Web application based on the G2C relationship (Electronic Government) to systematize the Agenda of the City Hall of canton Mira

Damián BASTIDAS[1]

[1] University Técnica del Norte, Av 17 de Julio 5-21 Sector el Olivo, Ibarra, Imbabura

bastidasdam@hotmail.com

Abstract. *In the present project the study of Electronic Government is carried out the levels of maturity or stages of development, and the study based on one of the great actors that revolve around the Electronic Government as it is the citizenship and its relation with the G2C Governments, Government Citizens or as the National Government Plan calls it*

The Regional Proposal for the Measurement of Indicators on Electronic Government: Methodological Guide, developed by the Observatory for the Information Society in Latin America and the Caribbean OSILAC, is used, defining 10 basic indicators and 7 extended indicators to know in which stage of maturity of Electronic Government is the GAD Mira, through the review, measurement and use of these.

It is designed and implemented with the use of the Agile Programming Methodology XP Extreme Programming the Web application for the Appointment Diary of the Mayoralty of the canton Mira.

Keywords

Government, Electronic, Citizen, Indicators, Web.

1. Introduction

Mira canton is located to the southwest of the Carchi province, formed by an urban parish: Mira and three rural parishes: Juan Montalvo, La Concepción and Jacinto Jijón y Caamaño. The Decentralized Autonomous Government of canton Mira is the highest body in the public sector of the canton. The citizens of the canton go to the mayor's office to present their needs to the highest authority. The institution does not have mechanisms to make the appointment schedule for paperwork in the mayor's office.

The "Establishment of the minimum standard of service expectations" is the principle that establishes that the citizen, after accessing a service that he considers excellent in a public institution, expects the same quality in the rest of the State entities. That is why the GAD Mira must increase its level of development in the provision of services through Electronic Government to citizens, to generate greater levels of trust with the institution. According to the EKOS Electronic Government + Innovation research carried out in Ecuador 2014, it presents several successful cases of Electronic Government initiatives focused on the satisfaction of citizenship, such as: Solution Implemented by BIESS: Online Credit Unsecured, Solution implemented by the Ministry of External Relations and Human Mobility: Virtual Consulate System.

The study of Electronic Government oriented to the G2C citizenship was carried out, with this base and the definition, construction and use of Electronic Government Development indicators the level of maturity of the stages of development of Electronic Government in the GAD Mira and the implementation of a Web application focused on satisfying a specific need of citizenship of canton Mira, as is the appointment schedule for the Mayor's Office.

2. Materials and Methods

2.1 Development of Electronic Government in the GAD Mira

To measure the level of development maturity of Electronic Government in GAD Mira, we worked with the proposal of ten basic and seven extended indicators proposed for the region by the Working Group on Measurement of Information and Communication Technologies (ICT) of the Statistical Conference of the Americas (CEA) of ECLAC, with the cooperation of the Observatory for the Information Society in Latin America and the Caribbean (OSILAC).

2.1.1 Definition of indicators

Adjustment of the indicators was made to be applicable to GAD Mira and its affiliated organizations.

Table 1 shows the 10 basic indicators.

Initials	Indicators
CEG1	Percentage of employees in government organizations who use computers routinely for their work
CEG2	Percentage of employees in government organizations who use the Internet routinely for their work
CEG3	Percentage of government organizations that use email routinely for their work
CEG4	Percentage of government organizations with Internet presence on their own website or on the website of another entity
CEG5	Percentage of government organizations with corporate networks (LAN, WAN, Intranet and Extranet)
CEG6	Percentage of government organizations with interoperability standards
CEG7	Percentage of government organizations with Internet access, by type of access (narrow band, fixed broadband and mobile broadband)
CEG8	Percentage of government organizations that offer service platforms to users, depending on the type of platform available: web, landline, fax, mobile phone
CEG9	Percentage of government organizations that offer online services by type of activity
CEG10	Percentage of government organizations that offer online services, by type of service

Table. 1. Basic Indicators of Electronic Government

Table 7 shows the 7 extended indicators.

