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Optimizing ICT Budgets through eGovernment Projects Harmonization

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Abstract

The Philippines has long recognized the importance of information and communication technologies (ICT) in government as evidenced by its strategic IT plans, starting with the National Information Technology Plan (NITP) in 1997, and subsequently the Government Information Systems Plan (GISP) of 2000. More recent was the Philippine Digital Strategy (2011) that described four strategic thrusts, including one pillar on e-government, with the objective of making government more open, transparent and efficient.

However, in terms of governance, it has struggled to find the right structure and strategies to effectively implement these plans. Over the years, the ICT-body has moved from being an office under the Office of the President, to a Commission, and now to an attached agency of the Department of Science and Technology (DOST). At the same time, proposed bills to have a dedicated department for information and communication technologies (DICT) continue to flounder. This has resulted in a government where ICT-projects have become isolated and not interoperable, without a clear architecture and standards to systematically direct ICT projects. In other words, information systems that are supposed to cut-across the bureaucracy, end up becoming redundant infrastructure of disconnected systems.

This paper describes the current strategy of the government called the Medium Term Information Technology Initiative (MITHI), and how the approach driven by the Department of Budget and Management (DBM) and the Information and Communication Technology Office (ICTO) address issues of interoperability within sectors (e.g. health, education, justice), while at the same time make more effective and rational use of I.T. investments in government. It uses data from the ICT Inventory Survey conducted by the ICTO and information from submitted proposals from the MITHI process during the latest budget call in 2013.

INTRODUCTION

The current system of e-government in the Philippines is composed of different systems and restricted-access databases, a government culture of turf wars, and the absence of inter-operability among agencies¹. This description is not far from the state

¹ This was from the presentation of DBM Undersecretary Moya on the 2nd plenary of the MITHI in June 2013.

of e-government in 2000 as described in the GISP, where national offices were described as already having automated clerical functions through word processing and spreadsheets, but had limited scope and functionality, and were seldom integrated with related systems in other government agencies, and hence, failed to provide timely, and accurate decision-making support (NEDA 2000).

In establishing the Medium Term Information Technology Initiative (MITHI), the goal of the current Philippine government is to harmonize all information technology and e-Governance resources, programs and projects for the whole government (see Joint MC 2012-01), and at the same time make more rational use of the funds allocated for e-Government initiatives.

What follows is a brief review of the literature on e-governance and the importance of interoperability, and the current state of the e-governance in the country. Thereafter, it presents the MITHI, and data it has collected in the process of coming up with the e-governance budget for 2014.

Review of related literature

eGovernment is seen to be the advent of ubiquitous information sharing between and within organizations. It is a continuation of government's evolution towards a post-bureaucratic organization. It is a system with less bureaucratic control, and possesses a network empowered through an integrated information structure (Homburg 2008:74). It is hoped that through it, costs could be reduced and public sector performance improved (West 2005).

Inherent in eGovernment is the need to integrate organizational and technical processes of different but interrelated administrative units (Klischewski 2004). As such, it must be approached not only from a technical standards perspective, but also from a more complex functional perspective associated with the organizations involved (Misuraca, et. al. 2011). This requires overcoming many issues including among others, the importance of information integration and interoperability in the conception and deployment of eGovernment projects (Guijarro 2007, Garcia et. al. 2010).

The concept of interoperability refers to "the ability to exchange information and mutually use the information which has been exchanged" (CEC 1991 as cited in Guijaro 2007:2). It involves "the collaboration of various public and private entities in the provision of services... and requires communication between different computational systems" even if they are based on different technologies, suppliers, and platforms (Bonacin, et.al, 2010::19). Hence, the promise of eGovernment cannot be achieved without interrelating organizational and technical functions of different administrative units, and requires cooperation and interoperability between

administrations and their partners. Organizations need to cooperate in order to agree on policies about security, access, ownership and control, among others (Klischewski 2004).

