Measurement And Analysis Of The E-Government: A Comparison Between Colombia, Part Of America And Europe

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Abstract

In Colombia, the E-Government emerged as a public policy program of the Connectivity Agenda, as a modernization strategy for the new public management and as a project for the adaptation of the State to global change. This research seeks to make a comparison between Colombia and the six best countries classified according to the UN classification on the implementation of E-Government. For this, a unified evaluation model was developed that included the items of the execution model defined in the manuals issued by the Ministry of Information Technologies and Communications in 2010 and updated in 2018 on Government Online, in addition to important items that, In the opinion of the researchers, they are not present, and they are a fundamental part of the incorporation of new Information and Communication Technologies. The research was carried out using the descriptive-quantitative approach. According to the analysis, Colombia does not offer electronic procedures 100% online. It is important to note that Digital Citizen Services must be uniform for all state entities, and not as they are currently, where each entity has its own access and authentication model.

Keywords: Connectivity Agenda; Government online; Public management; Technology in public management

1. INTRODUCTION

Currently, Information and Communication Technologies (ICT) have become one of the most effective factors related to generating significant progress in society in areas such as; the economy, health, education, entertainment, and forms of communication (Colás, Pons & Ballesta, 2018). Likewise, ICTs are used as part of the computer tools that allow the storage, processing and dissemination of different types of information (Flórez et al, 2017), and that they are used as a strategic part in the implementation of the E-Government by the States.

The incursion of the E-Government has brought about the modification of government models and policies, an aspect that is reasonable considering that many of the activities that citizens should carry out with the public administration are carried out electronically, which modifies the structure of thought and demand of a people towards their rulers. In this regard, since 2010, Ministry of Information and Communication Technologies (MINTIC) has been developing strategies to consolidate the E-Government in Colombia, with the aim of consolidating a more innovative, efficient and close-to-citizen state.

In Colombia the E-Government or also called GEL, emerged as a public policy program within a so-called Connectivity Agenda. The E-Government Program is in charge of leading, coordinating and accompanying the implementation of the GEL Strategy throughout the country, which is framed within the Information and Communications Technology policy, which seeks to increase the use of the Internet in the country (MINTIC, 2018a). The objective of the program is to build a more efficient, transparent and participatory State that provides better services to citizens and businesses, by taking advantage of ICT (Castellanos, 2012), on the development of three transversal enablers: T.I Architecture, Digital Citizen Services and Security and Privacy, which are the basis of the components: ICT for the State and ICT for Society (MINTIC, 2018b).

Through decree 1151 of 2008, the Colombian government determined the preparation of a standard document that will facilitate entities the execution of the E-Government plan in the Public Administration, called Manual for the implementation of the GEL Strategy of the Republic of Colombia version 2010, being mandatory for all state entities. The manual was organized into 7 chapters, where basically the first one presents the background of the GEL Strategy; the second presents the minimum preparation actions for its implementation and, between the third and the seventh, the detailed description of all the items that the entities must fulfill is presented (UCaldas, 2010) according to the following five phases of the Strategy of GEL (CONPES, 2010):

- Information phase: it is the initial phase in which entities enable their websites to provide information and basic search elements.
- Interaction Phase: two-way communication between entities, citizens and companies with public servants is enabled.

- Transaction Phase: electronic transactions are provided to obtain products and services.
- Transformation Phase: virtual one-stop shops and the use of the government Intranet are implemented.
- Democracy Phase: active participation of citizens in state decision-making is encouraged.

Subsequently, after several years of implementation of the 2010 manual, and recognizing the good results in the implementation of the E-Government, through decree 1078 of 2015, it is updated to the 2018 version, which allows public entities to adapt more easily to the needs of citizens, through four main purposes: 1) Ensure that citizens have very high-quality online services, 2) Promote the empowerment and collaboration of citizens with the Government, 3) Find different ways so that management in public entities is optimal thanks to the strategic use of technology and 4) Guarantee the security and privacy of information (MINTIC, 2018c). To fulfill these purposes, three transversal tools have been incorporated into the Strategy: 1) The seal of excellence in GEL, guaranteeing the high quality of services and digital products of the Colombian State from the same knowledgeable users and experts (ARN, 2019); 2) The road map, which will allow focusing and prioritizing the actions with the greatest impact on the quality of the citizen's relationship with the State and; 3) The Business Architecture Reference Framework, which is integrated into the Strategy in order to guide on best practices, guides and standards that will facilitate the proper use of technology to support the different services to entities and the fulfillment of their mission.