Initials	Indicators
EEG11	Percentage of TIC spending, within total spending, in government organizations
EEG12	Percentage of TIC employees in government organizations
EEG13	Percentage of employees in government organizations with computer skills
EEG14	Percentage of employees in government organizations with skills in Internet use
EEG15	Percentage of government organizations offering TIC training to their employees
EEG16	Percentage of TIC budget invested in TCI training
EEG17	Percentage of government organizations that use open source operating systems

Table. 2. Extended Indicators of Electronic Government

2.1.2 Review of Indicators

Adjustments are made to the definition of the basic and expanded indicator, to calculate separately by men and women, the purpose of the indicator, methods of collecting information, the source from which the information will be obtained, and the formula for calculating the indicator.

$$\mathrm{CEG1_s} = \left[\frac{\mathrm{TEUC_s}}{\mathrm{TE_s}}\right] \times 100$$

For the calculation of the indicator $\mathrm{CEG1_s}$ is the percentage of employees in government organizations who use computers routinely for their work, $\mathrm{TEUC_s}$ Number of employees in the government organization who use computers routinely and $\mathrm{TE_s}$ Total number of employees in government organizations where S represents the following populations S = ‘1’ Employees in the organization, S = ‘2’ Mens, S = ‘3’ Womens.

2.1.3 Measurement of the Indicator

For the measurement of the indicator, the methods of gathering information, tabulating the information obtained and calculating the indicator are applied.

Initials	Indicators
CEG1	50,86
CEG2	37,07
CEG3	37,07
CEG4	50
CEG5	58,33
CEG6	0
CEG7	75,00
CEG8	58,33
CEG9	25
CEG10	6,06

Table. 3. Percentage obtained Basic Indicator

Initials	Indicators
EEG11	0,3
EEG12	0,86
EEG13	55,40
EEG14	52,01
EEG15	22,22
EEG16	0
EEG17	11,11

Tabea. 4. Percentage obtained Extended Indicator

2.1.4 Use of the Indicator

With the information obtained we carried out an analysis of the indicators by groups: Oriented to Employees, Oriented to Services, Oriented to Infrastructure, Oriented to TIC budget. Figure 1 shows the negative trend of the service-oriented indicator in the GAD Mira.

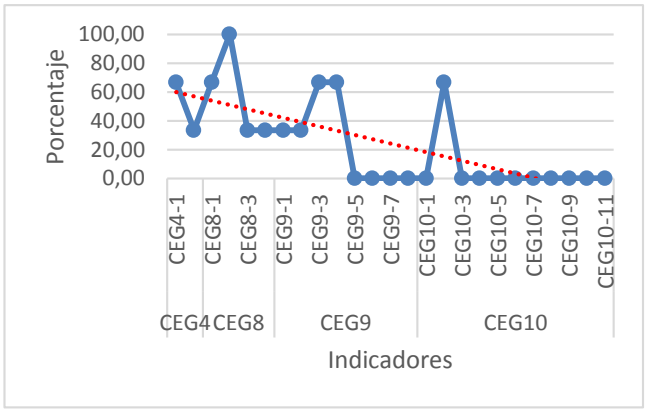

Figure. 1. Services-Oriented Indicator GAD Mira

Figure 2 shows the negative trend of the indicator oriented to infrastructure obtained from the measurements made in the GAD Mira.

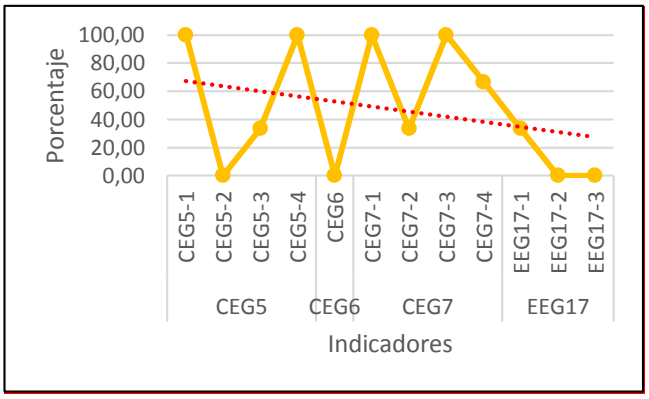

Figure. 2. Infrastructure-Oriented Indicator the GAD Mira

Figure 3 shows the tendency of the indicator oriented to ICT Budget obtained from the measurements made in the GAD Mira.

