

## INDICATORS TO INCREASE THE E-GOVERNMENT LOCAL, CASE STUDY MEXICO

**Patiño Galván, Israel<sup>1</sup>**

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**Abstract**—The Communication and Information Technologies, they have potentiated and optimized human activities about from industrial, educational, social, governmental sectors among others. In this last one, the government called e-government has been forced to make changes to its regulatory framework, as well as the modernization of technology infrastructure to support the incorporation of ICT. However, it is important that strategies and mechanisms are configured for local governments. So, it should identify a set of indicators on local governments to determine the decrease of process and through they, identify and increase efforts to ensure its successful implementation. Due to the above, are suggested a series of indicators based for the UN suggested.

**Keywords**—Indicators; local e-government; strategies, Communication Information Technologies

## **I. INTRODUCTION**

Governments are responsible for providing public services to its citizens as stipulated by the regulatory framework for each region, for it must have the necessary resources to cover them permanently and achieve participation, transparency and access to information. However, as the population grows, they demand better public services, so the leaders are forced to implement strategies to fulfill their responsibilities. In this sense, in seeking strategies, The Information Communication Technologies provide a comprehensive solution in the short, medium and long term, to resolve these responsibilities. However, it is not enough the incorporate information technology, but must also generate the enabling environment for proper incorporation, and would take advantage the benefits and capabilities of this tool. This brings as advantages better service in terms of attention span, doing the activities more efficient and effective of the local governments. In addition, costs to provide services may be lower and the government services to be accessible. Due to the above, some governments have begun the process of implementing, too known as e-government, trying of take the Information Technologies for optimizing their activities, ranging from the use of word processors, spreadsheets, presentations, web development, interaction with social networks, as well as information systems to provide to public services care. However, this is not enough as they must generate comprehensive strategies for solutions to be long term, but, it is understood to be a process in which local and regional governments must realize that you can only get satisfactory results if the use of It is planned long term. That is, although used websites and social networks, if the population does not have Internet access or if not given to requests.

## **II. PROBLEM STATEMENT**

Local governments face a great demand in municipal public services by the increase in population, it brings as consequence the increased administrative tasks, procedures, increased costs, among others. This leads to saturation of work, lack of transparency in processes, duplication of work, excessive time for completion of tasks, excessive generation of paper, in addition to the formal procedures required for the attention of a public service. Derived from the above, the governments have the need to implement tools and strategies to assist in the expeditious care and transparency of their labors. In these ideas, the information technologies are an important part as alternative, however, it is important to note that such use and

implementation must be done of an organized and planned way short, medium and long term to ensure its use and exploitation

### **III. PREVIOUS STUDIES**

This article is derived from a research project about a proposal for a strategic organizational structure for the incorporation of information technologies. In this was noted that local governments carry out the implementation of Information Technology disorganized and not planned manner, without considering the context that is required to ensure their successful, hence, the indicators for assessment of e - government suggesting the UN are valuable but locally not such indicators for the evaluation of e-government premises were observed, so that indicators for this assessment will be suggested based on those suggested by the UN, and these will serve for that local governments would identify the context that must generate to ensure the implementation of information Technology and communication.

### **IV. RESEARCH METHODOLOGY**

Given the nature of the research, the methods used are of analysis and synthesis, the analysis, study each of the parties of independently and the synthesis, link each of the parties and identify their relations(Fernández, Narez, & García, 2008). In addition, was required the induction and deduction methodologies which, according with Hernandez, Fernandez, & Baptista (2014) assists in identifying general solutions to be applied to situations and vice versa, to ensure the solution applied to any subject of study.

Finely, it did a documentary study, in the which was consulted information regarding the context of e-government well as indicators suggesting the United Nations (2014) to assess progress made by governments in this topic

