

ICT DIAGNOSIS IN MUNICIPAL GOVERNMENTS OF PANAMA CASE: MUNET II

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Abstract:

The use of the Information and Communication Technology (ICT) in the governments has shown that it can become a strategic implementation to improve the public management efficiency, transparency and citizenship participation. In this sense, the Organization of American States (OAS) has developed an Electronic Government program for municipal governments in Latin America called "Municipios Eficientes y Transparentes". In Panama were selected 28 municipalities for it implementation. As a first step, was necessary to develop ICT government implementation diagnosis, which has found shortcomings related with ICT use and appropriations. This article presents such ICT diagnosis.

Key words: ICT, Electronic Government, MuNet, Government Modernization, Local Government.

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DIAGNÓSTICO DE LAS TIC EN GOBIERNOS MUNICIPALES DE PANAMÁ CASO: MUNTE II

Resumen:

El uso de las Tecnologías de la Información y las Comunicaciones (TIC) en los gobiernos ha demostrado ser una estrategia para mejorar la eficiencia, la transparencia y la participación ciudadana. Por tanto, la Organización de Estados Americanos (OEA) desarrolló un programa de Gobierno Electrónico denominado Municipios Eficientes y Transparentes, orientado a gobiernos municipales de Latinoamérica. En Panamá fueron seleccionados 28 municipios para su implementación. Como primera medida, fue necesario desarrollar un diagnóstico sobre implementación de las TIC en los gobiernos municipales, que indagó factores relacionados con el uso y apropiación de las TIC. Este artículo presenta el diagnóstico mencionado.

Palabras clave: TIC, Gobierno Electrónico, MuNet, Modernización del Gobierno, Gobierno Local.

DIAGNÓSTICO TIC EM GOVERNOS MUNICIPAIS DO PANAMÁ CASO: MUNET II

Resumo:

O uso das Tecnologias da Informação e das Comunicações (TIC) nos governos tem demonstrado ser uma estratégia para melhorar a eficiência, a transparência e a participação dos cidadãos. Portanto, a Organização de Estados Americanos (OEA) desenvolveu um programa de Governo Eletrónico denominado Municípios Eficientes e Transparentes orientados a governos municipais de Latino América. Em Panamá foram selecionados 28 municípios para sua execução e como primeira medida, foi necessária desenvolver um diagnóstico sobre a execução das TIC nos governos municipais. Este artigo apresenta o diagnóstico mencionado.

Palavras-chave: TIC, Governo Eletrónico, MuNet, Modernização do Governo, Governo Local

1. Introduction

The continuum development of Information and Communication Technology (ICT) has opened new opportunities to transform governments (ONU, 2010). This ICT implementation in governments is usually called Electronic Government (e-Gov) (World Bank, 2012). The e-Gov applications contribute to the enhancement of internal administrative processes and more efficient services delivery (Bellany & Taylor, 2004). In addition, contributes to improving citizen-centered vision, developing of ICT-related private sector and successfully enhancing civil organizations participation on politics (Anderson & Cho, 2010 United Nations Public Service Day - Awards and Forum, 2010) (Field, Mield, Muller, & Law, 2003).

Therefore, State-organization has been rethinking to meet the needs of individuals, businesses and society; including it as part of global economy, protecting national interests and maximizing growth potential (United Nations, 2003). In synthesis, the e-Gov strategies increment transparency of public government policies, strengthen institutions and create new links between public and private organization, and the society, encouraging their participation via ICT and increasing the socioeconomic development (Cardona, 2004).

This article, presents an introduction to the e-Gov program of the Organization of American States (OAS), called: "Municipios Eficientes y Transparentes" (MuNet) and its two implementation phases in Latin America. Also, as the main subject, it will analyze the results of the ICT government implementation diagnosis in the participant municipalities of Panama.

2. MUNET Program

The municipalities in Latin America are where most of the society development takes place (OAS, 2009). Therefore, any action oriented to enhance the relationship between citizens and public administrations should start at the municipality level to guaranty immediate perceptible changes (OAS, 2009). In this sense, the MuNet Program was designed as part of the cooperation activities developed by the Canadian International Development Agency (CIDA), the "Corporación Andina de Fomento" (CAF) and the Executive Secretariat for Integral Development (ESID) from the OAS (OAS, 2004). The aim of the MuNet program is to help Latin American municipalities in the adoption of ICT as a tool for increasing transparency, efficiency and citizen participation.