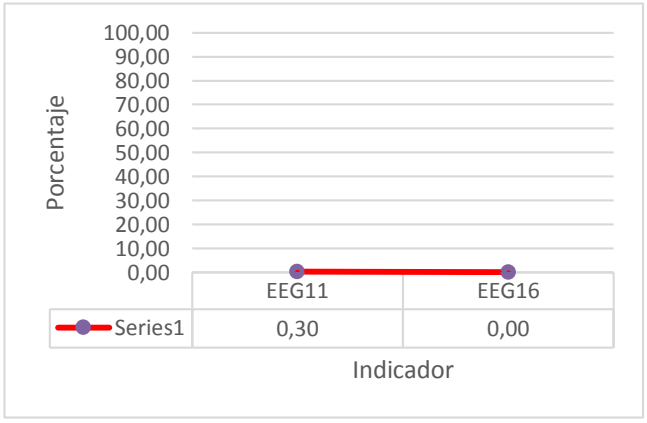

Figure. 3. TIC Oriented Budget Indicator the GAD Mira

2.1.5 Development of the Agenda for the Mayor's Office of Canton Mira.

Through the use of the XP programming agile methodology and the MVC Software Architecture pattern, the Agenda for the Mayor's Office of the canton Mira is developed, with the use of the Glassfish application server, the JAVA programming language, and the JSF framework and the MySQL database engine, a Web application, anchored to the GAD institutional portal Mira.

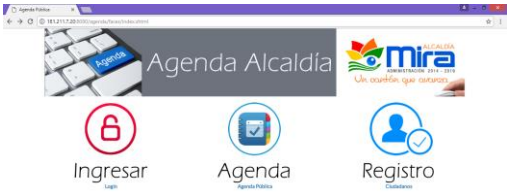

Figure. 3. Web Agenda of the Mayor of the Canton Mira

3. Results

The results obtained from the use of the Electronic Government Development indicators in the GAD Mira are detailed below.

Figures 4 show the trend of the Indicator of Development of Basic Electronic Government in the GAD Mira.

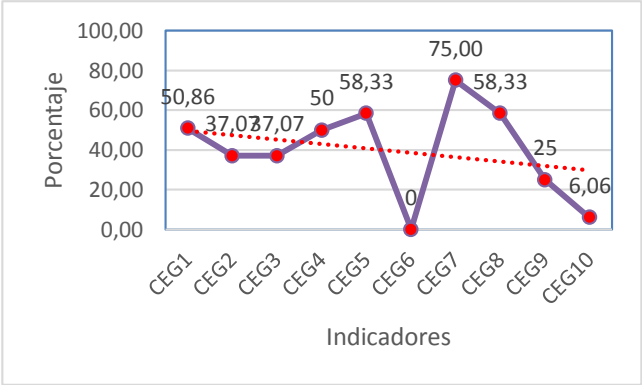

Figure. 4. Indicators of Basic Development of the GAD Mira

Figure 5 shows the tendency of the indicator of Development of Extended Electronic Government in the GAD Mira.

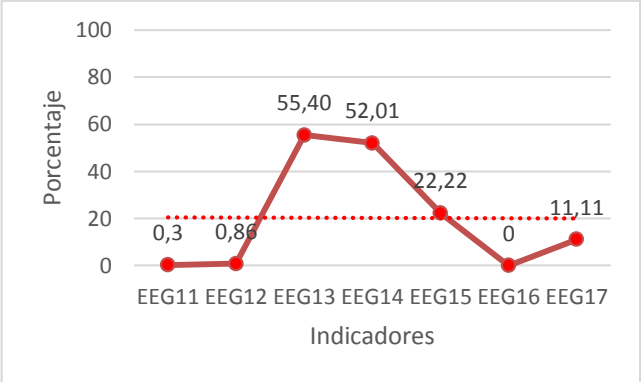

Figure. 5. GAD Extended Development Indicators Mira

The percentage of Electronic Government Development for the GAD Mira and the affiliated organizations for the 2016 period of the calculation made of the 10 Basic Indicators or Keys and the 7 Extended Indicators is 30.02%, as shown in Figure 6.