### **V. THEORETICAL FRAMEWORK**

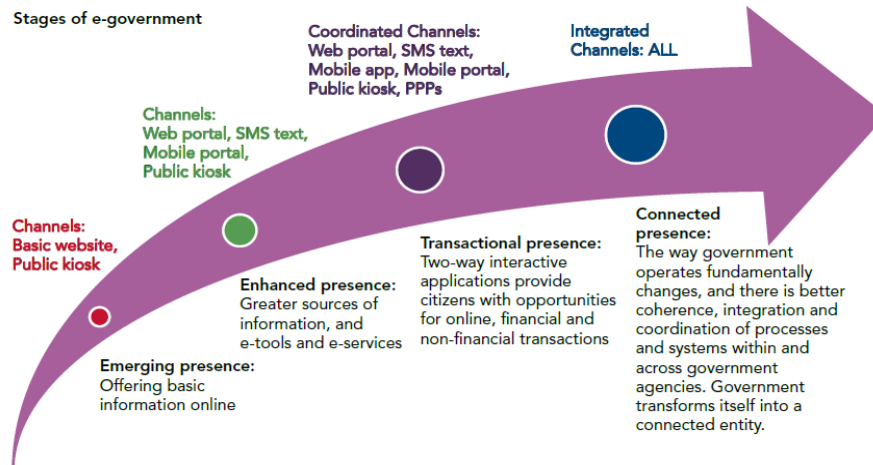
This section describes the concepts of this proposal.

The e-government. It refers to the use of information and communications technology by the public sector with the aim of improving the provision of information and public service provided. in this sense, it is encouraging citizen participation in the decision-making process, making the government more accountable, transparent and efficient(Ruiz, Morales, & Contreras, 2014).

Moreover, it is important to identify the stages for the that cross the governments, in the scanning process and implementation of information technologies and communication, for it then presented the evolution of a e-government. **Evolution and stages of e-government ONU (2014)**. These stages are nonhierarchical, that is, it is not necessary that one end to another begins, if they evolution, in the measure that increases the complexity of systems, where it is associated with technological developments and (ICT) tools are incorporated for governance, where the whole society are benefited(Pérez, Camacho, Mena, & Arroyo, 2016),the levels are:

- Stage 1. Emergent or basic
- Stage 2. Interaction
- Stage 3. Transaction
- Stage 4. Connected or processing
- Stage 5. Integrated Process
- It presented below in the Figure 1, each of the stages and a brief description of each one.

**Illustration 1.** Stages of e - government



Source: United Nations e-government Survey 2014, UN, 2014, p. 36

To identify the stage, briefly describes each (United Nations, 2014)

Stage 1 Emerging information services. Government websites provide information on public policy, governance, laws, regulations, relevant documentation and types of government services provided.

Stage 2 Enhanced information services. Government websites deliver enhanced one-way or simple two-way e-communication between government and citizen, such as downloadable forms for government services and applications.

Stage 3 Transactional services. Government websites engage in two-way communication with their citizens, including requesting and receiving inputs on government policies, programmers, regulations, etc. Some form of electronic authentication of the citizen's identity is required to successfully complete the exchange.

Stage 4. Connected services. Government websites have changed the way governments communicate with their citizens. They are proactive in requesting information and opinions from the citizens using Web 2.0 and other interactive tools.

## VI. STATE OF ART

To perform this research, and analyze the development in the implementation of e-government, it did a documentary study about the indicators suggested by the UN (2014), besides indicators suggested by the GAB (2010), to identify as they help assess progress in the implementation of information technology in government, however these are not apparent in local level (local governments), which it gave rise to these research and proposal.

In the Illustration 2, it shows the components of the indicators suggest by UN for the e-government

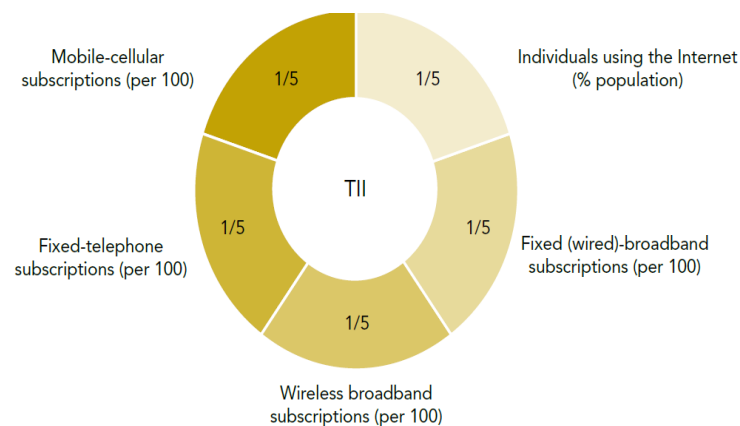
**Illustration 2.** Components of the development index of e-government



