



E-Government Initiatives of Local Governments in the Philippines

Catherine A. De Castro^{a*} and Errol G. De Castro^b

^aSorsogon State University–Sorsogon City Campus, Sorsogon City, Philippines

^bSorsogon State University–School of Graduate Studies, Sorsogon City, Philippines

Corresponding author. E-mail address: decastro.catherine@sorsu.edu.ph^a, errol.decastro@sorsu.edu.ph^b

Received: 16 August 2021; Revised: 1 November 2021; Accepted: 15 November 2021

Abstract

Information and Communications Technology (ICT) played a vital role in local governance. Modern technologies and ICT applications were used to facilitate government transactions and enhance the delivery and quality of government services. This qualitative study aimed to identify the e-Government initiatives of the local governments of Sorsogon in the Philippines. Key informant survey, documentary analysis, and interviews with Planning and Development Coordinators and IT Focal Persons were conducted to determine the e-Government initiatives along with technology, human resources, linkages, and policies. Findings revealed that the e-Government initiatives of local governments were mostly done in partnership with National Government Agencies (NGAs). Along technology, some of the local governments established websites, developed information systems, and adopted online systems introduced by other government agencies. Along human resources, the e-Government initiatives were mostly seminars and training in collaboration with NGAs. Along linkages, the local governments established a partnership with other government agencies such as the Department of Information and Communications Technology and the City Government of Legazpi. Only a few local governments partnered with the private sector and a higher learning institution for its e-Government program. Along policies, local governments passed resolutions and entered into a memorandum of agreements for their e-Government initiatives. With these, the local governments must sustain their e-Government initiatives and consider taking more steps towards successful e-Governance.

Keywords: E-Government, ICT, Local Government, Philippines, Smart Government

Introduction

Having recognized the significant role of Information and Communications Technology (ICT) in governance, organizations around the world adopted electronic government or e-Government as an instrument to bring economic growth and development. E-Government is one of the prime areas in the Philippines (National Computer Center & National IT Industry Promotion Agency, 2012). Section 3 of Republic Act No. 10844 or the Department of Information and Communications Technology (DICT) Act of 2015 defined e-Government as the use of ICT by the government and the public to enhance access and delivery of government services to bring about efficient, responsive, ethical, accountable and transparent government service.

The United Nations Division for Public Economics and Public Administration & The American Society for Public Administration (2002) introduced and characterized the five stages of e-Government namely: emerging, enhanced, interactive, transactional, and seamless. The emerging stage is characterized by having an official government online presence. The enhanced stage is characterized by an increasing number of government sites with dynamic information. In the interactive stage, the users can download forms, send e-mail to government officials and interact through the web. While for the transactional stage, the users can pay for services and other transactions online. The fifth stage, seamless, is characterized by the full integration of e-services across administrative boundaries.

The early development of e-Government in the Philippines can be traced to the creation of the National Computer Center in 1971 to start automating the processes in the government (Macapagal & Peralta, 2016).



The e-Government development model in the Philippines has three stages as presented in the e-Government Master Plan 2013–2016. The reason why the Philippines has three stages while UN-ASPA has five stages is that the Philippines has a great difference in the level of e-Government among each government agencies and their service levels differ greatly as well (National Computer Center & National IT Industry Promotion Agency, 2012). These stages include (1) re-setup e-Government base, (2) development of the e-Government application system, and (3) enhancement of e-Government service. The first stage aimed to computerize the internal processes of the government and provide service application forms and information on the web. The second stage aimed to provide online integrated services through the connection of government agencies towards citizen-oriented and customized services. In the last stage, the 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 (National Computer Center & National IT Industry Promotion Agency, 2012).

ICT infrastructure, human resource development, budget, organization, laws, and regulations were identified in the e-Government Master Plan of the Philippines as the building blocks of e-Government. With these, mechanisms and strategies were implemented and several programs, projects, policies, and activities were initiated as part of the government's actions towards the realization of e-Government developments in the country. There were already laws promulgated in support of e-Government in the Philippines as mentioned in the updated e-Government Master Plan 2022 (Department of Information and Communications Technology, 2019). Some of these include the DICT Act of 2015, Data Privacy Act of 2012, Ease of Doing Business and Efficient Government Services Act of 2018, and the Free Internet Access in Public Places Act. These paved the way for all government agencies in the country including the Local Government Units (LGUs) to embark on e-Government initiatives. According to Bitonio (2016), the initiatives of government agencies and departments to use ICT tools and applications, Internet and mobile devices to support good governance, strengthen existing relationships, and build new partnerships within civil society, are known as e-Government initiatives. With these, the researchers were motivated to identify the e-Government initiatives of the local governments in Sorsogon to provide an overview of how the local government officials and employees responded to the mandate of the national government to promote and use ICT in local governance. The researchers did not include an investigation on the impact of these initiatives on the citizens as part of the limitations of the study.