However, because this can also lead to 'loss of power' in terms of control over information systems, resistance to adopting eGovernment arise (Homburg 2008). As such, managing the change is important, given that the capacity to change can also be limited by the need for multiple service delivery systems, bureaucratic fragmentation, budget, groups conflict, media coverage and partisanship (West 2005:30).

State of eGovernment in the Philippines

The Vision of E-Government in the Philippines as stated in the latest master plan is: "a digitally empowered and integrated government that provides responsive and transparent online citizen-centered services for a globally competitive Filipino nation" (ICTO-DOST 2013).

However, compared with its neighbors in Asia like Japan, Korea and Singapore, e-government deployment in the Philippines has been on a lesser scale and the potential of e-government services is far from being fully realized (Sreenivasan & Singh 2009).

A large part of the problem is institutional. The country's poor ranking in e-Government has been attributed to the lack of strong leadership in e-Governance, and poor coordination of efforts among departments and various levels of government (CICT 2011:12). One of the things the 2011 Philippine Digital Strategy (PDS) identified was "to establish, upgrade and improve government ICT infrastructure, systems and ICT related procedures to allow for integrated government operations."—this includes adopting a government interoperability framework, promoting standards, establishing a data center, rationalizing ICT procurement, among others. It also recognized that eGovernment initiatives can only be successfully implemented if "there is high-level leadership and a coordinating entity" (CICT 2011:23).

Philippine ICT Governance

As mentioned earlier, for eGovernance to succeed, guidance is needed to go beyond the technical, and must consider various social and organizational factors (e.g. policy, governance structure, leadership, etc.) (Guijarro 2007, Gil-Garcia et.al. 2010).

In the past 13 years, ICT governance has been in constant flux, with its structure changing under every administration. In the year 2000, then-President Joseph Ejercito Estrada established the Information Technology and E-commerce Council (ITECC) through Executive Order 264. This effectively merged the National Information Technology Council (NITC) with the Electronic Commerce Promotion Council (ECPC)

and was intended to streamline the different ICT-related government agencies and provide a more effective and focused leadership in the implementation of ICT policy.² Subsequently, in January 2004, under the Macapagal-Arroyo administration, a Commission on ICTs (CICT) was created under Executive Order 269. This was meant to be a transitory agency prior to the creation of a Department of Information and Communications Technology (DICT). The CICT was composed of the National Computer Center (NCC), the Telecommunications Office (TELOF), and all other operating units of the Department of Transportation and Communication (DOTC) dealing with communications. It was tasked to serve as the primary policy, planning, coordinating, implementing, regulating and administrative entity of the Government with respect to the ICT sector. With its creation, policies related to ICTs were effectively transferred to it, a function previously done by ITECC. Among others, the CICT then was tasked to promote, develop, and regulate integrated and strategic ICT systems and reliable and cost-efficient communication facilities and services (Alampay 2011).

A year into his term, the current administration of President Benigno Aquino III issued Executive Order 47, on June 23, 2011, which effectively abolished the CICT and transferred it along with its attached agencies to the Department of Science and Technology (DOST).

This effectively abolished the posts of the CICT chairman, and its commissioners, and transferred its functions to a new office under the Department of Science and Technology (DOST) called the Information and Communication Technology Office (ICTO). The ICTO, in turn, was to be headed by an Executive Director with a rank of an Undersecretary (Alampay 2011). Only recently was the ICTO office reorganization plan finalized, with the undersecretary aided by a Deputy Executive Director for e-Government, along with a corps of Chief Information Officers (CIOs) that will be deployed to key national agencies and government units (ICTO-DOST 2013).

Medium-term Information Technology Harmonization Initiative (MITHI)

The new ICT Office (ICTO) has superseded the role previously performed by the National Computer Center (NCC), and later the CICT, in developing e-Government in the Philippines. It is now expected to be the lead in steering e-government initiatives and help reduce system redundancies.

However, governance in the implementation of eGovernment plans requires a systematic process for planning, budgeting, implementation, monitoring and evaluation of government-wide ICT projects, which is difficult to do through one agency alone.