Source: United Nations e-government Survey 2014, UN, 2014, p. 14

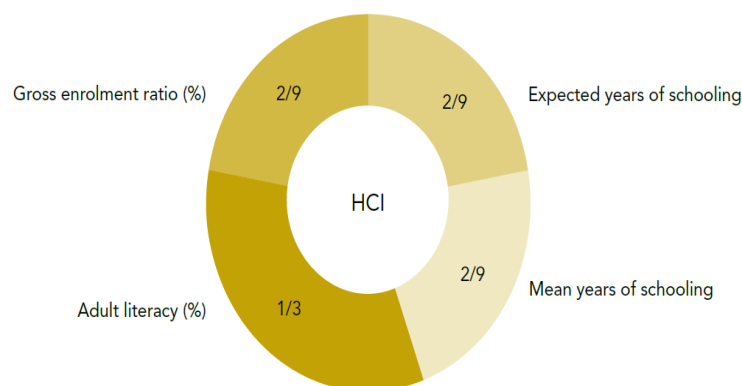
As can be evidenced are 3 major components: the index of online services, telecommunications infrastructure and finally the index of human capital. What makes e-government index is integral. Moreover, in Illustrations 2, 3 and 4 it shows the indicators of each component to identify in detail the areas that give rise to e-government Index:

***Illustration3 Telecommunications infrastructure index***



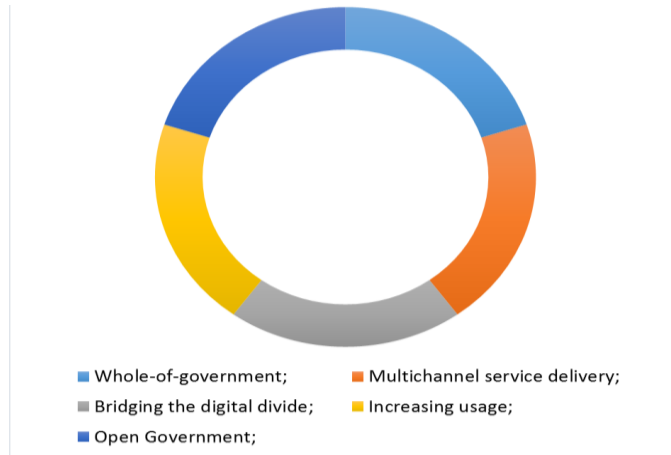
Source: United Nations e-government Survey 2014, UN, p. 188

***Illustration4 Human capital index***



Source: United Nations e-government Survey 2014, UN, p. 188

***Illustration5 Online Services Index***



Source: United Nations e-government Survey 2014, UN, p. 192

It is important to note that the Human Capital Index (Figure 4), consider the Survey questionnaire is organized in specific thematic (Subthemes) structured in four topics, Corresponding to the four stages of e - government development. the thematic subthemes are identified by UN (2014):

Moreover, ECLAC (2010), makes a proposal of 10 indicators plus 6 extended, to the evaluation of e-government. it should be noted that there are still no known data of these indicators, however, it is important to publicize, since in some future could work to obtain information.

The key indicators are (Naser, 2010):

1. CEG1 Percentage of employed in government institutions routinely using computers for their work
2. CEG2 Percentage of employees in government institutions routinely use the Internet for their work
3. CEG3 Percentage of employees in government institutions routinely use e-mail for your work
4. CEG4 Percentage of government institutions with Internet presence in your own website or the website of another entity
5. CEG5 Percentage of government institutions with corporate networks (LAN, WAN, Intranet)

6. CEG6 Percentage of government institutions with interoperability standards
7. CEG7 Percentage of government institutions with Internet access by type of access (narrowband, fixed broadband and mobile broadband)
8. CEG8 Percentage of government organizations offering services platforms users, according with this type of platform available: web, phone, fax and mobile phone
9. CEG9 Percentage of government institutions offering online services by type of activity
10. CEG10 Percentage of government institutions offering online services by type of service

#### Extended Indicators

1. EEG11 Percentage of ICT expenditure in the total expenditure, government organizations
2. EEG12 Percentage of employees in ICT in government organizations
3. EEG13 Percentage of employees in government institutions with computer skills
4. EEG14 Percentage of employees in government institutions with skills in using internet
5. EEG15 Percentage of government organizations that provide ICT training to their employees
6. EEG16 Percentage of ICT budget spent on ICT training

## VII. INTERNATIONAL CONTEXT OF THE E-GOVERNMENT

It is important to highlight the effort made by the countries around the world to implement and improve the rate of development of e-government. To do this, are presented below in Table 1, world leaders in this area, grouped by continent, as well as a comparative growth between 2012 and 2014(United Nations, 2014).