Sorsogon is the southernmost province of Luzon. It is located in the Bicol region in the Philippines. It is a second-class province and has two congressional districts (LGU Profile, n.d.). The first congressional district of Sorsogon is composed of five municipalities namely Casiguran, Castilla, Donsol, Magallanes, and Pilar. Sorsogon City, the component city of the province also belongs to the first district. The second district of Sorsogon is composed of nine municipalities namely: Barcelona, Bulan, Bulusan, Gubat, Irosin, Juban, Matnog, Prieto Diaz, and Sta. Magdalena. In general, the province is composed of 14 municipalities, 1 city, and 541 barangays (Philippine Statistics Authority, 2016).

LGUs play significant roles in nation-building. Brillantes & Ruiz (n.d.) mentioned that local governments can create the necessary enabling conditions for better urban planning and management. Being the closest to the grassroots, actions, and efforts in local governments have a direct effect on the local people. Hence, the local governments are expected to be more innovative in providing the services needed by the people. These can be done through the use of ICT in local government. Like other local governments in the country, Sorsogon also embarked on several initiatives in support of the use of ICT in local governance. However, Nguyen (2016)



mentioned that the adoption rate of e-Government initiatives over the world is far from expectations despite huge resources. Certain factors could contribute to the successful implementation of e-Government in local government units. These include technology, human resources, policies, and linkages. In this regard, the researchers identified the e-Government initiatives of local governments along with these variables. In this study, the e-Government initiatives along with technology refer to the Programs, Projects, or Activities (PPAs) of local governments which promoted the use of hardware, software, methods, systems, and other technologies in support of e-Government. The e-Government initiatives along human resources refer to the PPAs of local governments to strengthen or improve the capacity or capability of its human resources in support of e-Government. Meanwhile, the e-Government initiatives along linkages refer to the PPAs of local governments which promoted collaboration with other government or private agencies for e-Government. The e-Government initiatives along policies refer to PPAs of LGUs which promoted the use of ICT through legislative support. It included the Sangguniang Panlungsod or Sangguniang Bayan resolutions which authorized their local chief executives to enter into a memorandum of agreement with other government agencies in the implementation of the ICT projects.

According to Manoharan & Ingrams (2018), there is a need to conduct research to identify challenges on local e-Government implementation and to address the trends and future innovations. The researchers identified the e-Government initiatives of the local governments of Sorsogon in the Philippines along technology, human resources, linkages, and policies and identified the challenges met in the implementation of these initiatives. Through the results of the study, the researchers were able to provide policy recommendations that could serve as a reference for stakeholders and government leaders in the local and national government as they continue their quest for successful e-Governance.

Methods and Materials

Research Design

This qualitative research utilized key informant survey, documentary analysis, and interview to gather the data needed in this study. Key informant surveys and documentary analyses were conducted to identify the e-Government initiatives of the LGUs along with technology, human resources, linkages, and policies. Interviews were conducted to determine the challenges encountered in the implementation of the initiatives.

Key Informants

There was a total of 16 Key Informants (KIs) involved in the study. They were the Planning and Development Coordinators and the ICT designate or ICT focal persons of LGUs. In terms of the position held or designation, 12 KIs or 75% were Planning and Development Coordinators or the Department Heads of the Planning and Development Office while four KIs or 25% of them were the IT focal persons of the LGUs. In terms of sex, 13 KIs or 81% of them were male and three KIs or 19% were female. In terms of the number of years in government service, three KIs or 19% of them have served their institution for one to ten years, nine KIs or 56% of them have rendered 11–20 years of government service, and four KIs or 25% of them have also rendered 21–30 years of service in their institution. With these, the majority of KIs were the Planning and Development Coordinators, male, and have served substantial years of service in their institutions.

Based on Article 6, Section 476 of the Local Government Code of the Philippines, the Planning and Development Coordinators are involved in the formulation, implementation, monitoring, and evaluation of the different developmental Programs, Projects, and Activities (PPAs) in the LGU. Hence, the researchers chose them



as KIs of the study because they have a solid understanding and background of the PPAs of the LGUs. The Local Government Operations Officer of the Department of Interior and Local Government Sorsogon Provincial Office and the Provincial Team Lead of the Department of Information and Communications Technology in Sorsogon also affirmed that these KIs were the people who could provide significant inputs regarding e-Government implementation in the LGUs.

Research Instrument

To gather the pertinent information needed in the study, the researchers made a survey form and prepared an interview guide as the research instruments of the study. These were presented to the experts for validation purposes. The survey form which was used to gather the e-Government initiatives of LGUs was composed of three parts. The first and second parts focused on e-Government initiatives along with technology and human resources. While the third and fourth parts dealt with e-Government initiatives along with linkages and policies, respectively. The form consisted of tables that included the following such as title of the e-Government initiative, purpose or description, date conducted or implemented, name of proponents or implementers, beneficiaries, status, and date completed or remarks. Meanwhile, the interview guide consisted of open-ended questions regarding the importance of e-Government in their respective local governments, the ICT programs, projects, and policies of the LGUs, and the challenges met in the implementation of the e-Government initiatives.