² <http://www.itecc.gov.ph/about.htm>

What complicates these projects is that it often involves system integration, information sharing and interoperability that are also rooted in multi-jurisdictional and non-hierarchical settings in which these projects are carried out (Scholl, et. al. 2012).

Hence, the task requires a broad, inter-departmental mandate. In particular, it requires the collaboration of the Department of Budget and Management (DBM), the National Economic Development Authority (NEDA) and the Information and Communications Technology Office (ICT Office). These then provide it with a technical perspective, integrated with the overall planning perspective of the entire bureaucracy, and the power of the budget to extract compliance. As such, in a commissioned study of e-government in the Philippines, it was recommended that the role and responsibility of a government agency related to a digital government should be clearly stated in terms of securing a budget, human resources, and establishing a national ICT infrastructure, among others (NIPA 2012).

With a similar thought in mind, Joint Memorandum Circular No. 2012-01 created the government-wide Medium-term Information and Communication Technology Harmonization Initiative, or MITHI, for fiscal year 2014-2016. The DBM, ICT Office and the National Economic Development Agency (NEDA) were the convening agencies for this undertaking. MITHI's primary objective is "to harmonize all ICT resources, programs and projects of the whole government."

More specifically, MITHI's objective is to ensure the coherence of ICT programs and projects with each other, while also being consistent with the five Key Result Areas of the current administration: Integrity of the Environment; Inclusive Growth; Poverty Reduction; Peace and Rule of Law; and Good Governance. The rationale behind bringing the three organizations together is consistent with their respective mandates. The DBM is mandated to promote sound, efficient and effective management and utilization of government resources (E.O. 21, series of 1936). New technology like information and communication technologies, for one is very expensive. For as long as agencies maintain multiple delivery systems, service delivery is going to cost more and creates potential for organizational conflict (West, 2005). An example that Undersecretary Richard Moya gave to agencies in explaining the virtues of harmonization is how government maintains multiple data centers, with each requiring not only space, but also additional air-conditioning, people to maintain it etc.³

The ICTO, on the other hand, is mandated to ensure the provision of efficient and effective ICT infrastructure, information systems and resources to support efficient,

³ This was mentioned during the MITHI first plenary sessions held at the Department of Budget and Management on January 15-18, 2013.

effective, transparent and accountable governance, and to support the efficient enforcement of rules and the delivery of accessible public services to the people. It is also mandated to formulate the GISP and administer the eGovernment Fund (EO 47 series of 2011). Lastly, NEDA is responsible for coordinating the formulation of continuing and integrated development plans, policies and programs that are embodied in the Philippine Development Plan (PDP) (EO 230, series of 1987).

The involvement of the DBM in this planning and implementation strategy for eGovernment systems is similar to the role played by the Office of Management and Budget (OMB) in the United States. There, all federal agencies are required to establish an architecture program that integrates a process to select, control and evaluate their IT investments. Based on this, the OMB, which is an executive office of the President of the USA, required in 1997 that an IT architecture be developed and maintained in agencies. This federal enterprise architecture then becomes the mechanism for the OMB to determine duplications and overlaps in project expenditures, including eGovernment initiatives, and take action during the appropriations process in streamlining certain operations (Guijarro 2007).

In the Philippine MITHI model, the mandate of the three convening agencies is operationalized through a steering committee that has the role of coordinating all e-Government initiatives in the medium term (2014-2016). With full responsibility, this working committee will execute and evaluate national ICT policy in order to prevent overlapped projects and conduct national informatization initiatives in an efficient and consistent manner. This initiative is also consistent with trends in central governments worldwide that have begun initiatives to provide comprehensive frameworks to help guide e-Governance initiatives and prevent investments that do not contribute towards interoperability (Klischewski 2004).

What follows next is a presentation of data collected during the MITHI process. These comprise the information collected from the ICT Resources Survey and the proposed plans agencies submitted for funding consideration.

