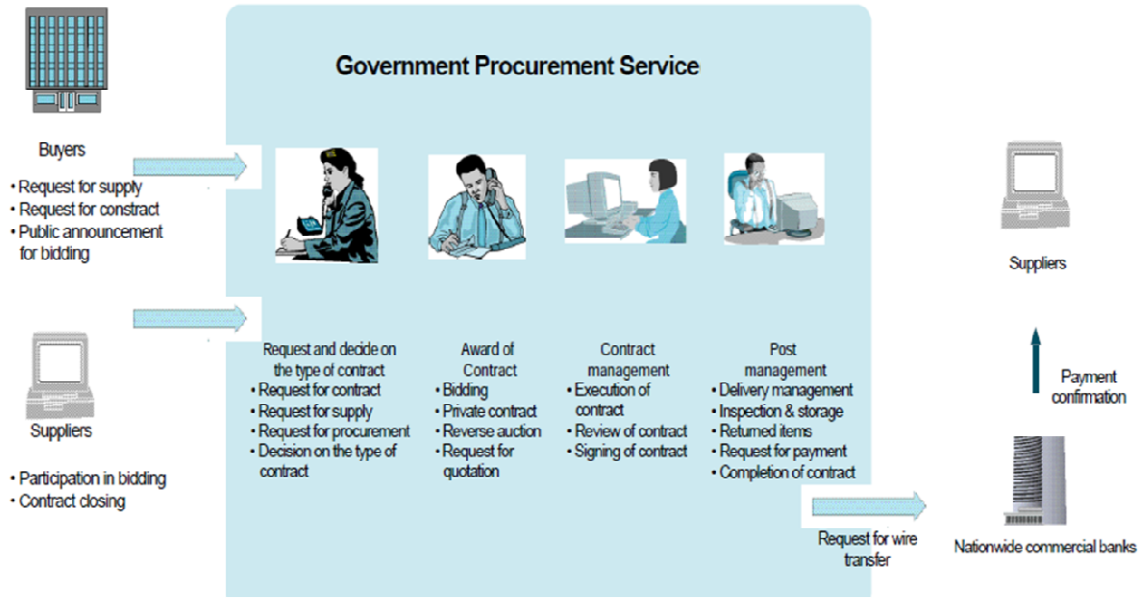
Definition

Government e-Procurement Service (GePS), procurement processes involving bidding, contract agreements, and payment for services or supplies take place online in real-time. In Through the establishment of a Single Window government procurement system the entire process -register as contractor ・ bid on public project ・sign contract agreement ・ receive payment for services - takes place via the Internet. The procurement process is open to the public and simplifies government procurement through an Internet-based solution.

Purpose

All government-wide projects for bidding, Establishment of a Standardized Category System for Procurement Supplies, Online Process(Government agencies and private contractors can use the system to complete the entire procurement process involving the posting of a public project for bidding, submission of bids, selection of winning bidder, signing of government contract agreement, fulfillment of service or supply contract, and payment for services via the Internet with the capability of monitoring the process in real-time.) and savings on procurement costs

Functional Diagram



Functions

- To service a private contractor online bid for any government project
- To complete the entire procurement process involving the posting of a public project for bidding, submission of bids, contract agreement, fulfillment of service or supply contract, and

payment for services via the Internet with the capability of monitoring the process in real time .

- Selection of winning bidder, signing of government
- Establishment of a Standardized Category System for Procurement Supplies

Schedule

Table 1. Schedule of Procurement system

Task	2013	2014	2015	2016
Survey of current State	←			
Bidding System & Portal		←	→	
Building Interoperability system		←	→	
DB & S/W,H/W Evaluation		←	→	

Budget

Table 2. Budget of Procurement System (presumption)

Types	2013	2014	2015	2016	Total (USD)
ISP	300,000				300,000
Procurement bidding & service portal		1,500,000	1,000,000	500,000	3,000,000
Infra(Web Server, Storage, security solution, Network)		3,500,000	3,000,000		6,500,000
DB for procurement		1,500,000	1,000,000	500,000	3,000,000
Total	300,000	6,500,000	5,000,000	1,000,000	12,800,000

Expected Benefits:

- Savings procurement costs for various government agencies
- This project will substantially enhance the transparency and effectiveness of tax administration

14. e-Agriculture

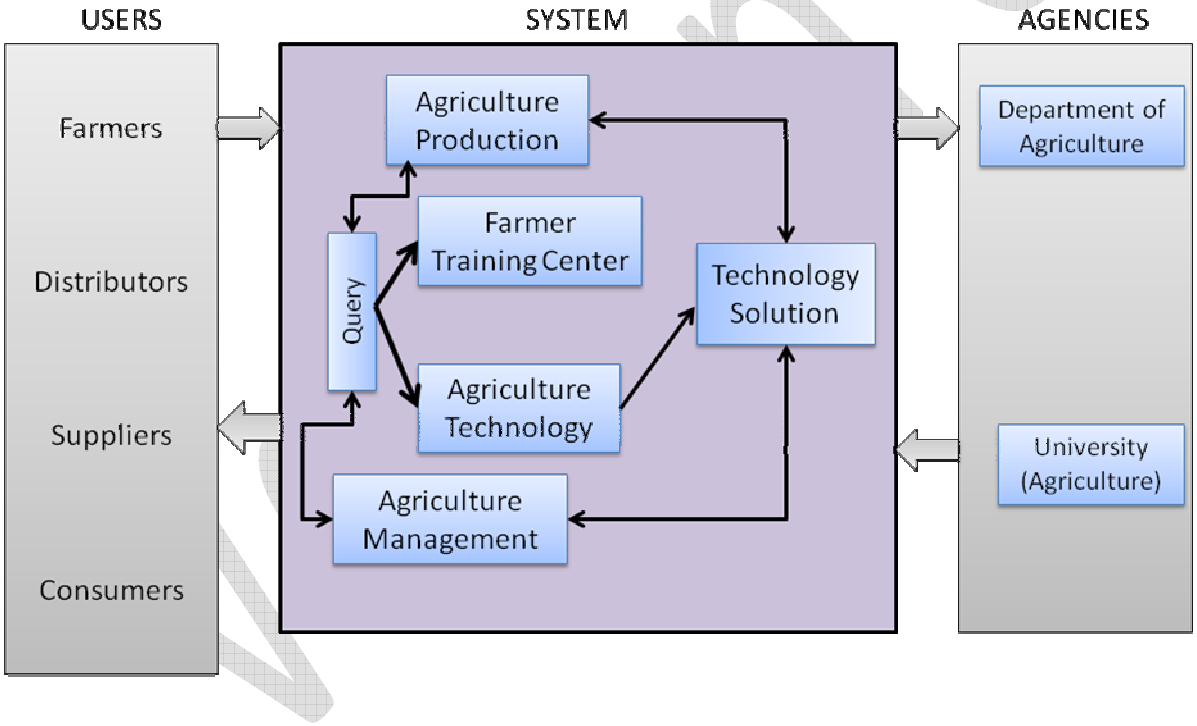
Definition

Electronic Agriculture System delivers information about agricultural production and consumption to the people in need of the information such as to farmers, distributers, suppliers and consumers via the Internet.

Purpose

The main purpose of this system is to provide information such as agricultural production, distribution, technology and management. It also facilitates trade and exchange among areas for developing agricultural economy.