Taking into account the above, this research seeks to prepare a comparison between Colombia and the six best countries ranked according to the raking of the United Nations (UN), which allows analyzing how the implementation of the E-Government is in the country. For this, a unified evaluation model was prepared that included the most significant items of the execution model defined in the manuals issued by the MINTIC in 2010 and updated in 2018 on Online Government (GEL), in addition to important items that, in the opinion of the researchers, are not present in the manuals, and that are a fundamental part in the incorporation of new ICTs. Based on the results of the evaluation, the conclusions and recommendations were established.

2. METHODOLOGY

The research was carried out using the descriptive-quantitative approach. This, started from an idea that was delimited, following a predictable and structured pattern, to later evaluate through a tool designed by the researchers the necessary items with which the conclusions were established (Baptista, Fernández & Hernández, 2006).

Basically the study was developed in 4 phases: 1) Study of the evolution of digital government in Colombia to understand its operation and benefits; 2) Definition of the population under study; 3) Design of the unified measurement model based on the criteria established in the official manuals issued in 2010 and 2018 by the MINTIC of Colombia, adding the criteria added by the researchers; 4) Evaluation of government portals.

2.1 Population

Seven countries were taken as population. Six of them according to the average obtained in the world ranking of Electronic Government issued by the UN between 2014 and 2020, classifying the countries in two groups: one corresponding to Europe, Asia, Africa and Antarctica and another formed by the countries of the continent. American. For group 1, the Republic of Korea (KOR), Australia (AUS) and the United Kingdom (UK) were selected. For group 2 the United States (US), Chile (CHI), Uruguay (URU) and Colombia (COL) as the seventh country.

2.2 Design of the proposed evaluation system

To carry out the diagnosis regarding the implementation of the E-Government in Colombia, a unified evaluation model was designed that allowed condensing the most significant items established in the manuals issued by MINTIC in 2010 and 2018 of the implementation of the GEL, which, from According to the communicative approach applied in the country, they are distributed in the five phases previously described and must contain the web portals of government institutions. Additionally, some items were included in each of the five phases, and that in the judgment of the researchers were necessary in the evaluation system designed according to the information collected in the research process, resulting in 85 evaluated items, of which 46 belong to the online information phase, 16 to the online interaction phase, 13 to the online transaction phase, 4 to the online transformation phase and 6 to the online democracy phase.

Likewise, the researchers only took into account those items that could be observed when entering the main portals. Items that due to their internal management characteristics were not feasible to evaluate were excluded. Furthermore, given the scope of the study, the additional portals offered by the entity were not evaluated.

Seven public portals were selected that are aligned to the E-Government strategy and that present homogeneity in all countries. The selected portals are: Ministry of Education, Ministry of Labor, Ministry of Information and Communication Technologies, Ministry of Finance, Ministry of Health, National Police y Presidency.

For the qualification, a scale of 1 to 3 was established, where 3 is the maximum score and 1 the minimum, which allowed the researchers to quantitatively evaluate the items in each of

the 5 phases established in the E-implementation manual Government for Colombia, and according to their judgment assign a score of: 3 when the portal fully met the criteria, 2 when the portal partially met the criteria, or 1 if the criteria were not present.

At the end of the evaluation, the sum of the times that each item on the scale was present was obtained. This statistic allowed establishing an ordered ranking from highest to lowest of the countries according to the total number of items with scores 1, 2 and 3.

Subsequently, based on the previous ranking of each phase evaluated, a score was assigned to each country between 1 and 7 (this scale corresponds to the number of countries in the sample), with 7 being the maximum and 1 the minimum, with which averaged the results achieved in each portal, and obtain a percentage of compliance at the general level for each country.