Results of ICT Resources Survey and ICT concept plans

This section will focus on two themes from the survey and plans: 1) Basic ICT resource needs and 2) Common services (at present and planned). The ICT resource survey indicates common features of ICT resources in various agencies (e.g. computer requirements, software, hardware, etc.) and the kinds of applications they provide in the agencies. The concept plans submitted by the agencies also reflect similar concerns, albeit for future projects, as their plans include computer, software and other infrastructure requirement. In this sense, the two complement each other, and the

MITHI process is then iterative in optimizing how resources are allocated based on existing and planned projects.

As such, as part of the budget process, the MITHI required agencies to participate in an ICT resources survey in order to be eligible in obtaining an ICT budget for 2014. The logic behind the survey was to be able to project the ICT requirements of agencies, in terms of the computer and software their employees needed. There were 296 agency submissions obtained through the survey with most coming from national government agencies (NGAs) (see Table 1). Subsequently, there were also 382 project proposals submitted, with the most also coming from NGAs. There were more eGovernment proposals than survey responses because some agencies submitted more than one project for consideration. In fact, state universities and colleges (SUCs) almost had twice the number of proposals compared to the number who participated in the inventory survey. The only type of government organization which submitted less, were government owned and controlled corporations (GOCCs), and this is partly explained by the fact that they have more independence in raising needed revenue to finance their ICT needs, compared with the other government units who are entirely dependent on the national budget.

Table 1: Participation in MITHI

Type of Government unit	ICT Resource Inventory	eGovernment Proposal
National Government Agencies (NGA)	152	186
Government Owned and Controlled Corporations (GOCC)	59	42
State Universities and Colleges (SUC)	76	131
Constitutionally fiscally autonomous government entities (CFAG)	9	23
Total	296	382

Data from MITHI Secretariat (2013)

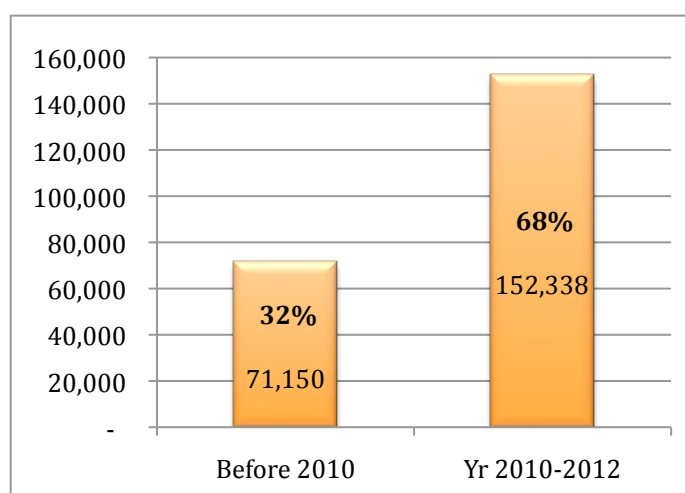


Figure 1: Computer Acquisitions in Government, by Year
(Source: EGMP)

The inventory survey revealed that about a third of government computers (desktops and laptops) were acquired before 2010. Based on the assumption that a computer needs replacement every four

years, then for 2014, the government can expect that at least a third of all employees in government would require a new computer. This would be on top of other costs with respect to computer use, such as maintenance, and software licenses and upgrades and expenses associated with storage and disposal of older computer systems.

Common and Shareable Systems and Potential Savings

This section will discuss common ICT infrastructure and services of government agencies based on two sources: 1) inventory prior to the budget call; and 2) examples of requests based on proposals submitted during the course of the budget calls. This will be broken down in terms of: data centers, internet needs, and actual applications.

From 296 agencies that participated in the MITHI survey, it was found that as far as network infrastructure needs were concerned:

- Almost all agencies that responded are connected through a LAN (94%) within their agency. Information and transactions here are limited to those within the agencies. Also, Ninety-two percent (92%) are connected via the Internet, through an Internet Service Provider (ISP).
- More than a quarter (28%) of the agencies have a wide area connection (WAN) through which extension agencies or off-site offices can still be connected to the main server. A fourth (25%) of the agencies have VPN. VPNs can be used in establishing long-distance and secured network connections at lower costs than a WAN.