Functional Diagram



Functions:

- Share information and technology on agricultural products
- Utilize common system for safety of products produced in different regions of the country
- Provide direct online and offline trading areas in order reduce costs in logistics
- Standardize and provide various inspection and other public services for agricultural goods

Schedule

Table 1. Schedule of e-Agriculture System

Task	2013		2014		2015		2016	
Business Process Reengineering & Information Strategic Planning		←						
Analysis			←	→				
Design & Development				←	→	→		
Evaluation						←	→	

Budget

Table 2. Budget of e-Agriculture System (presumption)

Types	2013	2014	2015	2016	Total (USD)
BPR Activity	300,000				300,000
Application Development		1,000,000			1,000,000
Infra Establishment		2,000,000	1,000,000		3,000,000
Evaluation Process			500,000		500,000
DB for Agriculture		500,000	1,000,000		1,500,000
Total	300,000	3,500,000	2,500,000	0	6,300,000

Expected Benefits

- Consolidated information on agricultural produce that can be managed by the government in common
- Capacity to track the origin of agricultural products and trace the distribution channel, increasing safety of agricultural produce
- Increase income of agricultural workers and reduce costs for consumers and businesses alike for agricultural products

15. Government Enterprise Architecture (GEA)

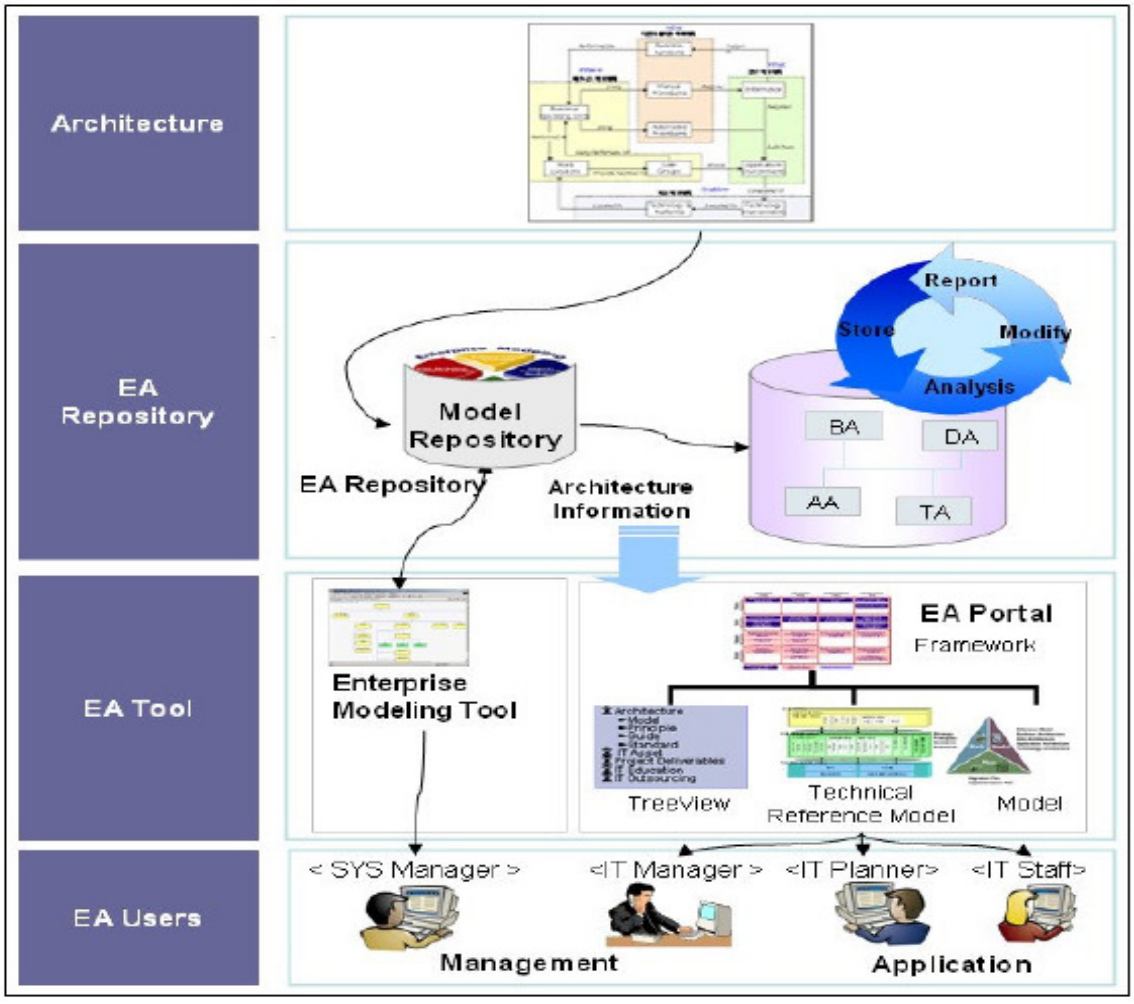
Definition

The "Government Enterprise Architecture (GEA)" provides a unified information standard at the government level by defining services and work procedures of each agency and the relationship between current conditions of ICT and future tasks. It also ensures information sharing within the administration, standardizes processes, and establishes ICT Governance by developing link information among architectures and manages ICT resources.

Purpose

The main purpose of Government Enterprise Architecture (GEA) is to provide the specification of facilities of information sharing among the government organization and also it gives the direction of future.

Functional Diagram



Functions

- Enterprise Architecture policy: Providing standardization on management and organization, developing management process and implementation plan for EA and investment plan
- Enterprise architecture Framework: Providing performance reference model, business reference model, data reference model, service component reference model and technical reference model.

Schedule

Table 1. Schedule of GEA

Task	2013		2014		2015		2016	
Analysis	←	→						
Architecture Design			←	→				
Application Development					←	→		
Evaluation								↔

Budget

Table 2. Budget of GEA (presumption)

Types	2013	2014	2015	2016	Total (USD)
Analysis	300,000				300,000
Architecture Design		2,000,000			2,000,000
Infrastructure Development(H/W, S/W)& Application Development, DB)			10,000,000	1,000,000	11,000,000
Evaluation				500,000	500,000
Total	300,000	2,000,000	10,000,000	1,500,000	13,800,000

Expected Benefits

- Development of communication tool between work processing organization and ICT organization
- Formulation of standardization for cooperative utilization of public information through interoperability
- Overcome of redundant projects and fair estimation of project cost
- Solve the gap of computerization level between agencies

- **Estimated Budget**

Budget is estimated for next 4 years of implementing the 1st 15 priority projects and they are described below

Year / Project	2013	2014	2015	2016	Total (USD)
Strengthening e-Government security	1,800,000	9,500,000	8,500,000	5,000,000	24,800,000
e-Document and archiving system	300,000	3,300,000			3,600,000
Government Portal	1,000,000	500,000			1,500,000
Enhancement of Government information Network	10,300,000	10,000,000	11,500,000	1,500,000	33,300,000
e-Community Center			1,700,000	2,000,000	3,700,000
National Disaster & Safety Management system	3,000,000	6,000,000	3,000,000	300,000	12,300,000
G4B	300,000	16,000,000	5,300,000	1,100,000	20,700,000
IT-Governance Development	450,000	850,000			1,300,000
GIDC	300,000	30,300,000	33,000,000	4,000,000	67,600,000
Critical National Database Construction	12,300,000	17,000,000	6,000,000	0	35,300,000
G4F	3,140,000	15,500,000			18,640,000
WORKNET	3,300,000	4,500,000	2,300,000	2,200,000	11,300,000
e-Procurement System	300,000	6,500,000	5,000,000	1,000,000	12,800,000
e-Agriculture	300,000	3,500,000	2,500,000	0	6,300,000
Government Enterprise Architecture (GEA)	300,000	2,000,000	10,000,000	1,500,000	13,800,000
Total	**37,090,000**	**125,450,000**	**88,800,000**	**18,600,000**	**266,940,000**

Appendix A.