**Table 1**, world leaders in e-government



World e-government leaders	Regional e-government leaders	
Republic of Korea	AFRICA	Tunisia
Australia		Mauritius
Singapore	AMERICAS	United States of America
France		Canada
Netherlands	ASIA	Republic of Korea
Japan		Singapore
United States of America	EUROPE	France
United Kingdom		Netherlands
New Zealand	OCEANIA	Australia
Finland		New Zealand

Source: United Nations e-government Survey 2014, UN, 2014, p. 5

On the other hand, are shown in Table 2, the ranking of countries in Africa, in they the more meaningful advances are 20 and up to 70 among of 2012 vs 2014 positions on the top-ranked 2014 where Tunisia at position 75 are displayed.

**Table 2.** Ranking e-government of the African countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
High EGDI					
Tunisia	Upper Middle	0.5390	75	103	↑ 28
Mauritius	Upper Middle	0.5338	76	93	↑ 17
Egypt	Lower Middle	0.5129	80	107	↑ 27
Seychelles	Upper Middle	0.5113	81	84	↑ 3
Morocco	Lower Middle	0.5060	82	120	↑ 38
Middle EGDI					
South Africa	Upper Middle	0.4869	93	101	↑ 8
Botswana	Upper Middle	0.4198	112	121	↑ 9
Namibia	Upper Middle	0.3880	117	123	↑ 6
Kenya	Low	0.3805	119	119	-
Libya	Upper Middle	0.3753	121	191	↑ 70
Ghana	Lower Middle	0.3735	123	145	↑ 22
Rwanda	Low	0.3589	125	140	↑ 15
Zimbabwe	Low	0.3585	126	133	↑ 7
Cape Verde	Lower Middle	0.3551	127	118	↓ 9
Gabon	Upper Middle	0.3294	131	129	↓ 2
Algeria	Upper Middle	0.3106	136	132	↓ 4
Swaziland	Lower Middle	0.3056	138	144	↑ 6
Angola	Upper Middle	0.2970	140	142	↑ 2
Nigeria	Lower Middle	0.2929	141	162	↑ 21
Cameroon	Lower Middle	0.2782	144	147	↑ 3
<b>Regional Average</b>		<b>0.2661</b>			
<b>World Average</b>		<b>0.4712</b>			

Source: United Nations e-government Survey 2014, UN, 2014, p. 22

**Table 3.** Ranking e-government of the American Countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
United States of America	High	0.8748	7	5	↓ 2
Canada	High	0.8418	11	11	-
High EGDI					
Uruguay	High	0.7420	26	50	↑ 24
Chile	High	0.7122	33	39	↑ 6
Argentina	Upper Middle	0.6306	46	56	↑ 10
Colombia	Upper Middle	0.6173	50	43	↓ 7

Source: United Nations e-government Survey 2014, UN, 2014, p. 24

In the case of America (see Table 3) the countries that have experienced a significant increase in the index e-government are Uruguay, Chile, Argentina, Costa Rica and Brazil. In the case of Mexico, it fell 8 positions in relation 2014 vs 2012.