As previously described, after evaluating the countries' web portal in a certain phase, the sum of each rating scale was ordered from highest to lowest, where the first ranking level was rating 3, then grade 2 and finally 1.

3. RESULTS

Below are the results obtained in the evaluation of each page by phase:

a) Portal of the Ministry of Education

Table 1. Consolidated percentage of compliance with the Education portal		
Country	**Score**	**%**
KOR	33	94%
UK	29	83%
US	29	83%
COL	27	77%
URU	23	66%
AUS	22	63%
CHI	21	60%
Source: Authors' own elaboration.		

The consolidated allowed to see that Colombia has a compliance percentage of 77%, being the highest with reference to South America, and surpassed by the Republic of Korea with 94%, the US with 83% and the United Kingdom with the same percentage. For the present analysis, the US was selected since the Republic of Korea had already been chosen to represent the European continent.

In this rating, one of the shortcomings of Colombia compared to Republic of Korea and the US, is that the portal does not have a section where children can interact and navigate the page without difficulty, understanding the information provided by the portal. On the other hand, the Colombian portal does not have visible the counter of visits and date of last update, being fundamental criteria in the measurement of the effectiveness of the portal in front of the users, who is the one that accesses the portal to know information of the processes. On the other hand, when consulting the page, it was possible to show that the portal has a list of formats related to the processes carried out there, however, when accessing any of the formats, these were disabled, making it impossible the due development of the forms, making the service to the citizen not efficient. One of the points to highlight is the articulation of public portals, since, at the end of the portal, the ministries that make up the Colombian government are listed.

b) Portal of the Ministry of Labor

Table 2. Consolidated percentage of compliance with the Labor portal		
Country	Score	%
KOR	31	89%
AUS	30	86%
US	28	80%
URU	27	77%
COL	26	74%
UK	24	69%
CHI	23	66%
Source: Authors' own elaboration.		

The portal of the Ministry of Labor has 74% compliance according to the established criteria, being surpassed by the Republic of Korea with 89% and the US with 80%. One of the criteria absent in this portal is the publication of results of the opinion of the users, although it complies with the link for the opinion poll, a consolidated or summary of the opinions is not obtained. In addition, when entering the one-stop services or procedures, it could be appreciated that the links are a little late in their response, possibly due to factors such as architecture, type of programming in which the portal or web server capacity was developed. A recommendation for the portal is to have its own links that allow citizens to know the current job offer or the training they can take, as it is vitally important information for those who visit the portal.

One of the points in favor that was evidenced in the exercise is the updating of the news referring to all the processes related to the Ministry. Likewise, the portal is more oriented to consultation for employers and procedures related to business management.

c) Portal of the Ministry of Information and Communication Technologies

Table 3. Consolidated percentage of compliance with the ICT portal		
Country	**Score**	**%**
AUS	32	91%
UK	32	91%
KOR	31	89%
URU	29	83%
CHI	23	66%
US	22	63%
COL	21	60%
Source: Authors' own elaboration.		

In the ICT portal, it was observed that the website meets 60% of the criteria, being surpassed by Australia with 91% and Uruguay with 83%. When entering the portal, it does not have a space for children's consultation, a factor that can affect interaction with this population. On the other hand, there was no information regarding calls for proposals on the processes carried out by the entity. Regarding the aspects related to citizen knowledge, the portal does not have a visit counter, in addition, the interaction is unsatisfactory with the user, as their search is superficial, since the procedures are not carried out directly on said portal, presenting many redirects that make carrying out a process or petition confusing.

The ICT portal should be more in line with the needs of the citizen, since MINTIC, champion of the GEL strategy, makes it a benchmark for compliance with the regulations issued by the government.

d) Portal of the Ministry of Finance

Table 4. Consolidated percentage of compliance with the Finance portal		
Country	**Score**	**%**
KOR	32	91%
US	30	86%
URU	30	86%
UK	28	80%
COL	24	69%

AUS	23	66%
CHI	23	66%
Source: Authors' own elaboration.		