CLASSIFICATION OF ORGANIZATIONS

Organization	Classification	Remarks
Department of Agriculture	Medium	
Department of Budget and Management	High	
- **Procurement Service (PhilGEPS)**	Medium	visit
Department of Education	Medium	
Department of Energy		
Department of Environment and Natural Resources	Medium	visit
- **National Mapping & Resource Information Authority**	High	visit
Department of Finance	Medium	
- **Bureau of Internal Revenue**	High	visit
Department of Foreign Affairs	High	
Department of Health	Medium	visit
- **Philippine Health Insurance Corporation**	High	visit
Department of the Interior and Local Government	Medium	
Department of Justice	Medium	
Department of Labor and Employment	Medium	
Department of National Defense	Low	visit
Department of Public Works and Highways	High	visit
Department of Science and Technology		
- **National Computer Center (NCC)**	Medium	
Department of Social Welfare and Development	High	visit
Department of Tourism	Medium	
Department of Trade and Industry	Medium	
Department of Transportation and Communications	Medium	
Department of Agrarian Reform	Low	
National Economic and Development Authority	Medium	
- **National Statistics Office**	High	visit
Congress of Philippines	Medium	
Supreme Court of Philippines	Medium	visit
Social Security System	High	visit
Makati City	High	visit
80 Local provinces		

Some Reference Documents:

List of agencies receiving budget from the General Appropriations Act

http://www.dbm.gov.ph/?page_id=775

The President's Budget Message for 2012

http://www.dbm.gov.ph/?page_id=779

Executive Order No. 43: Pursuing our Social Contract with the Filipino People through the Reorganization of the Cabinet Clusters
http://www.dbm.gov.ph/wp-content/uploads/EO/EO43.pdf

2011-2016 Philippine Development Plan
http://devplan.neda.gov.ph/

Chapter 5: Accelerating Infrastructure Development
http://www.neda.gov.ph/PDP/2011-2016/CHAPTER%205.pdf (pages 40-49)

Chapter 7: Good Governance and the Rule of Law
http://www.neda.gov.ph/PDP/2011-2016/CHAPTER%207.pdf

Appendix B-1. Interview Sheet and Tables

Appendix B.1. Interview Sheets

1. Could you please explain major(main) processes and details of ongoing IT projects in your minist ry/organization?

2. Could you please highlight/tell the major(main) services that your ministry/organization provides t o the citizens of the Philippines?

3. In your opinion, what is the main objective of establishing/implementing e-Government in the P hilippines (for example,process innovation, enhancement of service delivery to citizens,etc.)

4. Could you please tell us of other projects along with IT projects, if your organization has any?

5. In your opinion, what is/are the priority project(s) for establishing e-Government? Please prioritiz e these projects.

6. In your opinion, which system(s) or part of systems in your ministry/organization should be infor matized immediately?

7. In your opinion, what is/are the most important success factor(s) for establishing e-Government in your organization and country?

Appendix B-2. Interview Tables

[Table1] e-Government Building & Service Status

Department (Organization)	Service Date	Name of IT System	Content ofDB	Update Frequency	Number of Users	Development Language	Number of IT Staff	Service Provided

<Description>

1. Department (organization): write the name of department or organization that possesses or plans to implement IT system
2. Date of service: write the starting date of service provided
3. Name of IT system: write the name of IT system
4. Content of DB: write the content of DB such as personnel data, budget data, tax date, etc.
5. Update frequency: write update frequency of data and applications
6. Development language: write the system development language such as JAVA, MS-SQL, etc.
7. Number of IT staff: write the number of ICT staff related with the system
8. Number of users: write the number of users including visitors
9. Service provided: write the kinds of services provided through the system such as providing information, citizen service, land registry, etc.
10. Remarks : write anything else for reference such as execution plans if any, operating obstacles and so on

[Table2] Infrastructure Status

Department (Organization)	Number of Officials	Hardware				Human Resource	
		Number of Servers	Number of PCs	Network Access	Network Speed	Number of ICT Trained Officials	Number of Officials in Charge of ICT

<Description>

1. Department (organization) : write the name of department(organization) that possesses ICT infrastructure
2. Number of officials: write the number of officials who work for the department
3. Number of servers : write the number of servers that the department or organization possesses
4. Number of PCs : write the number of PCs that the department or organization possesses
5. Network access: write the method of connection to network or internet, such as modem, broadband, etc.
6. Network speed: write the common network speed in kbps unit used in the department or organization
7. Number of ICT trained officials: write the number of trained officials who have received ICT related education
8. Number of officials in charge of ICT: write the number of officials who are in charge of ICT related work

[Table3] ICT Education Status

Educational Institution	Number of Enrollment	Number of Total Students	Number of Teachers	Number of Graduates			Any Other Certified Courses
				PhD	Master	Bachelor	

<Description>

1. Educational institution: write the name of university/institute/college
2. Number of enrollment: write the number of student enrollment in one semester
3. Number of total students:write the number of total students enrolled in the institution
4. Number of teachers:write the number of part-time/full-time teachers in the institution
5. Number of graduates:write the number of graduates that the institution produces in a year
6. Any other certified courses: write other professional courses such as CISCO, LINUX, Open Source, SQL etc., if any

Appendix C. Citizen Survey Sheet

Section I. Background Information

1. Name of your organization: _____
2. What sector is your organization in?
   a. Education b. Business c. Media d. Culture e. Telecom(incl.ISPs) f. Other

Section II. Information sharing

1. Do you think that the existing information in your organization is sufficient for your work?
   a. Yes b. No
2. Can you share information with other organization within the country?
   a. Yes b. No
3. Which one of the following approaches is used for sharing information?
   a. Extranet b. Intranet c. Internet
4. What is the percentage of digitization of information in your organization?
   a. 0% b. 25% c. 50% d. 75% e. 100%

Section III. Work Process

1. How often is work process modified within your organization?
   a. Frequently b. Moderately c. Rarely d. Never
2. Do you find redundancy in the existing work process?
   a. Yes b. No
3. How is the work process of your organization executed?
   a. Manually b. Automatically c. Partially automatic/manual

Section IV. Human Resource Development

1. How many staffs are ICT literate within your organization? _____ %
2. How many of your staffs use ICT as tool for their works? _____ %
3. Do you think that the present staff has enough skill to meet the vision/mission of your organization?
   a. Yes b. No
4. If not, which one of the following skills is required to meet this demand?
   a. Information Technology b. Business Analytics c. Development of Strategy d. Other
5. How many of your staffs use the Internet for their works? __ %

Section V. Information Policy of Organization

1. What is the most important requirement of your organization's ICT management system?
   a. Procurement b. e-payment c. HRD d. ISSP e. Upgrade of ICT infrastructure f. Other
2. Is your organization financially strong enough to sustain your ICT management systems?
   a. Yes b. No
3. Does your organization have an ICT committee?
   a. Yes [Name of committee:] b. No
4. What is the main deliverable service?
   a. G2G(Government to Government)b. G2B(Government to Business)c. G2C(Government to Citizen)
5. In your opinion, what is/are the main barriers in implementing e-Government system in the Philippines?
   a. Legislative b. Financial c. Technology d. Digital Divide e. None of the above

Section VI. Utilization of Web service

1. Does your organization keep all information on the web?
   a. Yes b. No c. Only 50% d. Only selective information. Very little
2. Are all forms for public services available on your organization's web page?
   a. Yes b. No c. Very little
3. If so, are the forms downloadable and up-loadable?
   a. Downloadable and up-loadable b. Only downloadable c. Only up-loadable
4. How often does your organization update your web page?
   a. Every week b. Every month c.Every 6 months d. Never
5. Does your organization evaluate the web page regularly?
   a. Yes b. No
6. What is the number of daily hits on your organization's web page?