This suggests that the internet is becoming an integral infrastructure in the operation of government, and increasingly, there is more networking, at least within agencies.

Table 2 presents the speed of bandwidth distribution in government agencies. These speeds are typical values for various types of connections offered commercially to companies.

Table 2: Speed of Bandwidth Distribution

Speed (Mbps)	Count	% (n= 296)
0.05 to 0.5	3	1%
0.1 to 1.544	17	7%
1.6 to 2.048	32	13%
2.5 to 11	146	61%
12 to 99	41	17%
100 to 500	2	1%
<i>Total:</i>	241	100%

DSL, leased line, and Wi-Fi are the primary modes of connection available in the agencies, and almost two-thirds (61%) of government offices have connections with speed in the range of DSL and leased line connections (from 2.5 to 11 Mbps).

Data Center Requirements

Another ICT infrastructure being requested by more government agencies are data centers. Of the survey respondents, almost half (147 out of 296) already reported having data centers. Table 3 shows the number of servers per government branch and the maintenance distribution.

Table 3: Data Center

GOV'T BRANCH	Total No. of Servers	No. of Data Centers	In-House Maintenance	Outsourced Maintenance
NGA	2,582	62	50	11
SUC	493	33	33	4
GOCC	1,175	34	34	8
OSEC	648	11	11	5
JUD	44	3	3	1
CONS	33	2	2	-
LEG	26	2	2	-
<i>Total</i>	5,001	147	135	29

The survey shows that the number of data centers correlate with the number of servers. As such, national government agencies, state universities and colleges and government owned and controlled corporations (GOCCs) have the most data centers and the highest total number of servers. A large majority of these data centers (92% of 147) have in-house maintenance⁴. This tends to be more expensive, especially for small agencies, since it incurs costs in maintaining connectivity, the facility, trained personnel, and physical security (ICTO-DOST 2013).

Data Archiving

Indicative of how far some agencies are from being truly functional e-Government agencies is how they store their documents and information. Eighty-one per cent of the agencies who responded to the survey (81% of 296) indicated that they had data archiving systems. Information is stored or archived by most agencies through a combination of manual and electronic means (59% of 296). Hard disks (internal and external) and optical disks (e.g. DVDs and CDs) were the main storage devices reportedly used in the agencies for digital files.⁵ However, even as six

⁴ Note also that some sites are a hybrid – a mix of outsourced and in-house resources from the agencies.

⁵ The survey was not able to determine whether agencies have started using cloud services for archiving data.

percent are already primarily electronic in their archiving, almost a fifth (19%) still relied only on manual archives.

Table 4 shows the types of information being archived by the agencies. The most common information archived by agencies were letters, memorandums, communications (68%), publications (65%), photographs (51%) and audio-video records (36%).

Table 4: Information Archived by Agencies (n=296)

Information	Count	%
Letters, Memorandum Orders, Communications, etc.	201	68%
Publications (Annual Report, Statistical Report, etc.)	192	65%
Photographs	151	51%
Audio-Visual Recordings	107	36%
Public documents (Civil Registration Forms, Passports, Land Titles, etc.)	94	32%
Unprocessed/Raw Data	82	28%
Maps	51	17%
Others	42	14%

Security, Disaster Recovery & Back-Up

The survey also revealed that 83% (245 out of 296) had systems for protecting their information and communication resources. Table 5 shows the various security, recovery, and back-up measures that were reported.

Table 5: Security and Recovery Measures

Protection / Measure	Count	%
Back-up power unit	214	72%
Software firewall	163	55%
Subscription to a security service	160	54%
Security policy/Guidelines	139	47%
Physically restricted access to critical ICT equipment	136	46%
Hardware firewall	127	43%
Secure servers	123	42%
Storage of back-up media	97	33%
Off-site back-up	55	19%
Encryption	51	17%
Regular ICT security training of employees	49	17%
Disaster Recovery Plan	41	14%
Digital signatures	18	6%
Others	11	4%

The survey results indicate that security and recovery measures in the agencies are not comprehensive. The only measure that is somewhat common is the use of back-up power (72% of all agencies who responded to the survey), and likely refers to having an Uninterruptible Power Supply (UPS), which may last only for a short period of time. As for other security measures, only 55% utilize a security firewall, only 54% subscribe to a security service and 47% of the agencies have a security policy. In the absence of these, it implies that more than 45% of the agencies who participated in the survey have serious security risks.