As for the portal of the Ministry of Finance, it was evident that it complies with 69%, being surpassed by the Republic of Korea with 91% and by the US with 86%. The portal does not have information on the dates of last updates and their respective visits counter. However, it was observed that the news is in line with the current theme of the country. Other criteria that the portal does not have is the information section in audios or videos and subscription of information to email. Likewise, although it has the formats section, when entering them, the documents are not visible. One of the main shortcomings of the portal is that it does not have a second language translation, which, at present, is an index not only of compliance for the development of the E-Government but also for the visibility, competitiveness and efficiency of the portal, as this could be a consultation mechanism for foreign investors and other governments.

e) Portal of the Ministry of Health

Table 5. Consolidated percentage of compliance with the Health portal		
Country	**Score**	**%**
URU	31	89%
COL	29	83%
US	28	80%
KOR	27	77%
AUS	25	71%
CHI	25	71%
UK	25	71%
Source: Authors' own elaboration.		

The portal of the Ministry of Health, has 83% of the criteria as well as Uruguay, being above the Republic of Korea that has a 77% compliance, being one of the best rated portals in South America and worldwide, even surpassing more developed countries like the US, Australia and the UK, just to mention the countries in the sample. Of the criteria with which the health portal does not meet, is the section intended for children, in which, although said space is intended, the information contained therein is not in a language available to children. On the other hand, regarding the services for citizens, the portal does not have the citizen folder or the unique space of the virtual window, which is one of the most important criteria in terms of online interaction with the user. A significant advance initiated by the Ministry of Health

and Social Protection (MINSALUD) in conjunction with MINTIC, is the creation of the citizen's medical record, which will store the clinical data of the citizens in a complete way, easily accessible to the entities of health and standardized with the highest levels of confidentiality (Law 2015-2020). MINTIC will be responsible for the technological tool of the interoperability platform, that is, that all systems can be communicated to inform health professionals of the clinical history of each Colombian (MINSALUD, 2020).

f) Portal of the National Police

Table 6. Consolidated percentage of compliance with the National Police portal		
Country	**Score**	**%**
KOR	34	97%
US	27	77%
AUS	26	74%
URU	24	69%
CHI	24	69%
COL	23	66%
UK	23	66%
Source: Authors' own elaboration.		

When consulting the Police website, Colombia meets 66% of the criteria being in the last positions with the country of Chile. The results showed that the portal lacked the visit counter, however, it shows the statistics regarding the reception of emergency calls. On the other hand, the portal does not have a citizen folder or a mechanism that allows electronic authentication to users. Another of the criteria that the portal does not have is the translation of the information into a second language. As for interaction with the citizen, although some procedures can be carried out through the portal, such as complaints, the portal lacks a mechanism for active citizen participation, as the space allocated for this is very limited, as there are no discussions in line, one-stop shops, satisfaction measurement. On the other hand, it is noteworthy that the Republic of Korea has remained not only in the first places of the UN Ranking on E-Government, but also in the development of this research, with a compliance of almost 97%.

g) Portal of the Presidency

Table 7. Consolidated percentage of compliance with the Presidency portal

Country	Score	%
KOR	33	94%
UK	30	86%
US	25	71%
AUS	25	71%
COL	24	69%
URU	22	63%
CHI	18	51%
Source: Authors' own elaboration.		

The Presidency portal for the Colombian case meets 69% of the criteria assigned for the evaluation, being surpassed by the Republic of Korea with 94% and the US with 71%. But despite its low percentage, its score is the best in South America within the countries of the sample. The portal does not have an information section for children or the date of the last update of their states. On the other hand, the portal does not have a site map to identify the point at which the information provided is located, nor does it translate information into a second language, a feature of great importance in terms of development policies.

Likewise, the opinion poll sections or online customer services were not visible.

According to the data presented above, the dominance of the Republic of Korea in its implementation of the E-Government can be evidenced, since in the evaluation carried out in the opinion of the researchers, its position oscillates in the first three positions, being in accordance with what was evaluated by the Ranking published by the UN.