Data Collection and Procedures

Data gathering was conducted from June to September 2018 upon the approval of the Local Chief Executives. The survey form was given to the key informants for them to list down and provide the details on the e-Government initiatives of the LGUs. The researchers personally retrieved the filled-out forms while other KIs sent them to the researcher's email for printing and consolidation. To validate the data provided by KIs, the researchers reviewed the documents, communication letters, memorandum of agreements, Sangguniang Bayan or Sangguniang Panlungsod resolutions, certificates of participation, and the user's manual of the developed programs. Computer hands-on to software or programs of some LGUs were also conducted. The researchers also utilized the internet for validation purposes especially on their use of Facebook and LGU websites. In addition, the DICT Provincial Team Lead was consulted to validate the data regarding the efforts on Tech4Ed and the Free Wi-Fi Project of DICT. The interview was also conducted to verify the data gathered from the survey form and also to know the challenges met by them in the implementation of these initiatives. The data gathered were grouped, summarized, and analyzed based on the parameters set in the study.

Results and Discussion

E-Government Initiatives along Technology

As shown in Table 1, the initiatives such as Facebook Page, LGU Website, Tech4Ed Centers, CBMS, RPTA, ETRACS, GIS, Sanggunian File Management System, and Water Billing System were true to some LGUs. Sorsogon City, Bulusan, Casiguran, Castilla, Donsol, Gubat, Irosin, Magallanes, Prieto Diaz, Sta. Magdalena and the Provincial Government of Sorsogon utilized the social media network called Facebook. The aim of this initiative was to facilitate online interactions with their constituents, disseminate information about their programs and activities, and showcase tourism site through social media.

**Table 1** E-Government Initiatives of LGUs in the Province of Sorsogon along Technology

Initiatives	Local Government Units
Enhanced Tax Revenue and Collection System (ETRACS)	Sorsogon City, Castilla
Real Property Tax Assessment Software (RPTA)	Sorsogon City, Casiguran, Gubat, Pilar
LGU Official Website	Sorsogon City, Bulusan, Castilla, Irosin, Magallanes, Pilar, Sta. Magdalena, Provincial Government of Sorsogon
Geographic Information System	Sorsogon City, Irosin
Sanggunian File Management System	Barcelona, Bulan
Water Billing and Collection System	Juban, Sta. Magdalena
Official Facebook Page	Sorsogon City, Bulusan, Casiguran, Castilla, Donsol, Gubat, Irosin, Magallanes, Prieto Diaz, Sta. Magdalena, Provincial Government of Sorsogon
E-Government Program	Bulan
Installation of Hardware Systems (Structured Cabling, CCTVs, Biometrics and a Centralized Internet Connection)	Castilla
Permits and Licensing System	Gubat
Tricycle Information System	Gubat
Municipal Treasurer's Information System	Gubat
Bids and Awards Committee Information System	Gubat
Checking Information System	Gubat
Property Management Information System	Gubat
SoSorsogon Digital Tourism App	Provincial Government (PG) – Sorsogon
Tech4Ed Centers	Barcelona, Bulusan, Gubat, Irosin, Prieto Diaz, Provincial Government of Sorsogon
Community-based Monitoring System (CBMS)	Sorsogon City, Barcelona, Castilla, Irosin, Matnog, Sta. Magdalena
E-billing and Collection System	Barcelona
Data Entry System	Barcelona
Health Information System	Sorsogon City, Sta. Magdalena
Municipal Fisher Folk Registration System (FishR)	Sta. Magdalena
Municipal Fishing Vessel and Gear Registration System (BoatR)	Sta. Magdalena
E-budgeting System	Sta. Magdalena
Electronic Statement of Receipts and Expenditures or ESRE System	Sta. Magdalena
Rice Crop Manager	Sta. Magdalena

Sorsogon City, Bulusan, Castilla, Irosin, Magallanes, Pilar, Sta. Magdalena and the Provincial Government of Sorsogon embarked on establishing their official websites in collaboration with DICT and private developers. This initiative was considered by the researchers as the most important initiative along technology since this complies with the e-Commerce Law of 2000. The National Computer Center (2002) issued Memorandum Circular No. 2002-01 entitled “Guidelines on Creation of the Agency’s Official Website and Compliance to e-Commerce Law and Stage One of the UN-ASPA Stages of e-Government”. Similarly, the Department of Interior and Local Government (2009) issued the Memorandum Circular No. 2009-119 to all Governors, City and Municipal Mayors, and others concerned for the strict compliance to the e-Commerce Act of 2000 by establishing the LGU’s own electronic online network. However, as of October 2018, only the websites of Sorsogon City, Irosin, Pilar, Sta. Magdalena and Magallanes were available on the Internet. KI disclosed that



Bulusan's website was temporarily inactive due to the non-payment of web hosting services and the absence of a website manager. Meanwhile, Castilla and the Provincial Government of Sorsogon were waiting for DICT's response regarding the LGU's .gov domain for their websites to be accessible online.