2.1. MUNET Phase I

The MuNet program has been implemented in Latin America since 2005. In Phase I, 11 countries and 22 municipalities participated. The program methodology consisted on achieving political cooperation from the mayor or local authority, creating a MuNet team with the municipality personnel, developing online e-Gov courses, elaborating municipality diagnosis about transparency, efficiency and ICT government implementation, designing an e-Gov strategy and implementing three ICT tools: 1) MuniPortal, 2) MuniCompra and 3) MuniServi. As a result of the methodology mentioned, the MuNet team developed an e-Gov strategy, which was released and implemented as a *Local Development Policy* in each municipality (Porrúa et al., 2009).

2.2. MuNet phase II

After positive results obtained from phase I, phase II was launched in 2010 with a public call for participation. As a result, 28 municipalities in Panama, 23 in Guatemala, 34 in Costa Rica and 29 in Paraguay are participating in the second phase of the MuNet program (MuNet, 2012). 7 countries less but 92 municipalities more than the first phase I. One highlight of the MuNet Program is that beyond pursuing the use of ICT to improve efficiency and transparency in local governments, it fully benefits from the efficient use of ICT to support the program. The two most valuable assets of the program were: the consultants program and the ICT platform, which enabled them to work remotely (Cardona, ICT as a Tool for Municipality Transparency and Efficiency in Panama, 2011).

2.3. MuNet II – Panama

In Panama, the initiative is leading by the "Autoridad Nacional para la Innovación Gubernamental" (AIG) within the national project of "Modernización de Gobiernos Locales" among other institutions such as (AIG, 2012): "Ministerio de Economía y Finanzas" through the "Dirección de Planeación Regional", "Autoridad de Turismo de Panama", "Ministerio de Vivienda y Ordenamiento Territorial"; "Programa Nacional de Administración de Tierras" and "Ministerio de Gobierno".

A general study of the participant municipalities provides the following information: the total population of the 28 municipalities was 1'592.092; the municipality with more population was Colon: 241.000 persons; with less population was Taboga: 1.119. Most of the municipalities have developed an agricultural economy but not industries or services. The 2011 approximated budget of the 28 municipalities was B/. 36.969.343 (INECP, 2010).

3. ICT Diagnosis In Panama Municipalities

This ICT diagnosis was made in 26 municipal governments¹ between March 20 and May 30 in 2010, through a previously designed survey filled by the municipal mayor or a designated public employee. The survey was structured as follows: hardware inventory, installed software, use of digital networks, PC and Internet access for public employees, human resources (HH.RR) and ICT capabilities, ICT use by the local government and its interaction with the community, 2007-2010 ICT government budget, ICT impact studies in the local government, ICT future plans, and ICT national legislation knowledge. The survey results are as follows:

3.1 Hardware

The total amount of PCs and laptops in the municipal governments was 701. There was a total of 662 PCs. The municipality that had more PCs was Colón with 97. The municipality that had less PCs was Taboga with 5. The total amount of laptops was 39. The municipalities of Boquerón, Boquete, Pesé, La Pintada, Las Minas, Soná and Tonosí, had no laptops. An average of 71% of these computers had Pentium IV processors, superior or similar. 7 municipalities had at least 1 server (illustration 1).

The total amount of printers inventory in the municipal governments was 447 units. The most used printer is the Inkjet printer type with 277 units. The less used is the plotter type with 6 units. 6 printers are network connected and the municipal government with any printing equipment was Taboga (illustration 2).

¹The information of two municipalities: Los Santos y Penonomé, wasn't available at the time that this paper was written.

The total amount of complement hardware in the municipal governments was 480 units. The most used is the CD Writer Burner with 353 units, followed by the Scanner with 90 and back up hardware with 37. The municipality with any complement hardware was Chepo (illustration 3).

The total amount of mobile devices in the municipal governments was 22. The most used was the PDA and the 3rd generation mobile phones with 10 units, followed by GPS with 9. At least 7 of the municipalities had at least one of these devices (illustration 4).

