Organization Structure Municipally, Ready To The Organizational Incorporation Of The Information Technologies?

Israel Patiño Galván
Research Division of the Innovation Park – PILS
University La Salle Northwest, Mexico

J. Jesús Ceja Pizano
School Higher of Accounting and Administration
Polytechnique National Institute, Mexico

ABSTRACT

The Information Technologies (IT) Have empowered and optimized human activities in various disciplines, including the local public administration, and this has resulted in process transparency, optimization of resources, collaboration in decision making, projections, optimization, among other advantages. However, it is necessary to have a technological infrastructure that guarantees the incorporation and permanence of these technologies in the long term, and more important, to have a specialized organizational structure that oversees planning, developing, implementing, projecting and collaborating in the evaluation Constantly of the processes, as well as of the technologies, that have an innovative impact in the operative and administrative processes of the municipal administration. However, in the municipal public administrations, these advantages have not been integrated, much less think about their permanence, for this, this article suggests a specialized organizational structure that can guarantee the use of IT in the long term. This proposal is supported by inductive and deductive methodologies, field research that was carried out in a sample of Mexican municipalities and their current organizational structures that are responsible for managing and operating IT.

Keywords: Organizational Structure, Information Technologies, Public Administration local.

INTRODUCTION

The municipal public administration is the direct contact with the citizens, local companies, among others, with respect to the public services that they receive as part of the constitutional attributions that are entrusted to the municipalities of the Mexican Republic. Due to this, and given the increase in the needs and services of the population, there is a greater demand, which means that the municipal authorities generate strategies to meet them in a satisfactory manner in its four dimensions: Government - Citizen, Government - Company, Government - Employee and Government - Government [1]. In this sense, Information Technology plays a crucial role in providing support in the care and monitoring of these needs and services. That they collaborate in the incorporation of the Information Technologies in the administrative and operative processes proper to the municipalities. Despite the efforts made by the municipalities, these have not been sufficient, so it is necessary to enhance the use of Information Technology, integrating them directly in the strategic decisions, to project current and future needs of the respective public services. From the above, it is important to propose a strategic organizational structure, where the incorporation, permanence and satisfactory evolution and long-term of Information Technologies, to enhance municipal administrative and operational activities are guaranteed.

In this article, the antecedents of the organizational structures and the Information Technologies, as well as the international context of the incorporation of the IT in the public administration. Subsequently the results of documental and field research are presented, to conclude with the proposal of a specialized organizational structure and the conclusions of the present.

BACKGROUND OF ORGANIZATIONAL STRUCTURES.

Organizational structures emerged at the stage of the industrial revolution (1760 - 1840) with the growth of companies and with it the increase in the complexity to organize them, since it was not possible to administer them with little personnel, which made the assignment complicated Of functions, so that departments had to be expanded spontaneously and improvised, until the scientific administration appeared with Taylor [2], in which appeared the authority, responsibility and separation of the administrative process. Already for the twentieth century organizational structures dominated the field of organizational analysis, to optimize the processes and resources of companies, and has now moved to a stage of focusing the analysis on the environment of organizations, as processes of Growth, encompassing a broader range of phenomena involving organizations.

On the other hand, organizational structures form a core part of organizations, in they is identify the organization, execution and control of what is planned in the organization. In this sense, its functioning is based on theory as comparing an organizational structure with a building structure [3]. However, it would change that analogy by comparing organizational structures with the human body, by the fact that structures Think, evolve, grow and develop, where each of the departments / areas / departments / people collaborate to achieve the same goal, and where failure to do so damages the direct or indirect functioning of other areas, such as Is proposed by systems theory, which proposes to re conceptualize the phenomena within a global approach to achieve the interrelation and integration of the basic aspects or premises that every system, has an input, a process and product, is a unit Autonomous that is related to another superior system, that is able to adapt and to survive in its characteristic environment and that maintains a continuous exchange of matter, energy and information with the environment [4].

CONTEXT OF ORGANIZATIONAL STRUCTURES
Concepts of organizational structures

To be able to size the importance of the organizational structures, the following definitions are presented per the following authors:

- It is the distribution of people in different lines. Between the social positions that influence the role of them in their relations [5].

- It is a complex means of control that is produced and recreated continuously by the interaction but that determines, at the same time, that interaction: structures are constituted and constitutive [6].

- It is the way your work is divided and how these separate activities are coordinated and integrated. Conventional structures are generally represented in a diagram consisting of frames and connecting lines. They show who has the responsibility of who and who has authority [7].

- Represents and describes the relationships among members of the organization and which in turn serves to limit, guide and anticipate organizational activities, to increase the effectiveness of operations and results [8].