The study implies that the lack of funds and absence of a website manager were identified as challenges in the establishment of websites in some local governments. To ensure successful implementation of websites, there must be a fund for web hosting services, upgrade and purchase of computers and other devices. The Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) (2018) emphasized that it is important to integrate the e-Governance budget in the annual budgeting plan of the LGUs to make the projects sustainable. In addition, the availability of personnel that will manage and update the website is also required. Unicef (2014) mentioned that one of the reasons for LGU-San Simon Pampanga's success in their computerization efforts was the creation of a plantilla item for ICT Programmer and the establishment of an independent ICT office.

Barcelona, Bulusan, Gubat, Irosin, Prieto Diaz, and the Provincial Government of Sorsogon established Tech4Ed Centers in collaboration with DICT. The project provides access points for individuals and communities to bridge the digital and education divide in the country (Department of Information and Communications Technology, 2015). LGUs have roles and responsibilities in establishing Tech4Ed Centers as stated in Tech4Ed Center Operations Manual. This implies that without the collective support and efforts of the officials and employees of the LGUs, the implementation of this project will not become successful. Alshehri & Drew (2010) concluded that collaboration and cooperation between all partners is a critical factor in the e-Government implementation process. Hence, partnership and collaboration among government agencies are considered vital in implementing e-Government projects.

Sorsogon City, Barcelona, Castilla, Irosin, Matnog and Sta. Magdalena adopted the Community-Based Monitoring System (CBMS) in collaboration with DILG, the National Anti-Poverty Commission (NAPC), and the CBMS International Network Office of De La Salle University. CBMS aimed to provide policymakers and program implementers with a good information base for tracking the impacts of macroeconomic reforms and policies (Partnership for Economic Policy, n.d.). The LGUs in Sorsogon adopted CBMS since 2012. The commitment and positive response of the LGUs to NGAs' call for the adoption of CBMS can be considered a good starting point in the implementation of e-Government in Sorsogon.

Sorsogon City, Casiguran, Gubat, and Pilar implemented the Real Property Tax Assessment (RPTA) software to fast-track office transactions in the Assessor's Office in partnership with the Department of Finance, Provincial Assessor's Office, World Bank, and some private developers. The RPTA software aids in maintaining the large volume of property records and offers fast and accurate assessment service on all real property taxpayers for tax payment purposes (Infoman, n.d.). This initiative was considered important by the researchers because it aimed to automate the process of computation of real property tax in the LGU.

Sorsogon City and Castilla implemented the Enhanced Tax Revenue and Collection System (ETRACS) in partnership with Legazpi City. ETRACS is a web-based, GIS-ready, LGU taxation application design for the provincial, city, and municipal LGUs (Land and Governance Innovations Consultants, n.d.). In the implementation of ETRACS, some offices will be interconnected via Local Area Networking (LAN). These are the Treasurer's Office, Assessor's Office and the Business Permits and Licensing office. The investment of these LGUs will focus on IT acquisition, training and capability building and cost for technical support for one year. Another requirement



to ensure successful implementation of the system is for the LGU to designate at least two permanent IT-competent personnel for each of the department who will serve as counterpart of the expert from ETRACS Principal LGU. As to the implementation, Sorsogon City is still on-data capture process. This means that each office would have to input the necessary data to make the system fully functional. Based on the interview conducted, the Treasurer's office lacks the manpower to input all the tax ledger data needed in the system thus affecting the full implementation of ETRACS. The absence of human resources in the e-Government system cannot be imagined (National Computer Center & National IT Industry Promotion Agency, 2012). In addition, Furuholt & Wahid (2008) disclosed that the lack of adequately trained personnel is one of main critical failure factors of e-Government implementation. This signifies that enough human resources with relevant IT skills are needed to ensure the successful implementation of e-Government related programs or projects in local governments.

On the other hand, Castilla started a partnership with Legazpi City for ETRACS implementation. The KI shared that they were undergoing training on how to use and manage the system through Legazpi City's technical assistance. As observed, excellence in local governance and service delivery can also be attained through collaboration with other agencies. According to Pardo & Tayi (2007), collaboration is considered an imperative move in information sharing across the boundaries of government agencies. Thus, these efforts of Castilla and Sorsogon City to tie up with Legazpi City can be considered a bold move towards innovations and improvement.