3.2. Software

26 local governments used Windows as operative system in the PCs environment, 7 in the server environment. 1 Local government used Linux for its server environment (illustration 5).

26 local governments used Office as its main productivity software, followed by Auto CAD with 4, Adobe Reader: 2, Oracle: 1, Fox Pro: 1 and Sysmeca: 1, which is used for social security purposes. The total amount of public employees trained to make use of these programs was 545 (illustration 6).

The most widely used management software in the municipal governments was the document management with 73 users, followed by accountancy with 30, electronic purchases: 24, finances: 13, HH.RR: 12, data and reports and log files, both with 5, finally citizen attention with 4 (illustration 7).

The most widely used data management software by the municipal governments was Access with 6 municipalities, followed by Excel and Fox Pro, both with 2. Oracle, Data Ease, Sysmeca and D Base III were used by 1 municipality each (illustration 8).

The firewall software used by 6 municipal governments comes with Windows; on the other hand, Panda Club and Forti Gate were used by 1 municipality each (illustration 9).

The most widely antivirus used in municipal governments is NOD 32, followed by Avast with 2 municipalities, Symantec-Norton: 2 and Kaspersky: 1 (illustration 10).

2 municipal governments were using security systems for the "Local Area Network" (LAN) and 2 for "a Wide Area Network" (WAN) (illustration 11).

3.3. Network

20 municipal governments had its own digital network. 11 of this 20 answered that the network was LAN, 3 wireless; WAN, Ethernet, Satellite and structured cable types, were used by 1 municipal government each (illustration 12).

8 municipal governments that provided information related with the past question, had Internet speed connection of 1MB, 3 of 0.5 MB connection, 3 of 1.5 MB, 1 of .3.5 MB and 1 of 4MB (illustration 13).

24 municipal governments had no hosting services, however, 9 knew about Internet services suppliers, both local and national, that could implement the service if it's needed (illustration 14).

3.4. Accessibility

An average of 63% of all the public employees had PC access, 38% had municipal e-Mail account and 43% had Internet access (illustration 15).

Respect to the municipality perception, an average of 65% of private sector and 42% of citizenship had Internet access, and an average of 89% of private sector and 86% of citizenship had access to mobile services, (illustration 16).

3.5.Human Resources

8% of all the municipal governments employees worked at the ICT department. The total amount of public employees in the ICT department was 17, 11 in management charges and its average antiquity was 3.6 years (illustration 17).

4 local governments had ICT training programs for their public employees. In addition, 17 local governments answered a question related with competencies and skills in ICT programs. They expressed the followed competencies: office tools; Office software; social networks; multimedia edition and design; SQL; programming languages; technical support; network support and informatics security and accountancy software

The best managed and known ICT area by the MuNet staff was text processing with 39 users, followed by web 2.0 tools (blogs, wiki spaces, etc.) with 21, information systems management: 16, graphic design: 11, web page design: 10 and programming: 7 (illustration 18).

ICT use

The five areas where ICT was widely used were: purchases, in 22 municipal governments, followed by accountancy with 18, HHRR: 13 finance: 10 and communications: 9. The less used areas were: security and education, with 3 each (illustration 19).

The most used ICT implementation area for citizenship participation was declaration and taxes payment with 6 municipal governments, followed by management procedures with 5 and information service for citizenship with 3 (illustration 20).

15 municipal governments have used the Internet frequently for information access purposes, 7 infrequently and 4 municipal governments do not make use of it for this subject (illustration 21).

1 municipal government have used the Internet frequently for e-Learning purposes, 8 infrequently and 17 do not make use of it for this subject (illustration 22).

2 municipal governments have used Internet frequently for citizen communication purposes, 5 infrequently and 19 do not make use of it for this subject (illustration 23).

8 municipal governments have used the Internet frequently for procedures purposes, 6 infrequently and 12 do not make use of it for this subject (illustration 24).

8 municipal governments have used the Internet frequently for communication with other administrations, 7 infrequently and 12 do not make use of it for this subject (illustration 25).

5 municipal governments have used Internet frequently for communication with private sector purposes, 5 infrequently and 16 do not make use of for this subject (illustration 26).