**Table 4.** Ranking e-government of the Asian Countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
Republic of Korea	High	0.9462	1	1	-
Singapore	High	0.9076	3	10	↑ 7
Japan	High	0.8874	6	18	↑ 12
Israel	High	0.8162	17	16	↓ 1
Bahrain	High	0.8089	18	36	↑ 18
High EGDI					
Kazakhstan	Upper Middle	0.7283	28	38	↑ 10
United Arab Emirates	High	0.7136	32	28	↓ 4
Saudi Arabia	High	0.6900	36	41	↑ 5
Qatar	High	0.6362	44	48	↑ 4
Oman	High	0.6273	48	64	↑ 16
Kuwait	High	0.6268	49	63	↑ 14
Malaysia	Upper Middle	0.6115	52	40	↓ 12
Georgia	Lower Middle	0.6047	56	72	↑ 16
Cyprus	High	0.5958	58	45	↓ 13
Armenia	Lower Middle	0.5897	61	94	↑ 33
Mongolia	Lower Middle	0.5581	65	76	↑ 11
Azerbaijan	Upper Middle	0.5472	68	96	↑ 28
China	Upper Middle	0.5450	70	78	↑ 8
Turkey	Upper Middle	0.5443	71	80	↑ 9
Sri Lanka	Lower Middle	0.5418	74	115	↑ 41
Regional Average		0.4951			
World Average		0.4712			

Source: United Nations e-government

Survey 2014, UN, 2014, p. 28

In the case of the countries of Asia (see Table 4) are led by Republic of Korea, Singapore, Japan and Israel, in some cases increased over 12 positions in the top 20 worldwide. It is important to note that countries like Armenia rose Azerbaijan and 28 and 33 posiciones of 2012 to 2014.

**Table5.** Ranking e-government of the Europe countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
France	High	0.8938	4	6	↑ 2
Netherlands	High	0.8897	5	2	↓ 3
United Kingdom	High	0.8695	8	3	↓ 5
Finland	High	0.8449	10	9	↓ 1
Spain	High	0.8410	12	23	↑ 11
Norway	High	0.8357	13	8	↓ 5
Sweden	High	0.8225	14	7	↓ 7
Estonia	High	0.8180	15	20	↑ 5
Denmark	High	0.8162	16	4	↓ 12
Iceland	High	0.7970	19	22	↑ 3
Austria	High	0.7912	20	21	↑ 1
Germany	High	0.7864	21	17	↓ 4
Ireland	High	0.7810	22	34	↑ 12
Italy	High	0.7593	23	32	↑ 9
Luxembourg	High	0.7591	24	19	↓ 5
Belgium	High	0.7564	25	24	↓ 1
High EGDI					
Russian Federation	High	0.7296	27	27	-
Lithuania	High	0.7271	29	29	-
Switzerland	High	0.7267	30	15	↓ 15
Latvia	High	0.7178	31	42	↑ 11
Regional Average		0.6936			
World Average		0.4712			

Source: United Nations e-government Survey 2014, UN, 2014, p. 31

In the case of countries of European (See Table 5) increases between 2012 and 2014. are displayed increase to 12 positions for Denmark and decrements of 15 positions for Switzerland, Nonetheless the countries shown are within the top 35 worldwide.

**Table6.** Ranking e-government of the Oceania Countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
Australia	High	0.9103	2	12	↑ 10
New Zealand	High	0.8644	9	13	↑ 4
High EGDI					
Fiji	Upper Middle	0.5044	85	105	↑ 20
Middle EGDI					
Tonga	Upper Middle	0.4706	98	111	↑ 13
Palau	Upper Middle	0.4415	108	113	↑ 5
Samoa	Upper Middle	0.4204	111	114	↑ 3
Micronesia (Federated States of)	Upper Middle	0.3337	130	127	↓ 3
Kiribati	Upper Middle	0.3201	132	149	↑ 17
Tuvalu	Upper Middle	0.3059	137	134	↓ 3
Marshall Islands	Upper Middle	0.2851	142	146	↑ 4
Nauru	Upper Middle	0.2776	145	141	↓ 4
Vanuatu	Lower Middle	0.2571	159	135	↓ 24
Low EGDI					
Solomon Islands	Lower Middle	0.2087	170	168	↓ 2
Papua New Guinea	Lower Middle	0.1203	188	177	↓ 11
Regional Average		0.4086			
World Average		0.4712			

Source: United Nations e-government Survey 2014, UN, 2014, p. 36

Finally, the continent of Oceania, showing two of its top 10 leaders in the world, which have experienced increases in positions 10 and 4 (Australia and New Zealand respectively). Moreover, countries like Vanuatu reflect a decrease of 24 positions, while Kiribati increased by 17 positions of this index among 2012 to 2014.