Section VII. Others

1. What kinds of e-Government services does your organization plan to introduce in the near future?

2. How many of universities provide ICT related education? _____ %
3. Are these ICT curriculums sufficient?
   a.Yes b. No

Appendix D. ICT Policies and Regulations in the Philippines

I. Laws, rules and regulations

- Constitution
- Issued by Executive Branch
  - EO 109 - Policy to improve the provision of local exchange carrier service or Universal Telephone Service Policy (July 1993)
  - EO 269 – Creation of the CICT (January 2004)
  - EO on PKI
  - EO on IPP
- Issued by Legislative Branch
  - RA 7925 - "Public Telecommunications Policy Act of the Philippines." which laid down foundation for the administration, conduct and direction of the telecommunication industry (March 1995)
  - RA 8792 - Enactment of the Ecommerce Act (June 2000)
  - RA 7718 – An Act Amending BOT Law
  - EO 322 (1971), PD 1-A (1972), PD 1408 (1978), PD 1480 (1978), LOI 751 (1978), LOI 1380 (1984), MO 237 (1989), MC 115 (1995), AO 332 (1997), EO 34 (1998), EO 35 (1998) – Creation of NCC and providing for its functions.
  - RA 9184 - Government Procurement Act
  - RA 8293 - Intellectual Property Rights Code
- Issued by Departments
  - DTI DAO No. 8 – Prescribing Guidelines for the Protection of Personal Data in information and communication systems in the private sector
  - Joint DTI & DOF DAO No. 2 – Guidelines in Implementing RA 8792 on Electronic Payment and Collection System in Government
  - Administrative Order No. 175 - Computer-Based National Crime Information System

II. ICT Plans with Presidential approval

- Medium Term Philippine Development Plan 2004-2010
- Government Information Systems Plan (July 2000)
- Information Technology for the 21st Century (October 1997)
  - National Information Technology Plan (July 1994)

III. ICT Plans with Presidential endorsement

- Internet Strategy for the Philippines or ISP.com (2000)
- Philippine Strategic Roadmap for the ICT Sector (2006)
- The Strategic Roadmap of the Philippine Community e-Center Program for 2008-2010 (2008)
- ITECC Strategic Roadmap (2003)

IV. Regional Agreements

- ASEAN
- APEC
- WSIS

Workshop for Philippine e-Government

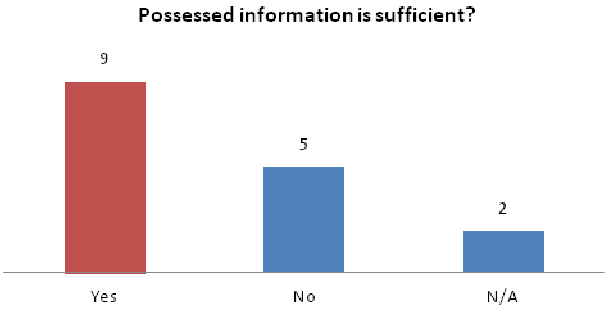
- **Details**
  - Date : Tuesday, July 3rd, 2012
  - Time : 09:00 - 17:00
  - Venue : Seminar Room, 2nd Floor, NCC Building

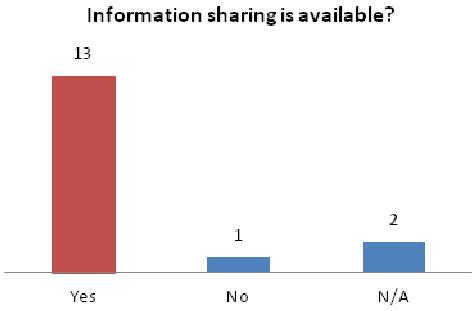
- **Schedule**

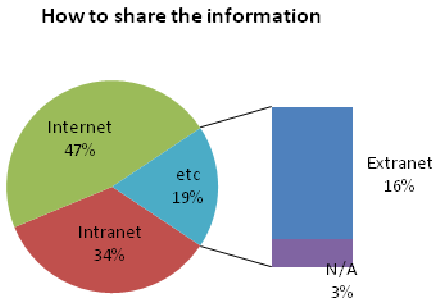
Phase	Time	Task	Remarks
Preparing	08:30-09:00	Registration	NCC
	09:00-09:05	Welcome Address	NCC Host
	09:05-09:10	Workshop Orientation	NCC/NIPA
	09:10-09:20	Organize Team Building	NCC/NIPA
Workshop	09:20-10:10	Presentation: Result of As-Is Analysis	NIPA
	10:10-10:20	Break Time	All
	10:20-12:00	Develop Vision/Mission Statement	All
	12:00-13:00	Lunch Break	Buffet provided
	13:00-14:20	e-Government Assessment Tool - Introduction of methodology - Country positioning - PEST analysis	All
	14:20-14:30	Break Time	All
	14:30-16:50	e-Government Assessment Tool - e-Gov maturity, prioritization - Share result of e-GAT analysis	NIPA
	16:50-17:00	Q&A	All
Wrap-Up	17:00	Closing	NCC/NIPA

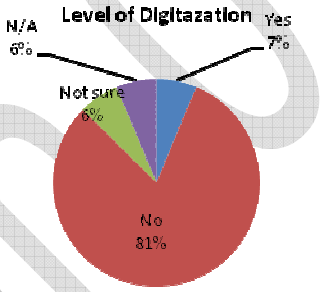
Appendix F. government officer survey analysis