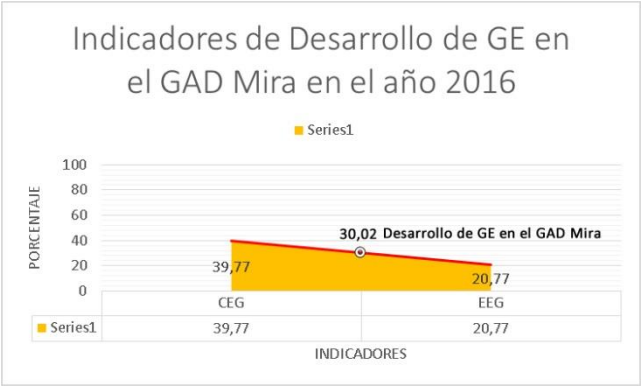

Figure. 6. GAD Development Indicators from GAD Mira

The Economic Commission for Latin America and the Caribbean (ECLAC), and the Latin American and Caribbean Institute for Economic and Social Planning (ILPES), make a proposal for weighting by stage of development of Electronic Government: Emerging 0.10, Extended 0.15, Interactive 0.20, Transactional 0.25 and Integration 0.30. The GAD Mira with a weighting of 0.3032 according to the measurement made is in the Interactive stage of GE's maturity levels.

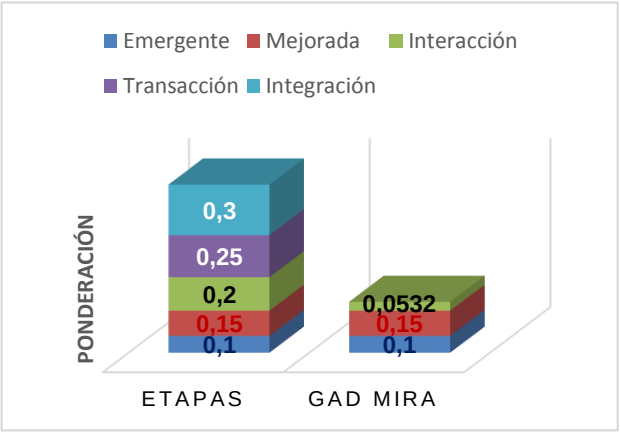

Figure. 7. GE Development Stage of the GAD Mira 2016

4. Conclusions

With the study of the G2C Electronic Government relationship, it is possible to dimension and establish the necessary considerations of the importance of the implementation of solutions oriented to the citizen with respect to the other types of Electronic Government relations.

The documented information allows to know the importance of developing G2C applications to achieve the approach of public institutions to the citizenship. All this will be possible through political decisions that guide governments to achieve higher levels of maturity in the development of Government. Electronic.

The indicators developed in this study in the Autonomous Decentralized Government of canton Mira, allow to quantify the percentage and establish the stage of development of Electronic Government has reached the institution according to the National Electronic Government Plan of Ecuador.

From the study carried out, the current state of Electronic Government reached by the Autonomous Decentralized Government of the canton of Mira was determined, so it can be shown that the appropriate political decisions are not being taken to make use of information and communication technologies and achieve other maturity stages in the development of Electronic Government.

The developed system allows interacting with the citizens and the Municipal Government in real time, facilitating access from any place to schedule an appointment, allowing to generate an atmosphere of trust towards the institution and transparency of the actions executed by the Mayoralty of the canton Mira with access to the public agenda.

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About the Author

Damián BASTIDAS Graduated from the Career of Computational Systems of the FICA of the University Técnica del Norte.