### VIII. LOCAL CONTEXT OF THE E-GOVERNMENT IN MEXICO

In the case of Mexico, although it has tried to stay above the world average, it takes further efforts to improve the index e-government, and likewise that not only the federal government evidencing progress on these indicators, the state governments and even local governments could make the effort to incorporate the indicators suggested by the UN, to standardize efforts and generate synergy in the solutions in the three levels of government as well as sharing knowledge and skills.

I suggest a uniform growth in the nation or even region of Latin America. However, this does not happen in the case of local governments, not generate their own indicators, that result confuse the objective pursued with the Information Technology and Communication, as is the use of social networks as a channel only communication for contact with citizens, or generate web portals that not receive attention causing loss credibility.

In this *sense*, it is presented in Table 7, a perspective of local e-government in Mexico, which is to identify the degree of maturity of e local *government*, but they do not consider all the indicators identified by the UN to validate the level of progress. However, they support to give us an idea of which areas needed to develop.

**Table 7.** *Maturity of e-government in Mexico in 2009*

Topic	Weighing
ICT infrastructure	27%
Organizational structure	22%
Regulatory framework	8%
Impulse to digital government	18%
Digital service maturity	17%
Security and privacy of information	8%
Total	100%

Source: Secretary of the public function, cited in Ruiz Morales Contreras (2014) "Perspectives local e-government in Mexico," Toluca, Autonomous University of the State of Mexico, p. 79.

In this line of ideas, as mentioned above, local governments generate their own indicators such as the use of social networks, possession and creating web pages, interaction with mobile devices and digital communication, that serving to measure the use of information technologies, they do not use the indicators suggested by the UN (2014), which that can disperse the real goal with the of e-government, where local governments are more concerned about the use of these digital media, that by all the context surrounding the use and successful implementation of ICT.

In this sense, it shown the digital government index, which takes as indicators: (Digital Municipal Government , 2014):

- Use social networking
- Tenure and website creation
- Interaction with Mobile Devices

- Digital communication

Due to the above, below it shows the ranking of the top ten municipalities in Mexico in digital government (see Table 8):

**Table 8.** Ranking of the first 10 municipalities in the digital government index in Mexico

No.	Municipality	State
1	Culiacán	Sinaloa
2	Celaya	Guanajuato
3	Tlajomulco de Zúñiga	Jalisco
4	Torreón	Coahuila
5	Miguel Hidalgo	Distrito Federal
6	Colima	Colima
7	Cuautitlán Izcalli	Estado de México
8	León	Guanajuato
9	Irapuato	Guanajuato
10	Guanajuato	Guanajuato

Source: Digital Municipality government (2014), <http://indicemunicipal.mx/recovered/06/01/2016>

On the other hand, are shown in Table 9, the ranking of the last 10 places of 500 registered in the study, according the Digital Municipal Government (2014)

**Table 9.** Ranking of the last 10 municipalities in the index of digital government in Mexico

No.	Municipality	State
490	Palmar de Bravo	Puebla
491	Pijijiapan	Chiapas
492	Pinotepa Nacional	Oaxaca
493	Reforma	Chiapas
494	Salto de Agua	Chiapas
495	San Pedro	Coahuila
496	Santa María del Río	San Luis Potosí
497	Santo Domingo Tehuantepec	Oaxaca
498	Tres Valles	Veracruz
499	Zinapécuaro	Michoacán
500	Zongolica	Veracruz

Source: Digital Municipality Government (2014), <http://indicemunicipal.mx/> recovered 06/01/2016.

Within the index Digital Municipal Government (2014), several problems that have been identified are presented, and generate miscalculation and uncertainty in its application, as listed below:

A. Portal web and formalities online

- 16% of the 500 most populated municipalities of Mexico does not yet have its own website
- Only 17% of municipalities offers transactional procedures on its website; that is, you can start and conclude online
- Half of the municipalities do not have an email account contact your website
- Only 4.4% of municipalities with web site has a chat and 5.2% with a blog. 28.2% have a newsletter
- Only half of municipalities use video as a communication tool, either via web or via YouTube
- The news section is the content that is found more often in municipal websites (84%)