Sorsogon City and Irosin installed Geographic Information System (GIS), a computer-based tool used to create geographic data of the city/municipality. GIS was also used by the Disaster Risk Reduction Office in identifying hazardous areas in the LGUs. Barcelona and Bulan developed Information Systems (IS) to automate archiving of legislative documents such as resolutions and ordinances for easy access and retrieval of said documents. However, KI mentioned that the Sanggunian IS of Barcelona was temporarily under maintenance because there was no person in charge to handle the system. The system's database utilized by Bulan was not yet complete. The Sangguniang Bayan secretary and staff were still updating the list and details of the legislative documents. Hence, the study signifies that the availability of manpower to manage information systems is vital in the implementation of the computerized systems.

On the other hand, Juban and Sta. Magdalena initiated projects along the water system for efficient water billing and collection. Juban partnered with Sorsogon State College in developing said system. The implementation was through the initiative of the LGU. The KI mentioned that initial steps were already made by Sta. Magdalena and continuously exert effort so that same system could be implemented. Bulan also collaborated with Sorsogon State College for its e-Government program. According to KI, the adoption of the e-Government system was included in their Executive and Legislative Agenda (ELA) for 2016-2019. However, there was no fund appropriation for the year 2018 so there was no bold move yet from the LGU at the moment. But initial plans were already set to ensure that appropriate funds will be provided in the next fiscal year so that the required hardware and software will be purchased. This implies that lack of funding was one of the main constraints in the implementation of the e-Government program in Bulan. Khanh (2014) affirmed that funding is a factor that promotes the success of e-Government. On the positive side, this initiative can be considered a jumpstart to integrate e-Government in service delivery because LGU officials of Bulan showed appreciation for e-Government as seen in their approved resolutions and inclusion of e-Governance in their ELA.

Castilla embarked on the installation of hardware systems through the following activities: structured cabling to implement LAN, installation of CCTVs, biometrics system, and centralized internet connection. These initiatives



were implemented by Mayor's Office through the LGU's IT unit. The said unit was composed of two employees who were both skilled and can provide technical assistance. One of them was the head of the said unit but both were graduates of computer science program. The result implies that for e-Government projects to be realized in the LGUs, there must be employees who have the knowledge and skills both in software and hardware systems and have the required training to implement IS in the office. Sali (2011) pointed out that a range of skills and competencies will need to be developed in public-sector organizations in order to properly implement and manage e-Government.

The study also revealed that the Municipality of Gubat developed the following IS: permits and licensing system, tricycle IS, municipal treasurer's office IS, bids and awards committee IS, checking IS, property management IS, and real property tax IS. These systems were implemented in the different offices of the LGU in coordination with the Mayor's Office. Said systems were developed by a permanent employee of said LGU whose position was supply officer but has a passion for IT and has obtained relevant IT training and seminars. He was also the assigned IT Focal person of the LGU. Unlike other LGUs, Gubat has an employee that possesses the knowledge and skills in computer programming and in developing information systems. The finding implies that LGUs would have the competitive advantage to implement e-Government if they have in-house developers of systems. Cohen & Eimicke (2003) revealed that one of the obstacles to e-Government is having enough in-house management capacity to manage e-Government functions. This means that if LGUs have programmers in the office, it would be easier to automate manual processes and enhance service delivery.

The Provincial Government of Sorsogon collaborated with SMART Communications Inc. for its SoSorsogon Digital Tourism App project which aimed to promote tourism utilizing ICT as a tool. The private sector offers collaboration with government entities to be of service to them as ICT hardware suppliers and service providers (Martin, Cabo, & Nicolas, 2009). This signifies that collaboration with private entities is also necessary for implementing ICT-related projects and activities.

On the other hand, it was also revealed in this study that the LGUs in Sorsogon adopted other systems initiated by other NGAs. Barcelona adopted the eBilling and Collection System of the Government Services Insurance System and the Data Entry System of Pag-Ibig Fund. Sorsogon City and Sta. Magdalena adopted the Health IS of the Department of Health. Sta. Magdalena adopted several systems of NGAs such as Municipal Fisher Folk Registration System and Municipal Fishing Vessel and Gear Registration (BoatR) of the Bureau of Fisheries and Aquatic Resources, eBudgeting System of Department of Budget and Management, Electronic Statement of Receipts and Expenditures (ESRE) of Bureau of Local Government Finance and Rice Crop Manager of Department of Agriculture-Agricultural Training Institute. According to the Organization for Economic Co-operation and Development (OECD) (n.d.), seamless government service requires different agencies to work closely together. This signifies that government agencies particularly LGUs need to actively participate and work closely with NGAs in implementing e-Government. Thus, LGUs in the province are encouraged to strengthen partnership with NGAs and support their programs to promote the use of ICT in local governance.

E-Government Initiatives of LGUs along Human Resources

As shown in Table 2, Barcelona, Bulusan, Donsol, Gubat, Prieto Diaz, and the Provincial Government of Sorsogon participated in the Tech4Ed Center Manager Training in collaboration with DICT to develop the skills of LGU IT personnel or center manager in managing and implementing the day-to-day operations of the center.