From the above it is concluded that an organizational structure is the segmentation of activities to achieve the execution of the previously planned activities, where the functions, obligations and authority of the members are determined, obtaining if the feedback between all the areas related to reach of the specific and general objectives of the organization.

Types of organizational structures
The type of structure is determined by the size of the organization and the staff that compose it, which is why it is crucial the forms of organization between each of the areas that comprise it. So, there are varied types of structures.

To achieve a simple and easy to understand identification is presented in Table 1., the following classification [9]:

Table 1. Main Organizational Structures

Forms	Structures
	Simple
Simple	Functional
	Divisional
Classic complexes	Matrix

Source: **Organization of companies [9]**

To know these structures are conceptualized, and it presenting the factors that affect the organizational design called "contingency factor". The following are the main organizational structures [10]:

1. Simple structure. It can be considered as a non-formal structure. In a simple structure, the organization is governed by the personal control of an individual. It is the type of organization common to many small businesses. There is usually an owner who assumes most of the managerial responsibility, perhaps with a partner or an assistant. However, there is little division of managerial responsibility, and probably an unclear definition of who is responsible in situations where more than one person is involved.

2. Functional structure. It is an organizational design that groups occupational specialties and is based on the primary activities to be performed, such as production, finance and accounting, marketing and personnel. It is the functional approach and departmentalization applied to the entire organization. It is used in organizations of an industrial type that emphasizes the principles or parameters of the horizontal design and that looks for the administrative rationality and the increase of the economic productivity.

3. Divisional structure. It is the one that divides the organization into units or divisions, partially autonomous, depending on the products, services, geographic areas or processes of the company. The division usually arises as an attempt to overcome the problems of functional structures in solving the problems derived from diversification.

4. Matrix structure. A matrix structure is a combination of structures that often take the form of geographical and product divisions, or functional and divisional structures that operate simultaneously. Matrix structures may be preferred because there is more than one conditioning factor of the type of structure which renders functional structures or functional or divisional structures inadequate. The matrix model can be considered as

an important linking or coordination system in the organization, integrating several lateral relationships. Derived from the above, a comparative table between the different main organizations structures is presented below.

Table 2. Comparison of main organizational structures

Structure	Strengths	Weak points
Simple	Flexibility	Owner / manager's dependency
	Sense of mission	Little specialization
Functional	Specialization	Low flexibility
	Formalization	Inadequate in diversified companies
Divisional	Orientation to the environment	Information Asymmetries
	Existence of profit centers	Problems of coordination of divisions
Matrix	Support for creativity and innovation	Double authority
	Ability to cope with very dynamic environments	Dedication to meetings and conflict resolution

Source: The evolution of the design and the organizational structure [10], p.38

Continuing with organizational structures, new forms of organization are presented [11] (See Table 3).

Derived from Table 3, it will be emphasized on the network and virtual structures, since the present work focuses on these.

### Table 3. Proposals for new organizational structures

Denomination	Author
Adhocracy	Mintzberg [12]; Malone y Rockart [13]
Post-industrial organization	Huber [14]
Circular organization	Ackoff [15]
Internal market	Malone, Yates y Benjamín [16]; Ouchi [17]
Heterarchy	Hedlund [18]
Organization in Networking	Miles y Snow [19]; Eccles y Crane [20]; Ghoshal y Barlett [21]
Federal organization	Handy [22]
Knowledge-based organization	Badaracco [23]
Cluster organization	Milis [24]
Open corporation	Wagner [25]
Virtual organization	Davidow y Malone [26]; Bridges [27]
lnternal network	Snow, Miles y Coleman [28]
Infinitely flat organization	Quinn [29]
Technocracy	Burris [30]
Horizontal organization	Ostroff y Smith [31]
Post-bureaucratic form	Heckscher [32]
N-form	Hedlund [33]
Lateral organization	Galbraith [34]
Hypertextual Structures	Nonaka y Takeuchi [35]
Platform or flat structure	Ciborra [36]
T-form	Lucas [37]
Cellular	Miles, Snow, Mathews, Miles y Coleman [38]
Fractal Structures	Morales [39]

Source: The evolution of the organizational forms, from Simple Structure to Organization in Network and Virtual Organization [11]

Organizational network structure.

It represents the fragmentation of the company in the segregation of activities, substituting the activities integrated in a conventional way by agreements between companies and by all type of link between companies (See Illustration 1). The network organization would be defined as; "A framework that serves as a basis for the simultaneous, coordinated, balanced and integrated operation of more than one organization, since it presents the various inter-organizational relationships existing between the different elements that make up." These interrelations include technicians and behavior, based on the conditioning factors and the components that influence their own design [10].