Human resource capacity is even more problematic given that security training for ICT personnel is also almost unavailable, with only 17% of the agencies providing trainings for their personnel.

This is also compounded by the fact that there is limited awareness in backing up data, with only (33%) having back-up media and only (19%) have off-site back-ups, which are both essential to support a Disaster Recovery Plan (DRP) that is essential for the continuity of operations in case natural or man-made disasters occur. When such events occur, the current state of government is vulnerable given that only 14% have a DRP in place.

In terms of having more advanced and secure communications, only 17% are using encryption technologies, and only 6% used digital signatures in their operational transactions.

Application Infrastructure

The government agencies' application infrastructure is composed of application systems, database management systems and development platforms.

Application Systems

Application system can be categorized according to front-end system (government-to-citizen) and back-end systems (government-to-government). The following is the distribution of the existing systems in the agencies, based on the survey.

Table 6 shows that front-End Systems only comprise about a quarter (24%) of the systems in government and the rest are back-end systems internal to the government. NGAs and SUCs are the government branches that account for the most number of front-end systems. This implies that these agencies interact directly with citizens and other customers from registration to processing to the end service (e.g. application for a birth certificate, enrolment systems, or payment systems).

Table 6: Existing Application Systems in the Agencies

Module / Functionality	NGA	SUC	GOCC	OSEC	JUD	CONS	LEG	Total	%
Front-End									
Front-End Information System	52	45	16	12	3	1	2	131	24%
Back-End / ERP									
HR and Payroll	51	14	31	14	2	4	1	117	21%
Financial Management	26	11	36	5	1	2	0	81	15%
CRM	23	25	14	15	2	2	0	81	15%
Records Management	38	13	13	9	4	1	2	80	15%
Data Warehousing	14	0	7	5	0	2	0	28	5%
Asset Management	4	0	2	3	0	0	0	9	2%
Inventory Management	3	2	3	1	0	0	0	9	2%
Budget Management	2	1	1	2	0	0	0	6	1%
Purchasing/Procurement	4	1	0	0	0	0	0	5	1%
<i>Total:</i>	217	112	123	66	12	12	5	547	100%

Back-end systems comprise a total of 76% of all the existing systems identified in the survey. Back-end functionalities are generally needed by government offices to process information gathered at the front-end. They can also provide support to internal operations of the agencies (e.g. human resource management, financial management, etc.). Common back-end services indicated in the survey are HR-Payroll systems that are used to manage their personnel databases and salaries. Also common were financial management, CRM and records management, all accounting for around 15% of the 547 systems reported. NGAs, SUCs and GOCCs had the most systems under these categories (ICTO-DOST 2013).

SHARED SYSTEMS AND SERVICES

After the ICT surveys were submitted, agencies submitted ICT project concept plans for consideration for the 2014 budget. In terms of proposals received, many agencies had similar requests consistent with the types of systems also common in the survey. Among the e-government projects commonly requested were systems for personnel/human resource management, payroll, financial management systems, document management and archiving systems, and web portal development, etc.

Furthermore, state universities and colleges (SUCs), which had the second largest number of requests (refer back to Table 1), also had other common requests that were quite particular to their sector. A large number of their requests could be clustered into similar types of higher education ICT services, like interconnectivity, registration systems, knowledge management (KM) systems, grading systems.

There were also other agencies, particularly those in the health sector, whose proposals were directly connected with interoperability of systems (e.g. establishment of registries and middleware for interoperability, etc.).

MITHI STRATEGIES: THE DIGEFUND, IGOV AND SHARED SERVICES

Based on the results of the survey and the submissions received, the MITHI was able to come up with three core strategies to optimize the 2014 budget: 1) establish a digital empowerment fund; 2) provide shared services through IGovPhil; and 3) establishment of clusters to assure interoperability within sectors.