Castilla, Prieto Diaz and Sta. Magdalena participated in the e-budget Seminar of the DBM. It aimed to provide the participants with some updates on the electronic budget system.

Table 2 E-Government Initiatives of LGUs in the Province of Sorsogon along Human Resources

Initiatives	Local Government Units
Training on the Use of Geographic Information System (GIS)	Sorsogon City
Training on the Use of Community-based Management System (CBMS)	Sorsogon City
Tech4Ed Center Manager Training	Barcelona, Bulan, Donsol, Gubat, Prieto Diaz, Provincial Government of Sorsogon
Online Business Process Licensing System (BPLS) Seminar	Castilla, Gubat
E-Budget Seminar	Castilla, Prieto Diaz, Sta. Magdalena
Digital Literacy Training	Castilla, Provincial Government of Sorsogon
Training on the Use of Microsoft Excel	Sorsogon City
Summit on the Role of e-Governance in Local Legislation	Bulan
Training on the Use of LGU Website	Bulusan
Knowledge Journey on e-Governance and ICT Utilization in Office Processes	Bulusan
Information Technology (IT) Training for OFW, their Dependents and Employees	Magallanes
Electronic Statements of Receipts and Expenditures (ESRE) Roll Out Training	Sta. Magdalena
Online Peace and Order and Public Safety (POPS) Plan Workshop	Castilla
Freedom of Information (FOI) Seminar	Castilla
Digitized Local Road Development Plan Workshop	Castilla
Tech Savvy Civil Servants	Prieto Diaz
Capacity Building on Skills Registry	Prieto Diaz
Digital Strategy Summit	Matnog
Hiring of IT Experts and Staff	Castilla, Matnog
Creation of IT Unit	Castilla
Creation of ICT Council	PG-Sorsogon

Castilla sent participants to different training and seminars in coordination with NGAs. These included Digital Literacy Training with DICT, Online Peace and Order Plan Seminar-Workshop with DILG, Freedom of Information Seminar of PCOO, and Digitized Local Road Development Plan Workshop of DILG. Magallanes sent participants to the IT Training for OFW, their Dependents, and Employees in collaboration with Overseas Workers Welfare Agency. Matnog sent participants to the Digital Strategy Summit of DICT. Employees from Prieto Diaz participated in the Tech Savvy Civil Servant Training of the Civil Service Commission. A Capacity Building on Skills Registry of the Department of Labor and Employment was also attended by selected employees of said LGU. The Municipality of Sta. Magdalena also sent participants to ESRE Roll-Out Training of the Bureau of Local Government Finance.

The most significant initiatives along human resources were the hiring of IT experts, creation of the IT Unit and ICT council because all of these were geared towards having a core group of human resources who will spearhead the ICT developments in the LGUs. Specifically, Castilla hired IT skilled employees and created an IT unit to help the LGU in implementing e-Government related projects or activities. The Provincial Government of Sorsogon initiated the creation of the ICT Council in collaboration with DICT. The ICT Council of the province is composed of members from the academe, NGAs, the provincial government unit of Sorsogon, business sectors,



and at least two representatives from non-government organizations. It is being chaired by the Governor and co-chaired by an IT expert from The Lewis College in Sorsogon.

Based on the results, the study revealed that the e-Government initiatives of LGUs along human resources were mostly seminars and training in collaboration with NGAs. According to Heeks (2001), e-Government relies heavily on competent public sector staff. Sharma & Gupta (2003) affirmed that e-Government system can be implemented successfully if qualified personnel are available to take the lead in the development and implementation of e-Government system. These efforts of LGUs to send employees as participants in the training sponsored by national agencies are a good start in the implementation of e-Government.

E-Government Initiatives along Linkages

This study revealed that the e-Government initiative on the Free Wi-Fi in Public Places (FWPP) Project of DICT was common to local governments as presented in Table 3. All LGUs have existing Memorandum of Agreement (MOA) with DICT in the implementation of FWPP. The active collaboration of LGUs and their positive response to DICT's projects show the commitment of local governments to better services through the utilization of ICT for developments in the Province of Sorsogon.