**B. Social Networks**

- 25% of municipalities do not use social networks
- Of the municipalities that use social networks, only 33% responded to the public in the last month
- Facebook is the most used social network by municipalities; 60% have an account
- 52% of municipalities have a Twitter account, 42% have a YouTube channel and only 23% have a Google+ account
- A minority of 12% of the municipalities has four major social networks:
- Facebook, Twitter, YouTube, Google+

**C. Mobile**

- Only a quarter of municipalities have website for mobile phones
- Only 3% of the municipalities has a native application for smartphones
- Only 20 of 500 municipalities have SMS service to receive complaints or questions of citizenship
- 11% of the municipalities that have formats to send data or a search engine on your site, but, do not have in their mobile version

In this sense, (Ruiz, Morales, & Contreras (2014) present a scheme where some features of change and its possible limitations in the use of digital tools are listed in the index of Digital Government (see Table 10)

**Table 10.** Expressions of change and limitations in the digital government in Mexico

Dimensions	Ambit	Expression of change	Limit
Internal	Internal Management	<ul style="list-style-type: none"> <li>• Creating new structures</li> <li>• Definition of new working methods</li> <li>• Involvement of decision makers</li> <li>• Participation operating levels of the structure</li> <li>• Transformation of</li> </ul>	<ul style="list-style-type: none"> <li>• Legal Constraints</li> <li>• Organizational culture</li> <li>• Resistance to change</li> <li>• Informal rules</li> <li>• Lack of political will</li> </ul>



		<p>mental models</p> <ul style="list-style-type: none"> <li>• New forms of communication</li> </ul>	
External	Servicing	<ul style="list-style-type: none"> <li>• Increased service quality</li> <li>• Guidance to citizens</li> <li>• procedures not subject to rapid business hours</li> <li>• Making payments comfortable and easy</li> <li>• Obtaining proofs(documents) with valid</li> </ul>	<ul style="list-style-type: none"> <li>• Legal Constraints</li> <li>• Population with limited internet access</li> <li>• Distrust of citizenship to digital processes</li> </ul>
	Offer information	<ul style="list-style-type: none"> <li>• Easily accessible Websites</li> <li>• Clear identification of information</li> <li>• Ability to download files in different formats</li> </ul>	<ul style="list-style-type: none"> <li>• Population with limited internet access</li> <li>• Lack of accessibility</li> </ul>
	Democratic participation	<ul style="list-style-type: none"> <li>• Synchronous communication channels (chat)</li> <li>• Asynchronous communication channels (forums, email)</li> </ul>	<ul style="list-style-type: none"> <li>• Population with limited internet access</li> <li>• Lack of accessibility, or ignorance of the various interaction options</li> <li>• Distrust</li> </ul>

Source: Secretary of the public function, cited in Ruiz Morales Contreras (2014) "Perspectives local e-government in Mexico," Toluca, Autonomous University of the State of Mexico, p. 79

## IX. DISCUSIÓN

This research was based on the number of households with access to internet as a basis for the proposed of additional indicators that suggest the UN, within this were conducted comparative of

indicators as the "per capita income", "economically active population "to generate relationships and analysis and interpretation.

This analysis was conducted with a sample of 50 municipalities with a total of 2554, of which the first places were taken with internet access, this information is found available in the INEGI (2014).

At the beginning of the investigation, they suggest include two indicators in the index of human capital, however, the end of the analysis and comparison between indicators was noted that the only indicator that was related to internet access was the per capita income. The results were that 62% of the municipalities that were in the top 50, remained at the top in relation to housing with internet and with the best per capita income. Moreover, by mixing the third indicator related to the economically active population, only 38% of municipalities were retained in the top 50. From the above, it is suggested to include only the indicator of per capita income indicators to human capital as suggested by the UN. Moreover, it is worth commenting that the exercise includes the number of school years by municipality and this indicator remained in the top 50 in all three indicators studied, this indicator is already included in suggested by the United Nations. It should be noted that the indicator is suggested to include the rest of the already suggested by the UN, must collaborate with the other indicators and not be treated independently. It would have been worth a complete exercise where all indicators will be analyzed and proposed be added, however, the information not exist for these indicators at the municipal level. Moreover, it is well imperative to mention that all indicators suggesting the UN should be included by municipal governments, to performs a comprehensive study, which would make local governments on the one hand implement all indicators, and on the other hand, could identify their weaknesses, develop strategies to reduce and expand their strengths, and gradually increase their indicators of e-government. From the above, it is presented in Table 11 a comparative performed and the results, analysis and interpretation resulted in the proposal of the indicator.