- **Information Management**

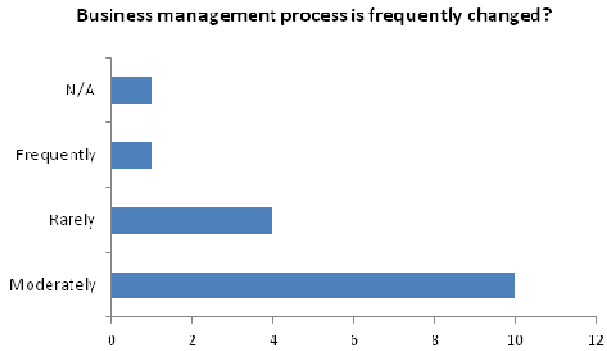


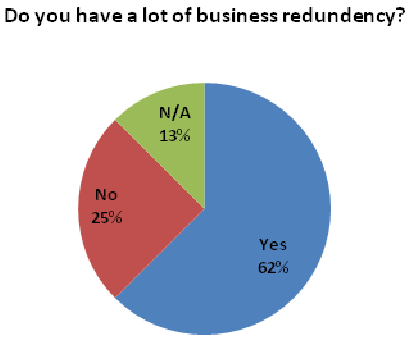


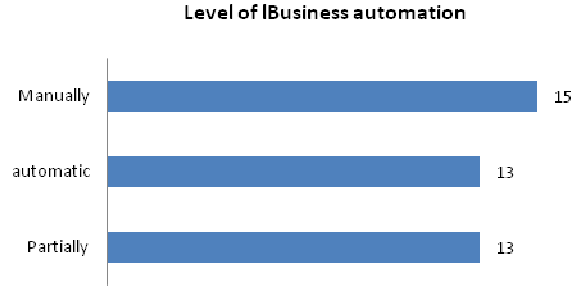




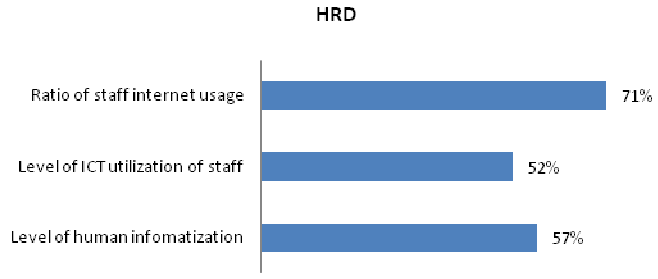
- **Work Process**

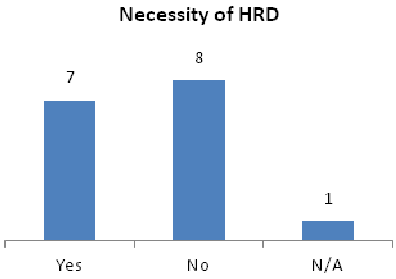




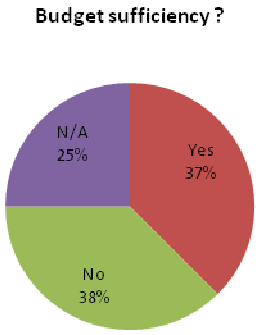


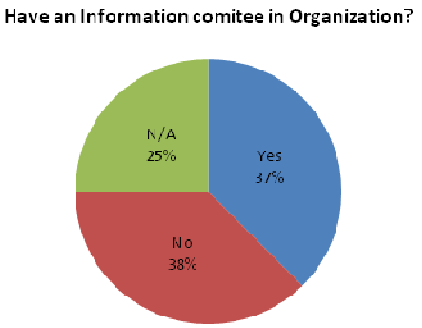
- **HR Development**

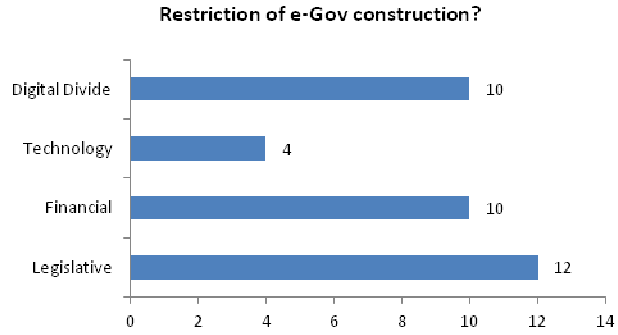




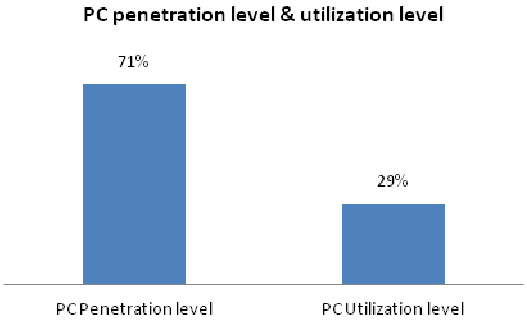
- **ICT Policy**

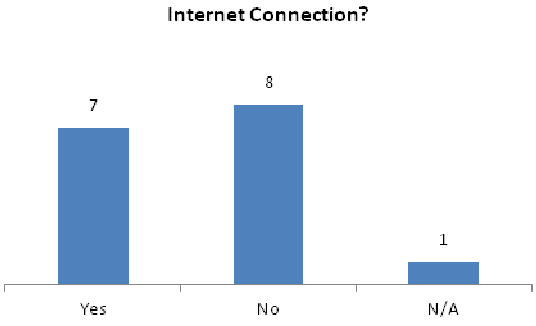


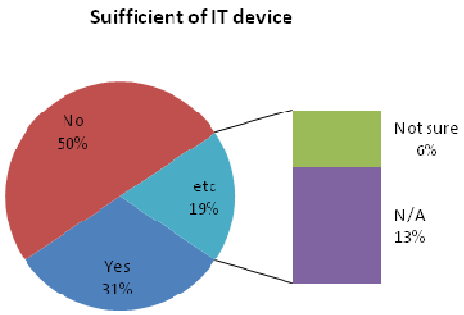


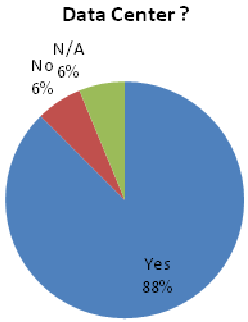