Table 3 E-Government Initiatives of LGUs in the Province of Sorsogon along Linkages

Initiatives	Local Government Units
MOA with City Government of Legaspi to Implement ETRACS	Castilla, Pilar
MOA with DICT on the Establishment of Tech4Ed	Barcelona, Bulusan, Donsol, Gubat, Irosin, Prieto Diaz, Provincial Government of Sorsogon
MOA with DICT on the Implementation of Free Wi-Fi Project	Sorsogon City, Barcelona, Bulan, Bulusan, Casiguran, Castilla, Donsol, Gubat, Irosin, Juban, Magallanes, Matnog, Pilar, Prieto Diaz, Sta. Magdalena, Provincial Government of Sorsogon
MOA with Smart Communications for the SoSorsogon Digital Tourism App	Provincial Government of Sorsogon
Contract of Service with the iCreative Services for the Establishment of Website	Bulusan
MOA with SSC for e-Governance Program	Bulan

The FWPP project according to DICT (Department of Information and Communications Technology, 2016) aimed to make internet access available for all Filipinos to hasten economic, social, and educational opportunities by providing free broadband internet access to municipalities and cities nationwide. However, DOST-ICTO in 2016, revealed that FWPP project experienced significant delays in its deployment due to low turnout of bidders from the private sector. As to the implementation of the said project in the province, the Provincial Team Lead of DICT in Sorsogon mentioned that there was a delay in deployment because there was no bidder and that the winning contractors experienced difficulties in providing ICT infrastructure. When this study was conducted, only Gubat and Sta. Magdalena have live sites in Municipal Plaza of Gubat and Municipal Plaza of Santa Magdalena respectively.

Barcelona, Bulusan, Donsol, Gubat, Irosin, Prieto Diaz, and PG-Sorsogon collaborated with DICT in establishing Tech4Ed Centers. Sorsogon City, Castilla, and Pilar partnered with the City Government of Legaspi through the signed MOA to implement the Enhanced Tax Revenue Assessment and Collection System. According to Alshehri & Drew (2010), collaboration and cooperation at local, regional, and national levels are important



elements in e-Government. Hence, the efforts of said LGUs in establishing a partnership with other government agencies would promote developments in local governance.

Bulusan and the Provincial Government of Sorsogon forged a partnership with private sectors in coming up with e-Government projects. The Provincial Government of Sorsogon signed a MOA with Smart Communications for the SoSorsogon Digital Tourism App while Bulusan signed a contract of service with iCreative Services for the establishment of the LGU website. The efforts of the Provincial Government of Sorsogon and Bulusan in coming up with projects through partnership with the private sector can be considered a good take-off point to successfully implement e-Government projects in said LGUs. Avis (2016) mentioned that the private sector is a key stakeholder in both urban and economic development. He also emphasized that in order to foster partnerships, the municipalities need to build relations with local and foreign private sectors by involving them in strategic planning processes. Likewise, Moatshe (2014) disclosed that the lack of public-private partnership was one of the barriers for e-Government projects. Hence, considering the important role of private sectors in development, the LGUs in the province may consider strengthening partnership with private sectors for their e-Government projects.

Bulan forged a partnership with the academe sector through a MOA with the Extension Services Office of Sorsogon State College (SSC) to develop and maintain e-Government programs and frontline service application systems. The faculty and students of the ICT Department in SSC-Bulan Campus helped in the development and implementation of Bulan's e-Government program. State Universities and Colleges (SUCs) have roles to play in the successful implementation of e-Government programs and activities. Through the extension services of SUCs, technical assistance may be provided to LGUs in developing plans and programs, particularly along with e-Government. Hence, it is also important for the LGUs to establish a partnership with higher education institutions for their e-Government projects.

E-Government Initiatives of LGUs along Policies

Table 4 presents the e-Government initiatives of the local governments along with policies. Except for five (5) resolutions, all the other Sangguniang Bayan (SB) resolutions gave their LGUs through their Local Chief Executives (LCEs) the authority to enter into Memorandum of Agreement (MOA) with DICT for the implementation of the Free Wi-Fi in Public Places (FWPP) Project. These five (5) resolutions were the following: Sangguniang Panlungsod (SP) Resolution No. 79, s. 2016 of Sorsogon City; SB Resolution No. 211, s. 2017, SB Resolution No. 217 s. 2017 and SB Resolution No. 146, s. 2018 of the Municipality of Bulan; and SB Resolution No. 174, s. 2016 of the Municipality of Donsol.

SP Resolution No. 079, Series of 2016 authorized Hon. Mayor Sally A. Lee, of Sorsogon City to enter into MOA with Hon. Mayor Noel E. Rosal, of Legazpi City on the implementation of ETRACS in the City of Sorsogon. SB Resolution No. 211 s. 2017 authorized the LCE of Bulan to enter into MOA with Sorsogon State College on the development and maintenance of e-Government portal and frontline service application system. SB resolution No. 217, series of 2017 identified the e-Governance project for inclusion in the annual investment program and allotted Php 1,500,000.00 for its implementation. Lastly, SB Resolution No. 146 series of 2018 authorized the LCE of Bulan and the Municipal Treasurer to open a Trust Fund for the implementation of the e-Government Program. While, SB Resolution No. 174, s. 2016 authorized Mayor Josephine Alcantara-Cruz to enter into MOA with DICT in establishing Tech4Ed Centers in the Municipality of Donsol.