3 municipal governments have used Internet frequently for recreational purposes, 5 infrequently and 16 do not make use of it for this subject (illustration 27).

5 municipal governments have used mobile technology to provide public services (illustration 28). 4 municipal governments have used mobile technology apps for regular communication; 1 for SMS sending (illustration 28).

3.6. Budget

14 municipal governments gave information related with their investment budget. The budget for ICT investment in 2007 was B/. 286.501; in 2010 was B/. 1.446.526. An average of 404% increase in three years (illustration 32).

3.7. Impact

The municipal government of Bocas del Toro, is the only municipal government that has developed ICT impact studies related with ICT management in the municipalities and ICT performance Planing. 4 municipal governments had plans of municipal modernization and e-Gov strategies, each one. On the other hand, 3 local governments had strategic plans of ICT, and hardware and software purchase, each one (illustration 30).

10 municipal governments are currently developing any of this ICT plans: hardware and software purchase plan, ICT strategic plan, e-Gov plan and municipal modernization plan, some of these plans are:

- Wi-Fi implementation for free Access to the community – Municipality: Bocas del Toro.
- Hardware and software purchase plan, ICT strategic plan, e-Gov plan and municipal modernization plan – Municipality. Colón.
- Supply and installation of ICT services for the IT department – Municipality: La Chorrera.

3 municipal governments are developing e-Gov implementation plans or apps develop for public services offer. Those are: Boquete, Bugada y Las Minas.

3.8. Legislation

11 municipal governments had knowledge about the national regulatory framework related with personal data security, information access and citizenship participation, 10 about cybercrime, 9 about IT security and 8 about digital signature (illustration 31).

3.9. Others

11 municipal governments were aware of enterprises interested in ICT implementation for social development.

4. CONCLUSIONS

The findings related with the municipal government's hardware, shows that there's a direct relationship between: hardware inventory and municipalities population. Colón had 97 PCs, while Taboga 5, consequently: Colón had 241.228 habitants and Taboga 1.119.

The findings related with the accessibility and the digital network, shows that an average of 53,5% and 87,5% of the citizenship and the private sector had Internet access and mobile access, respectively. On the other side, the Internet speed capacity of the municipal governments reveals an Internet speed access gap: 8 municipal governments have a 1 MB connection, while 2 have a 4MB connection.

The findings related with the HHRR, shows that the total amount of public employees working in the IT department was 28, which is equivalent to 8% of the total amount of public employees in the 26 municipal governments. In addition, 4 governments have ICT training plans. In relation with this subject, 1 government has developed studies related with ICT and its impact in the social development.

The findings related with the ICT use, shows that 22 municipal governments use ICT for purchases implementation, followed by accountancy and HHRR. On the other hand, 1 municipality uses ICT for e-Learning and 2 for citizenship communication. Additionally, the municipal government's most frequent habit related with the Internet use it the information accesses, but communication with the private sector or citizenship participation.

The findings related with the ICT planning implementation, shows that 14 municipal governments have ICT plans related with e-Gov, government modernization, hardware and software purchase, and social development through ICT. 10 of these 14 governments are currently implementing those plans and 3 are developing e-Gov apps for public services offer. The findings related with the national regulatory framework, shows that 11 municipal governments had knowledge about these legislation. Finally, the possible recommendations suggested by the authors in order to improve the efficiency and transparency in the participant municipalities are:

Increase hardware in the local governments of small municipalities, considering their basic needs first, with the purpose of streamline the internal communication and processes, information management and service delivery to the private sector and the community.

Strengthen broadband coverage for the citizenship, private sector and municipal governments, in order to decrease the Digital Divide and augment the relation between ICT and society, in this sense, introducing the municipalities in the Knowledge Society.

Strengthen ICT training plans for public employees, with the aim of increase the human capital trained in ICT in the municipalities and use that ICT human capital to structure, execute and accomplish e-Gov strategies for social development. Amplify the ICT use diversification for the government management, to amplify the human ICT training ways and the e-Gov apps for private sector and community interaction.

Increase communication channels between local governments and the central government regarding national regulatory frameworks and develop strategic alliances with the private sector to integrate their technological productivity process into the economic development.

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