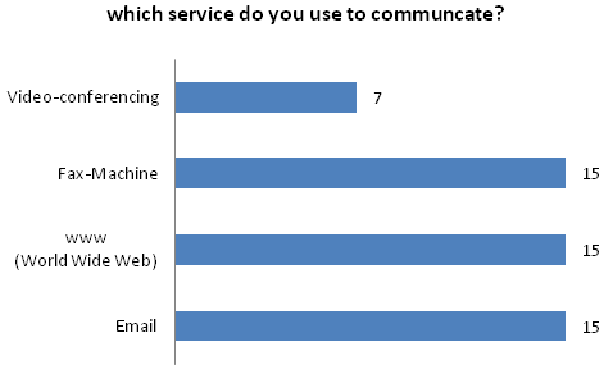
- **Infrastructure**

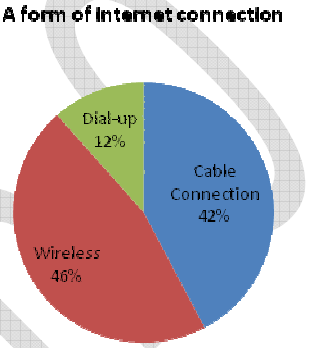


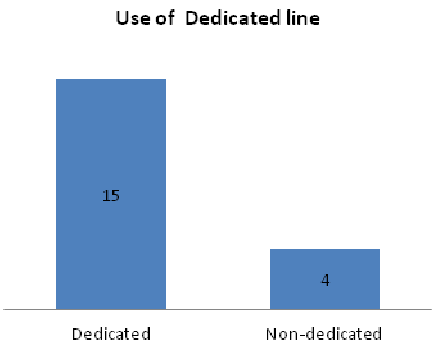


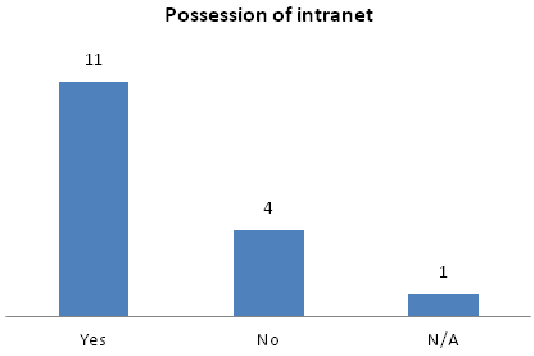




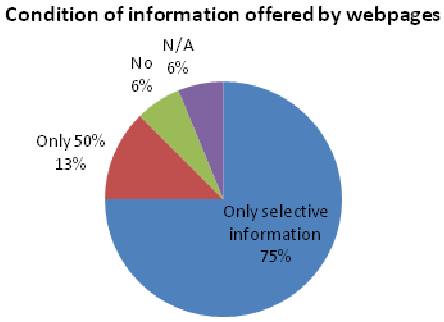


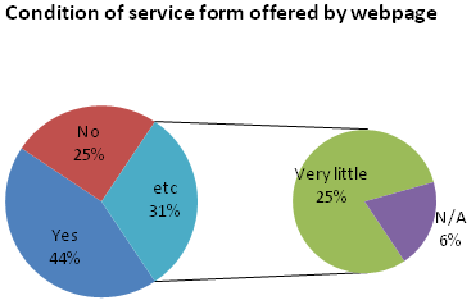


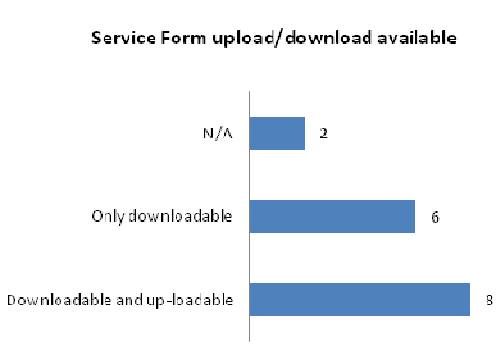


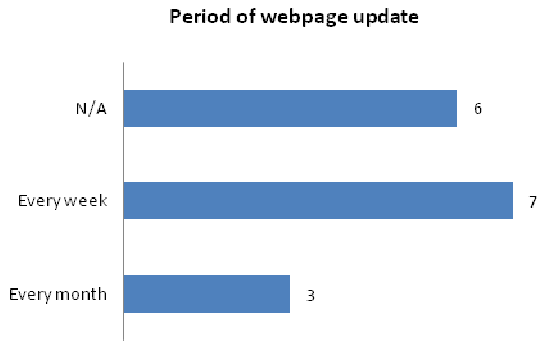


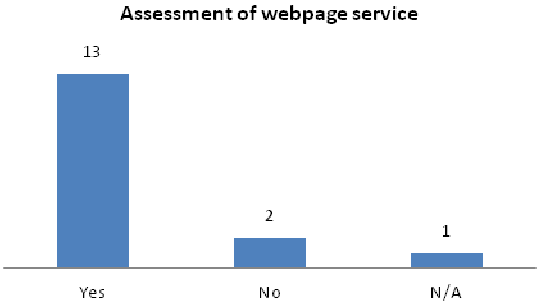
◆ **Webpage Services**

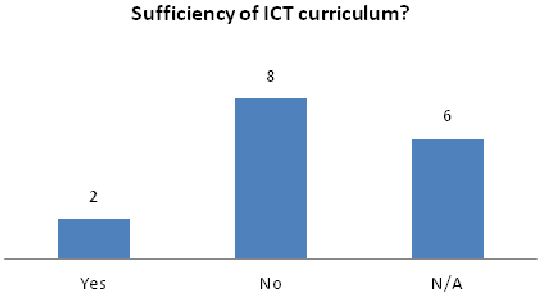




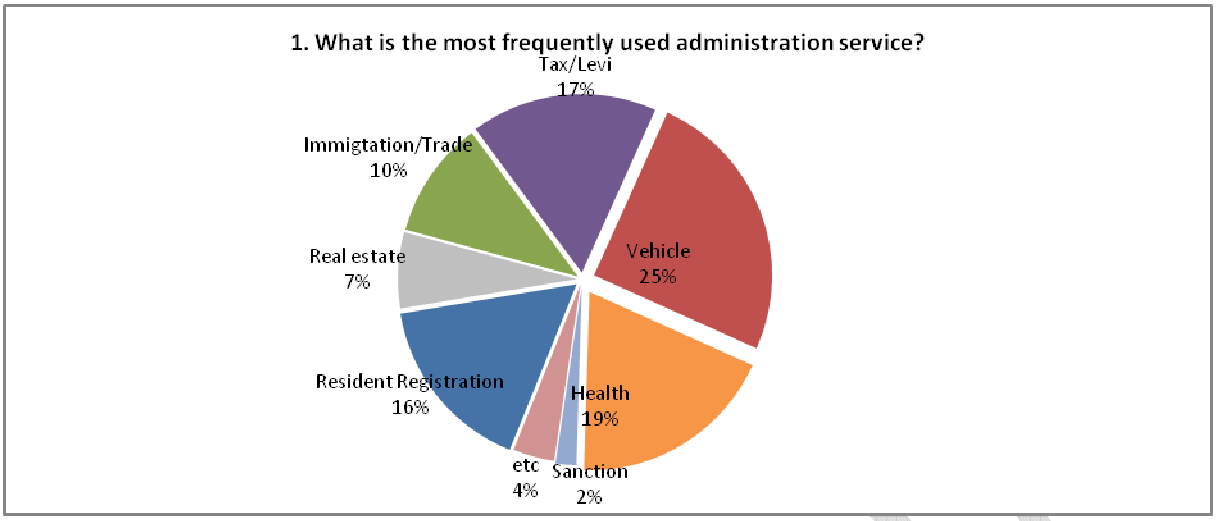

Service Form upload/download available
N/A
2
Only downloadable
6
Downloadable and up-loadable
8