Illustration 1. Organizational Structure of Nwtwork
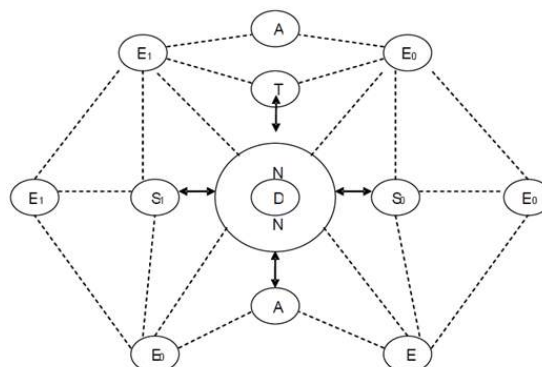
A. Alliances   D. General Direction E. Enterprice
Si. Outsourcing (input)   N. Professional core
So. Outsourcing (output)   T. Flexible Work
Source: The evolution of the design and the organizational structure [10], p.77

Derived from the above the companies and organizations are part and are related in the following way (See Table 4)

Table 4. Types of networks in which people and organizations are part

Concept	People	Knowledge	Organizations
People **Link** **Phenomenon** **Learning**	Social network Who knows to whom Social structure Structural learning	Knowledge Network Who knows what Culture Individual learning	Network Who works where Organizational demography Rotation based learning
Knowledge **Link** **Phenomenon** **Learning**	----	Information Network What informs what Intellectual training Discovery	Network of competences What is where Basic skills I & D and strategic learning
Organizations **Link** **Phenomenon**	-----	----	Inter-organizational network Organizational unions Industry-level structure
Learn	----	----	Imitation, transfer, adoption of best practices

Fuente: The evolution of organizational forms, from Simple Structure to Networking and Virtual Organization. [10], p. 78, by Carry [40]
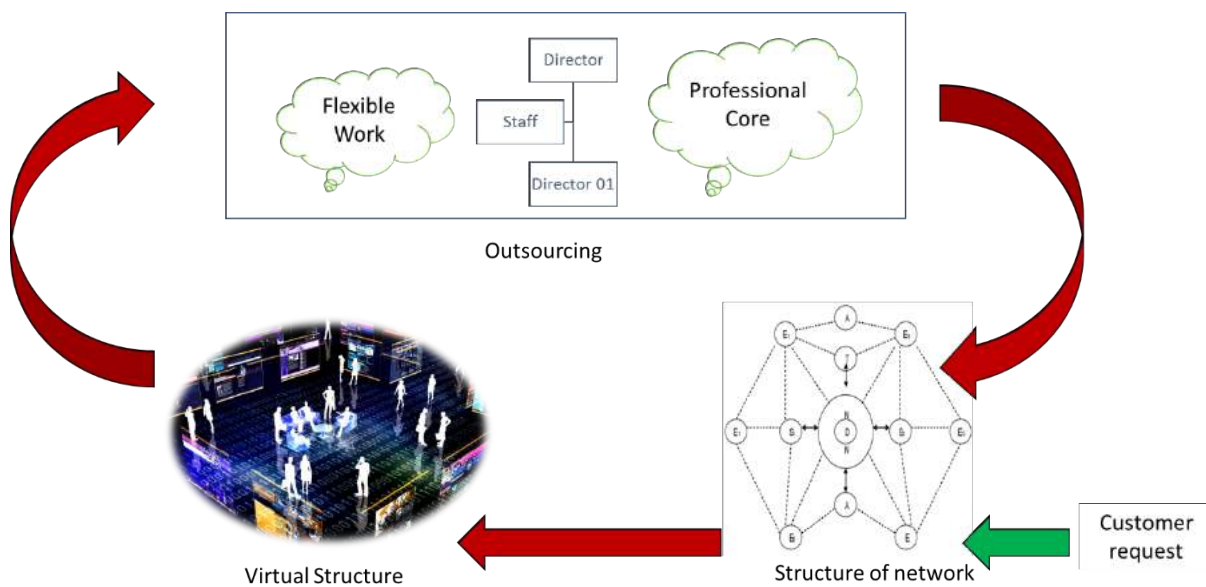
One observed trend, is that organizations are disintegrating their activities, due inter alia to the lower costs of electronic interconnection with other companies, suppliers or customers, which is causing companies to gradually shift towards more market-based structural configurations, with some specialized functions carried, in hierarchical organizations, and point out the

challenge for companies to effectively manage such interdependence [41]. In this sense, a dynamic network is the cause and result of the current competitive environment. The characteristics of this dynamic network are: vertical disaggregation (activities that were previously carried out within an organization are now done outside, by independent organizations). Networks may be more or less complex and dynamic depending on competitive circumstances), such as: a. Intermediaries (business groups agree through intermediaries since the activities are done in a single organization) b. Market mechanisms (the main functions are carried out jointly, employing market mechanisms rather than plans and control), c. Contracts and payouts are used more than reports of progress or personal supervision, d. State-of-the-art information systems (computerized information systems with up-to-date information) [19].