**Table 4** E-Government Initiatives of LGUs in the Province of Sorsogon along Policies

Initiatives	Local Government Units
SP Resolution No. 79, s. 2016	Sorsogon City
SP Resolution No. 117, s. 2017	Sorsogon City
SB Resolution No. 14, s. 2016	Barcelona
SB Resolution No. 34, s. 2017	Bulan
SB Resolution No. 211, s. 2017	Bulan
SB Resolution No. 217, s. 2017	Bulan
SB Resolution No. 146, s. 2018	Bulan
SB Resolution No. 10-2016	Castilla
SB Resolution No. 276, s. 2015	Donsol
SB Resolution No. 174, s. 2016	Donsol
SB Resolution No. 36, s. 2016	Gubat
SB Resolution No. 119-2017	Irosin
SB Resolution No. 81, s. 2016	Juban
SB Resolution No. 17, s. 2017	Magallanes
SB Resolution No. 3, s. 2016	Pilar
SB Resolution No. 1, s. 2016	Prieto Diaz
SB Resolution No. 12, s. 2016	Sta. Magdalena

The results imply that legislative support is needed for e-Government to be implemented in LGUs. A policy within the local government level must be available to ensure compliance and implementation of e-Government initiatives. Gichoya (2005) revealed that ICT policy was one of the factors that prevent advancement and restrict successful implementation and sustainability of e-Government projects. With this, the researchers encourage the LGU officials in the province to consider formulating policies that will promote utilization of ICT in local governance.

Conclusion and Suggestions

Based on the findings, the researchers conclude that the local governments in Sorsogon had embarked on several e-Government initiatives in collaboration with other government agencies. Specifically, the e-Government initiatives along technology were mostly done in partnership with national government agencies. However, only a few of them were related to the automation of processes. Among the e-Government initiatives on technology, the Enhanced Tax Revenue and Collection System and the Real Property Tax Assessment Software can be considered significant because they have a direct impact on the processes of the local government units. When effectively implemented, these initiatives will improve the property and business assessment and collection procedures and other frontline services. Also, only a few local government units embarked on establishing their official websites. Along human resources, the e-Government initiatives were mostly seminars and training in collaboration with national government agencies. The establishment of the IT Unit by the Municipality of Castilla and the creation of the ICT Council by the Provincial Government of Sorsogon is considered significant efforts along human resources. Along linkages, the local governments established a partnership with government agencies such as the Department of Information and Communications Technology and the City Government of Legazpi in implementing projects such as the Free Wi-Fi Internet Access in Public Places Project (FWPP), the Technology Empowerment for Education, Employment, Entrepreneurs, and Economic Development (Tech4ED) Program, and the Enhanced Tax



Revenue and Collection System (ETRACS). Few local governments partnered with higher learning institution and private sectors for their e-Government initiatives. Along policies, the local governments passed resolutions for their e-Government initiatives. The effort of the Municipality of Bulan to include the e-Government program in the executive and legislative agenda and to provide a budget for its implementation is a manifestation of support to the e-Government development of the country.

The e-Government initiatives of the local governments in Sorsogon are a good start in promoting ICT in governance. The efforts of the local government officials to capacitate their employees through training and seminars, to partner with other agencies, and to pass resolutions in support of e-Government are also noteworthy. However, the challenges to e-Government implementation must also be acknowledged and given appropriate action. Hence, to sustain e-Government initiatives and ensure their successful implementation, the local governments may consider the following recommendations: (a) Provide budget for e-Government by integrating it in the annual budgeting plan of the LGUs for their projects to become sustainable, (b) Create plantilla positions for ICT personnel who will handle website services, computerization and other e-Government systems and projects of LGUs, (c) Capacitate more employees to develop the skills needed to implement e-Government. LGUs may also conduct more ICT In-house training or seminars that will serve as an avenue where all employees will have the opportunity to attend and be trained, (d) Embark both on in-house development and outsourcing of e-Government programs and applications, (e) Remain participative and supportive to the projects of the national government specifically on the use of ICT in governance, (f) Strengthen collaboration with other local governments, private sectors and higher education institutions in implementing e-Government related projects and activities, and (g) Benchmark with other LGUs to adapt their best practices on e-Government. Lastly, since the ultimate goal of e-Government is to enhance access and delivery of government services and to make the public happy through ICT, there is also a need to conduct a study on how these initiatives provided an impact to the citizens and on local government service delivery. This will be the future research direction of this study.

Acknowledgments

The researchers would like to extend their sincerest gratitude to all the Local Chief Executives of the local governments of Sorsogon for allowing them to conduct the study and gather the information needed. Special thanks are also accorded to the key informants for providing the much-needed data, to the Provincial Team Lead of DICT in Sorsogon and to the Local Government Operations Officer of DILG Sorsogon Provincial Office for providing additional insights on the e-Government in the province. Warmest thanks are also given to the panel of experts headed by the Director for Research and Extension Services of Sorsogon State University.

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