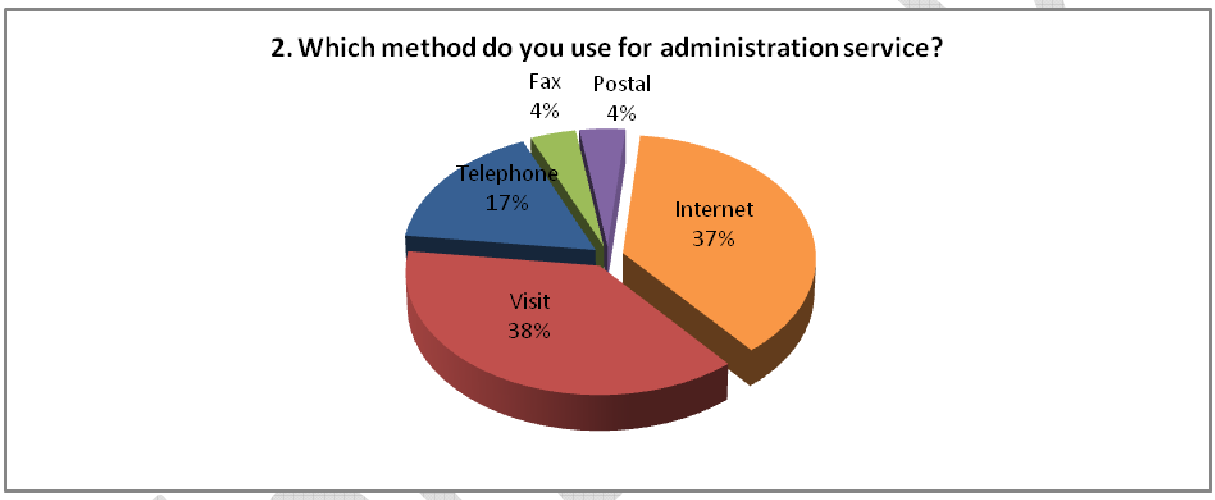

Period of webpage update
N/A
6
Every week
7
Every month
3

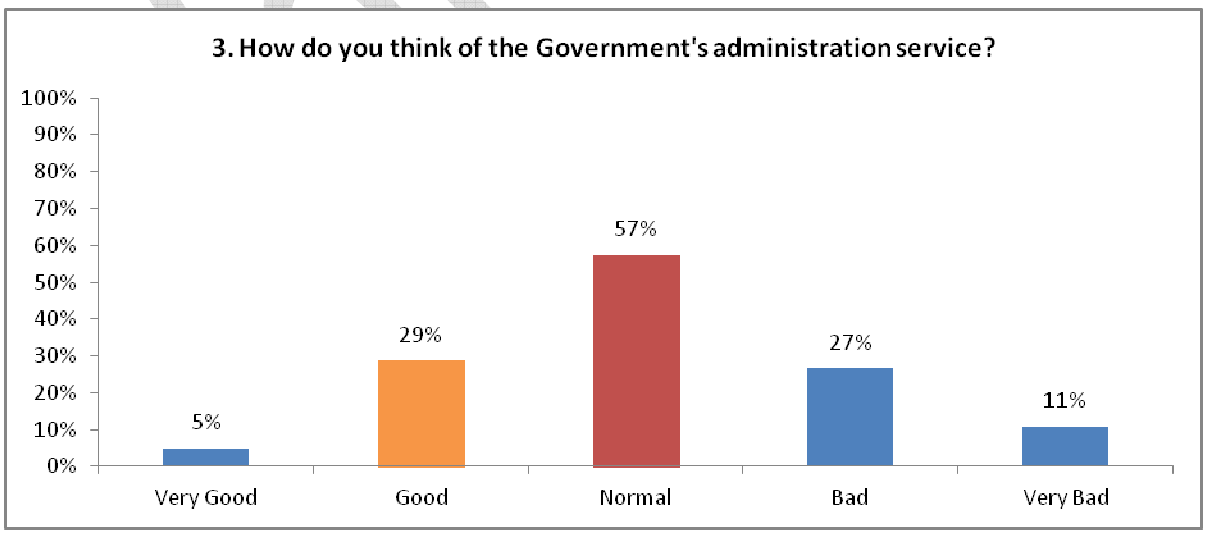

Assessment of webpage service
13
2
1
Yes
No
N/A

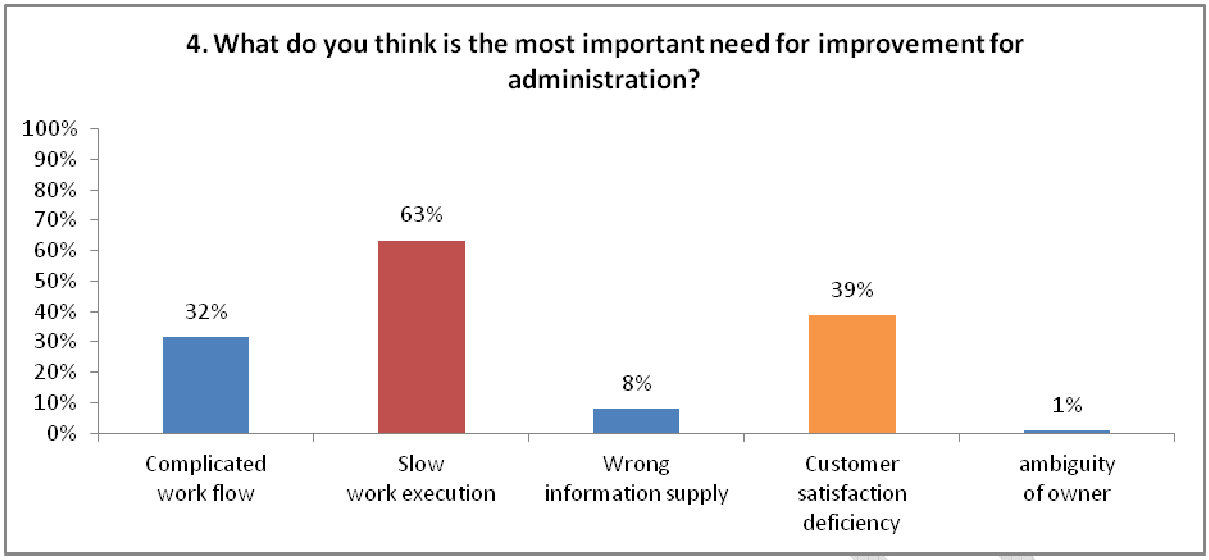

Sufficiency of ICT curriculum?
2
8
6
Yes
No
N/A

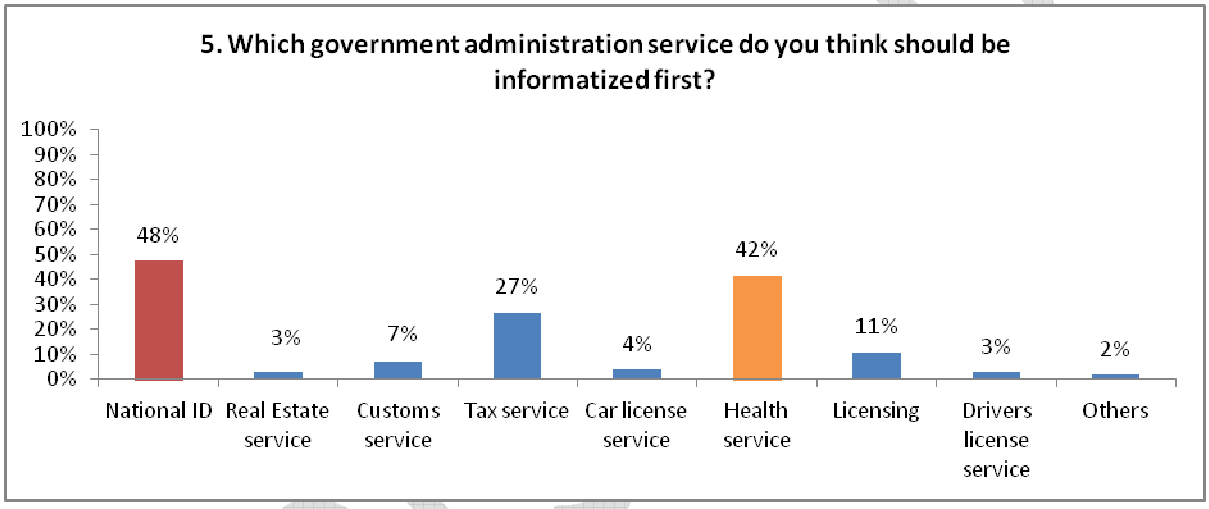
Appendix G. Citizen survey analysis

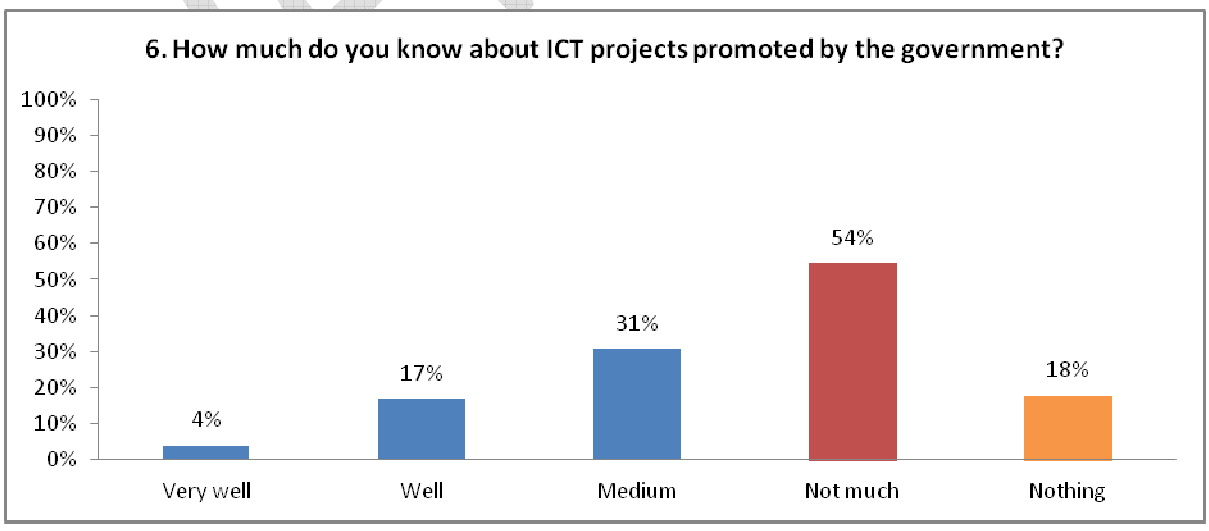


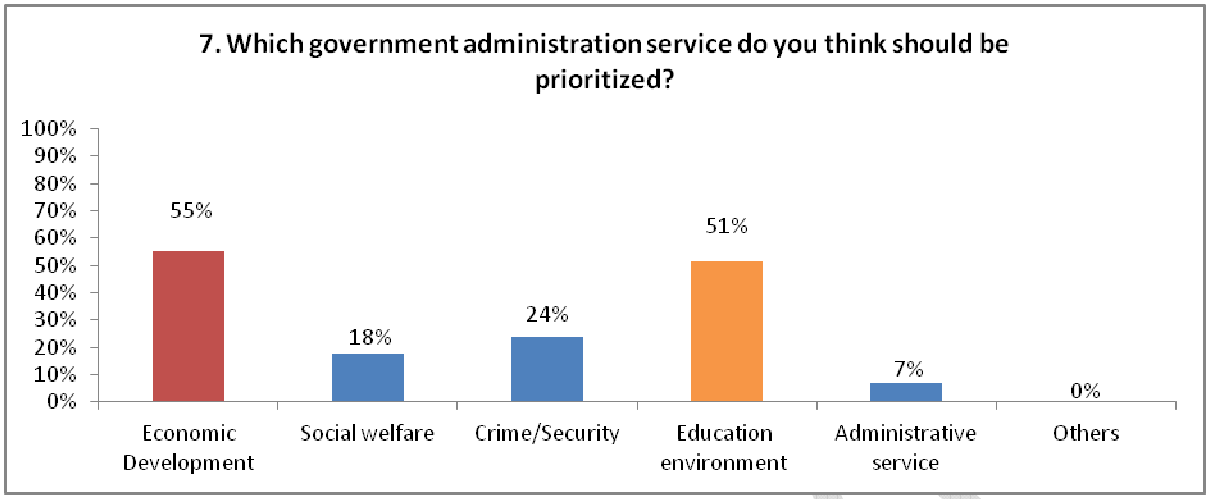


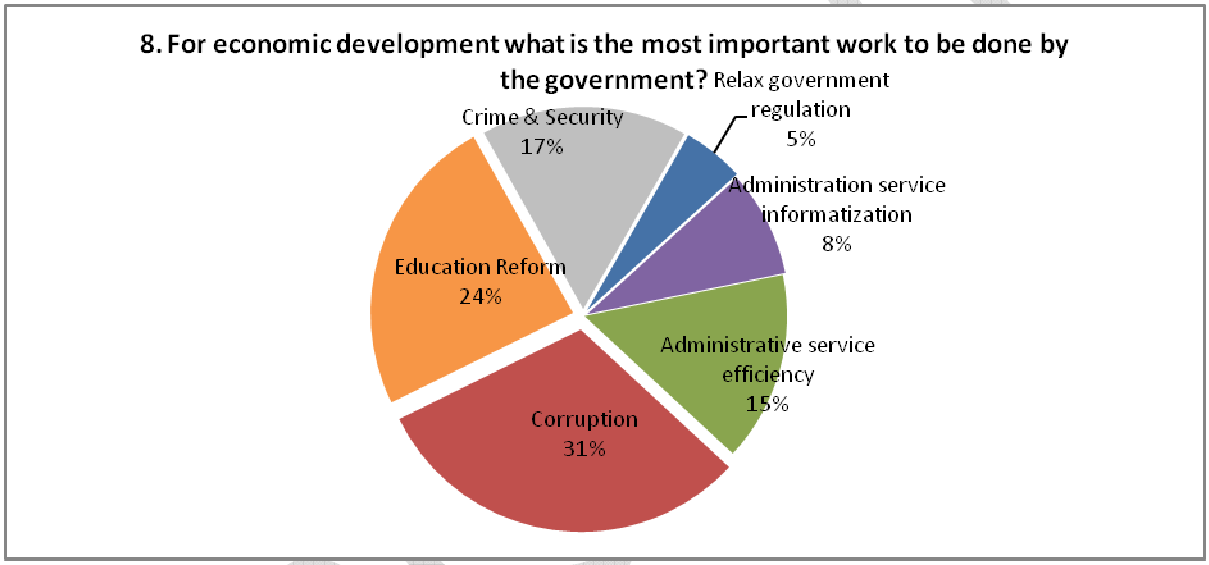



4. What do you think is the most important need for improvement for administration?
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
32%
63%
8%
39%
1%
Complicated work flow
Slow work execution
Wrong information supply
Customer satisfaction deficiency
ambiguity of owner


5. Which government administration service do you think should be informatized first?
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
48%
3%
7%
27%
4%
42%
11%
3%
2%
National ID
Real Estate service
Customs service
Tax service
Car license service
Health service
Licensing
Drivers license service
Others


6. How much do you know about ICT projects promoted by the government?
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
4%
17%
31%
54%
18%
Very well
Well
Medium
Not much
Nothing


7. Which government administration service do you think should be prioritized?
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
55%
18%
24%
51%
7%
0%
Economic Development
Social welfare
Crime/Security
Education environment
Administrative service
Others


8. For economic development what is the most important work to be done by the government?
Relax government regulation 5%
Administration service informatization 8%
Administrative service efficiency 15%
Corruption 31%
Education Reform 24%
Crime & Security 17%

Reference

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[2] http://www.oecd.org

[3] http://www.unpan.org

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[5] http://www.deped.gov.ph/

[6] http://www.doe.gov.ph/

[7] http://www.doh.gov.ph/

[8] http://denr.gov.ph/

[9] http://www.dof.gov.ph/

[10] http://www.dfa.gov.ph

[11] http://www.dilg.gov.ph/

[12] http://www.doj.gov.ph/

[13] http://www.dole.gov.ph/

[14] http://www.dnd.gov.ph/

[15] http://www.dpwh.gov.ph/