Digital Empowerment Fund

The MITHI established a Digital Empowerment Fund, with the objective of bridging the PC⁶ gap among civil servants within the next three years. For this, the MITHI steering committee worked on the following assumptions:

- 1) for e-Government to work, they have to capacitate its employees, whereby each employee (with a Salary Grade (SG) 4 and above) would require a computer.
- 2) Each computer would require basic productivity software.

The amount allocated for ICT needs for 2014 is shown in Table 7. The total amount allocated of approximately Php1.6B and was inclusive of other electronic devices (e.g. printers, scanners and cameras). DBM's estimated⁷ that an indicative cost of a laptop or personal computer was Php40,000.00 (inclusive of basic software).

Table 7: Digital Empowerment Fund Group Allocation

Government Type	PC Gap	No. of PC approved for budgetary funding	Amount approved (in Phil. Pesos)
NGA	70,371	24,135	459 M
DepEd	156,365	52,122	994 M
SUC	15,305	5,102	97 M
CFAG	7,038	2,346	45 M
TOTAL	249,078	83,704	1,595M

Source: Department of Budget and Management (2013)

In order to 'stretch' the budget and fund more government employee computer requirements, another innovation was to have the agencies lease the computers instead of purchasing it outright. If this is financed through leasing over three years, this would also have an additional 10% financing cost per year and amount to a cost of Php17,333 per employee. Because this can be done thru centralized bulk procurement, the DBM projects that the government could save up to Php1.3B in 3 years based on the 30%

⁶ PCs or personal computers was defined generically by the DBM to be either laptops or desktops.

⁷ as per the advise of the government's Procurement Service

savings of acquisition costs due to centralized procurement. This strategy also removes the burden of maintenance (and its associated costs) from the agency, as this is passed on to the lessor.

Furthermore, the DigEfund strategy has a provision that will allow employees to purchase their computer at the end of the fourth year at 10% of the value of purchase. This amount would then cover the 10% financing cost of the lease. This serves not only as benefit for employees, but also as an incentive for them to take care and maintain their units properly. It also then removes the problem of storage and disposal of older computer units.

Separate funding will also be allocated to government-wide enterprise agreements with Microsoft. By centralizing the acquisition of software licenses for its productivity software, this will not only reduce costs, but also help ascertain that all software are legally acquired and regularly updated.

Integrated Government Philippines (IgovPhil) Project

The second strategy pertains to the development and provision of a common infrastructure to provide for shared services and common needs (e.g. data centers, archiving, internet services, etc). This will be done through the Integrated Government Philippines (iGovPhil) Project. It shall interconnect government agencies for better online coordination and enhanced public service.

iGovPhil will provide the necessary infrastructure and support services and applications needed for e-Governance. The infrastructure includes the government data centers and fiber optic networks to interconnect government offices and provide high-speed communication and sharing of tasks and data. Software includes online security tools, services and applications (see next section) for use by government agencies and citizens (ICTO-DOST 2013). This can not only the critical issues that pertain information and network security where capacity is very limited in many agencies, but also, it can reduce the substantial costs associated with maintenance of these overly redundant infrastructure in many agencies.

Clusters and Shared Services

In the past, various government ICT systems were described as independent silos and yet performed similar tasks with similar information requirements (ICTO-DOST 2013). This was validated by the survey, and subsequently, through a content analysis of the ICT projects requested, a cluster of similar services were easily apparent.

Fortunately, the ICTO already had some of these systems in development with its implementation handled through a lead department. For instance, a national payroll

system and a Human Resource Information System (HRIS) was already in the pipeline. A national archiving system and document management system was also among the services being offered through the ICTO's flagship IGovPhil. As such, many individual requests that included costs for system development were no longer necessary, as this would be subsumed under these national eGovernment projects. Aside from the obvious savings in cost, it will also simplify the problem of interoperability and data integration, since all agencies will be using a uniform platform. The same logic applies to the similar requests for applications in the higher education sector.