**Table 11.** *Relation and analysis of indicators of Households with internet, per capita income and Economically Active Population.*

Municipally	State	VCI*	IPer	EAP
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San Pedro Garza García	Nuevo León	1	3	163
Benito Juárez	Ciudad de México	2	4	2
Coyoacán	Ciudad de México	3	10	26
Miguel Hidalgo	Ciudad de México	4	7	11
San Nicolás de los Garza	Nuevo León	5	13	57
Álvaro Obregón	Ciudad de México	6	67	15
Tlalpan	Ciudad de México	7	39	37
Cuajimalpa de Morelos	Ciudad de México	8	6	34
Zapopan	Jalisco	9	28	40
Metepec	Estado de México	10	20	136
Azcapotzalco	Ciudad de México	11	42	41
Cuauhtémoc	Ciudad de México	12	41	7
Corregidora	Querétaro	13	11	58
Huixquilucan	Estado de México	14	16	160
San Sebastián Tutla	Oaxaca	15	25	12
Atizapán de Zaragoza	Estado de México	16	43	71
La Magdalena Contreras	Ciudad de México	17	121	42
Guadalajara	Jalisco	18	57	29
Iztacalco	Ciudad de México	19	87	32
Monterrey	Nuevo León	20	21	122
Cuautitlán Izcalli	Estado de México	21	29	106
Ciudad Madero	Tamaulipas	22	18	313
Guadalupe	Nuevo León	23	50	90
La Paz	Baja California Sur	24	12	36
Hermosillo	Sonora	25	40	76
Cuernavaca	Morelos	26	14	53
Tlalnepantla de Baz	Estado de México	27	48	143
Venustiano Carranza	Ciudad de México	28	91	30
San Andrés Cholula	Puebla	29	76	229
Chihuahua	Chihuahua	30	24	125

Continue Table 11

Coacalco de Berriozábal	Estado de México	31	63	117
Tampico	Tamaulipas	32	49	133
Gustavo A. Madero	Ciudad de México	33	89	61
Cananea	Sonora	34	62	1116
Querétaro	Querétaro	35	34	39
Naucalpan de Juárez	Estado de México	36	59	128
Boca del Río	Veracruz	37	17	131
Xochimilco	Ciudad de México	38	147	79
Xalapa	Veracruz	39	45	101
Zacatecas	Zacatecas	40	68	225
Victoria	Tamaulipas	41	102	132
Tijuana	Baja California	42	32	54
Mexicali	Baja California	43	101	110
San Luis Potosí	San Luis Potosí	44	22	154
Mérida	Yucatán	45	31	75
Monclova	Coahuila	46	136	496
Villa de Álvarez	Colima	47	38	20
Santa Catarina	Nuevo León	48	106	64
San Andrés Huayápam	Oaxaca	49	267	13
Cozumel	Quintana roo	50	33	25

\* VCI.Householdswith Access to Internet, Ipre. per capita income, PEA. Economically Active Population. \*\*. per capita income y Economically Active Population was generated from all 2554 of 2005, as it was the most complete information, on the other hand, the number of households with internet access was obtained of 2010 of the INEGI (2010).

Source: Owner (2016), based on information from INEGI (2010)

## X. CONCLUSION

We can conclude that it is not to include indicators irrationally, but rather to suggest indicators to those already proposed by the UN, to enrich and highlight the areas in which local, regional and national governments channel their efforts to raise the rate and e-government and with it

successfully incorporate the Information Technology and Communication way, which potentiate and maximize the resources that municipal governments have besides generating transparent, economic, processes available and which collaborate with policy decisions to know what strengths and weaknesses are. In this case, it was confirmed that the indicator of per capita income could collaborate with other indicators which allow local governments to identify and progress that are in the process of e-government. Moreover, it is important to mention that municipal governments should understand that ICT have many dimensions of use, however, requires analysis and projections that exceed their mandates, however, must generate plans in which these technologies can continue to be implemented long term, so that (as) following leaders continue this process of incorporation and take advantage of the benefits associated with the use and implementation of information and communication technologies.

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