[16] http://dost.gov.ph/

[17] http://dswd.gov.ph/

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[22] http://www.congress.gov.ph/

[23] http://sc.judiciary.gov.ph/

[24] http://www.ncc.gov.ph/

[25] http://www.manila.gov.ph/

[26] nipa, IT International Development Cooperation Framework, 2012.4

Abbreviation and Acronym

B2B	Business to Business
B2C	Business to Citizen
B2G	Business to Government
BIR	Bureau of Internal Revenue
BPR	Business Process Reengineering
BTR	Bureau of the TReausry
CDMA	Code Division Multiple Access
CHE	Commission on Higher Education
CIR	Critical Information Requirement
CIO	Chief Information Officer
COMELEC	Commission on Elections
DBM	Department of Budget and Management
DDOS	Distributed Denial of Service
DENR	Department of Environment and National Resources
DILG	Department of Interior and Local Government
DND	Department of National Defense
DOST	Department of Science and Technology
DPWH	Department of Public Works and Highways
DSWD	Department of Social Welfare and Development
DW	Data Warehouse
EA	Enterprise Architecture
G2G	Government to Government
G2B	Government to Business
G2C	Government to Citizen
G4F	Government for Foreigner
GIS	Geographical Information System
GISP	Government Information Systems Plan
GIDC	Government Integrated Data Center
HRD	Human Resource Development
IT	Information Technology

ICT	Information and Communication Technology
ITU	International Telecommunication Union
ID	Identification
IP	Internet Protocol
ISP	Information Strategic Planning
ISSP	Information Systems Strategy Plan
KMS	Knowledge Management System
LAN	Local Area Network
MOU	Memorandum of Understanding
MIS	Management Information System
NAMRIA	National Mapping and Resource Information Authority
NCC	National Computer Center
NIPA	National IT Industry Promotion Agency
NID	National Identification Card
NSO	National Statistics Office
OFW	Overseas Filippino Workers
PDS	Philippine Digital Strategy
PHIC	Philippine Health Insurance Commission
PhilGEPS	Philippine Government E-Procurement System
PKI	Public Key Infrastructure
R&R	Roles and Responsibility
R&D	Research and Development
SOC	Social Overhead Capital
SQL	Structured Query Language
SSS	Social Security System
VPN	Virtual Private Network
WIBRO	Wireless Broadband