On the other hand, Colombia continues to expand efforts to improve its E-Government policy with the country's sectors, achieving significant progress in this process, going from being one of the countries with low levels of E-Government implementation to improving not only its position according to the UN ranking, but also improving several of the procedures necessary for citizens, such as the law that was launched on the medical history or the initiative of the digital ID that allows the authentication of personal identity in various procedures.

In turn, it could be seen that the percentage of compliance in Colombia with respect to the evaluated criteria ranges from 69% to 89% (Table 8), which translates into significant progress since its implementation, especially on the MINSALUD portal and Education, which mark a growing trend towards facilitating many of the procedures carried out by citizens, through the implementation of ICT. On the other hand, as mentioned above, and although their score is not the best, portals such as that of the Presidency and the National Police, are above the percentage of compliance with respect to South America and even all

of America, as in the case of MINTIC, where Colombia obtained a percentage of 77% compared to 66% of the US.

Table 8. Consolidated Percentage of compliance Colombia	
Portal	%
Ministry of Health	89%
Ministry of Education	80%
Ministry of Information and Communication Technologies	77%
Ministry of Labor	74%
Ministry of Finance	71%
Presidency	71%
National Police	69%
Source: Authors' own elaboration.	

On the other hand, table 9 shows the percentage of compliance for each country:

Table 9. Consolidation percentage of compliance by country		
Country	Score	%
KOR	221	90%
UK	191	78%
US	189	77%
URU	186	76%
AUS	183	75%
COL	174	71%
CHI	157	64%
Source: Authors' own elaboration.		

According to the previous consolidated, it could be seen that the score of the Republic of Korea in this investigation is very much in line with what was evaluated in the UN survey in 2018. On the other hand, Colombia is above 70% compliance which in percentage terms is very good, since it is implementing strategies that allow the consolidation of an E-Government culture. The challenge for the country is to generate trust in the user to make inquiries and procedures through virtual means.

4. CONCLUSIONS

When applying the proposed evaluation model, one of the most relevant results of the research is that it was identified that most of the countries in the sample have a high level of

compliance with the evaluated criteria, which has a correlation with the results of the UN survey, which allows us to deduce that the proposed evaluation system met its objective, of being a unified instrument that not only took into account the basic criteria, but also more complete elements with the case from the single window or the citizen folder.

On the other hand, in Colombia the electronic government has made significant progress, but where it should be noted that despite the significant investments that have been made in technology, to date Colombia has not been able to offer mass electronic procedures 100% online. It is important to point out that Digital Citizen Services must be uniform for all state entities, and not as they are currently, where each entity has its own access and authentication model.

Likewise, it became evident that, although Colombia has been making significant progress in the implementation of ICT for State processes, some portals are not yet in correspondence with the provisions of the E-Government Manual issued by MINTIC in 2010 and in Its last update in 2018. That is why MINTIC must ensure effective compliance with the E-Government policy, which is not only an effort of the country, it is also an effort of more than 150 countries, to make management more efficient. and effective of the State global terms of competitiveness, and the articulation with the citizen.

The challenge for Colombia is to improve the articulation not only of public entities but of private ones, in order to get closer to the operations that the digital environment in which we are currently involved demands. On the other hand, the country must expand and improve the current technological infrastructure, aimed at improving coverage and bandwidth of the Internet, implementing the so-called "Ultra broadband", so that all citizens can access these digital platforms that They are setting a new paradigm in the way of relating, communicating and providing greater support to the digital economy.

Regarding the relationship of the E-Government with the Business Administration, this is an increasingly forceful reality. Many of the businesses are done through digital platforms; The use of ICT has undoubtedly improved the processes of not only public but also private administration. That is why, one of the conditions present in the labor market for a Business Administrator, is to understand and have the ability to apply an Information Systems management more focused on communication and data analysis, especially in Business modalities. Intelligence and decision support.

With the E-Government policy, not only do you want to highlight the public that is where the strategy is currently launched, but also, those private sectors that make up the Colombian economy, as mentioned above, the E-Government will soon be one more criterion of competitiveness to measure the country and its companies.

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