As for more mature sectors, whose systems have already developed, the more crucial projects that was prioritized were middleware systems, and health specific registries (e.g. hospital facilities, health terminologies, providers, patients, etc.) that would allow interoperability among already existing systems.

Recapitulation

The system of governance for government ICT projects in the Philippines has been problematic, especially because of its fluid history. eGovernment development has been incoherent, and budget spending for it has likewise been ineffective and inefficient.

MITHI is an attempt to address this problem, by allowing the ICTO and the DBM to have a more collaborative partnership in the approval of the governments' ICT budget. By working closely with DBM, the ICTO is able to have more leverage in enforcing compliance to interoperability, and by working with ICTO, DBM can forestall technical issues ahead of time.

The establishment of a DigEfund will simplify the process of purchasing ICT resources, while at the same time reducing its cost. The provision of a common infrastructure, and standardized front-end and back-end applications, will also help reduce the cost of developing systems, while at the same time providing greater security for many agencies that have limited capacities. Finally, the creation of clusters will help rationalize the establishment of the more systems that are crucial to the interoperability within and between sectors of government. Through these, the 'mithiin' or hope is that the limited resources of government for ICTs will not be wasted and lead to better services.

References

- Alampay, E. (2011) Sector Performance Review for Philippines. LirneAsia and IDRC of Canada.
- Bonacin, R., Melo A.M., Simoni C.A.C and Baranuskas, M.C.C. (2010) Accessibility and interoperability in e-government systems: outlining an inclusive development process in Universal Access Information Society 9:17-33, Springer.
- Commission on Information and Communication Technologies (CICT) (2011) *Philippine Digital Strategy. Transformation 2.0: Digitally Empowered Nation.*
- ICTO-DOST (2013-forthcoming). *E-Government Masterplan*, Department of Science and Technology.
- Gil-Garcia, J.R. Pardo, T.A. and Burke G. B. (2010) Conceptualizing Information Integration in Government. In Scholl, H. (Ed.) *E-Government. Information, Technology, and Transformation*. Advances in Management Information Systems. M.E. Sharpe, Inc. pp. 179-202.
- Guijarro, L. (2007) Interoperability frameworks and enterprise architectures in eGovernment initiatives in Europe and the United States. In *Government Information Quarterly* 24, 89-101
- Homburg, V. (2008) *Understanding E-government. Information Systems in public administration*. Routledge. Taylor & Francis Group.
- Klischewski, R. (2004) Information Integration or Process Integration? How to Achieve Interoperability in Administration. In Trainmuller, R. (Ed.): *Proceedings of EGOV 2004*. Springer, LNCS #3183, Berlin, S. 57-65.
- Misuraca, G.; Alfano, G. and Viscusi, G. (2011) Interoperability Challenges for ICT-enabled Governance: Towards a pan-European Framework. In *Journal of Theoretical and Applied Electronic Commerce Research*, Vol. 6, Issue 1, April 2011, pp 95-111.
- National Economic Development Authority (NEDA) (2000) *Government Information Systems Plan*. 2000. NEDA
- National Economic Development Authority (NEDA). (2011) *Philippine Development Plan 2011-2016*. National Economic Development Authority, Pasig City.
- NIPA (2012) *Electronic Government Development and Strategy- Assessment, Research, Strategy and Implementation Plan*. National IT Promotion Agency (of Korea) and the National Computer Center.
- Scholl, H.J. , Kubicek, H., Cimander, R., and Klischewski, R. 2012. Process integration, information sharing, and system interoperation in government: A comparative case analysis. In *Government Information Quarterly* Vol. 29, Issue 3, July 2012 313-323.
- Sreenivasan, R. and Singh, A. (2009) An overview of regulatory approaches to ICTs in Asia and thoughts on best practices in the future, in Akhtar, S. and Arinto, P. (Eds.) *Digital Review of Asia Pacific 2009-2010*, Orbicom and IDRC, pp. 15-24
- West, D.M. 2005. *Digital Government. Technology and Public Sector Performance*. Princeton University Press.