Virtual Organizational Structure
Geographically dispersed, temporary or permanent set of individuals, groups, organizational units, or complete organizations dependent on electronic unions to complete a productive process [42]. It is important to emphasize the importance of Information and Communication Technologies for the effectiveness of the activities carried out in the virtual organization [11] (See Illustration 2 and 3).

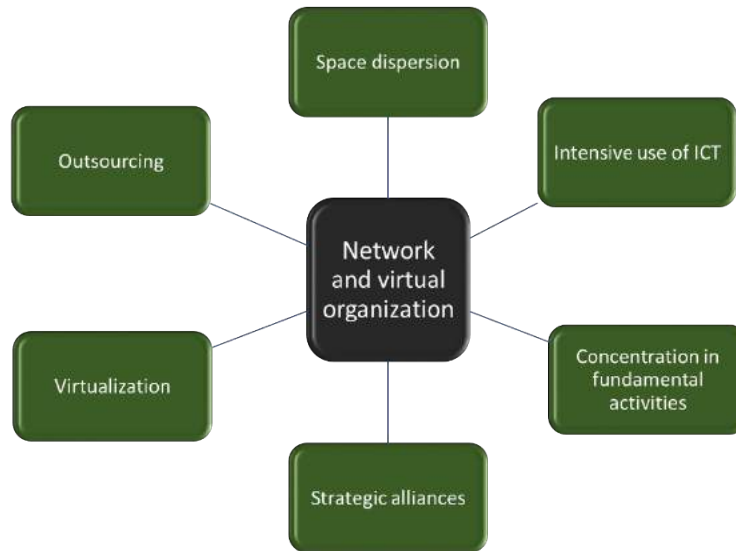**Illustration 2. Evolution of the traditional structure to the virtual**

*Image of virtual structure retrieved
From:http://eloraculomundial.blogspot.mx/2015/02/vivimos-en-un-mundo-virtual-tipo-matrix.html, 26/12/2016, con fines demostrativos
**Source: own, from [10], [11]**

Illustration 3. Characteristics of the virtual organization

***Source*: The evolution of organizational forms, from Simple Structure to Networking and Virtual Organization [11], p. 83**

Considering the current situation of the organizations, it is suggested to add 3 characteristics to the virtual organization, as shown in Illustration 4.

Illustration 4. Extended characteristics of the virtual organization
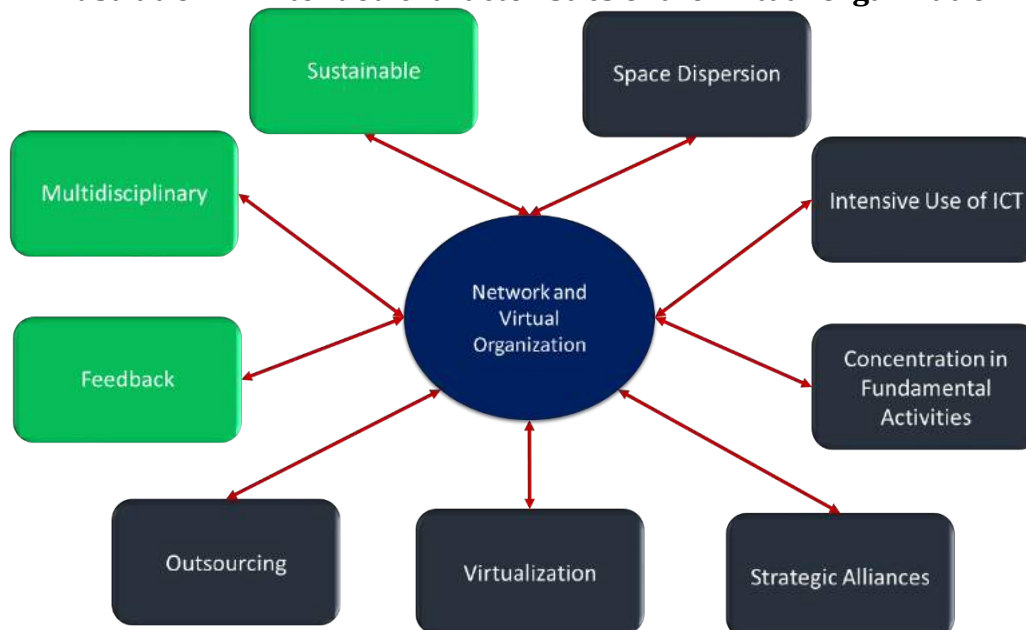
***Source*: Own (2017), Integrating with the suggested of [11], p. 83**

Finally, several types of virtual organizations are considered, as shown in Table 5, which help to understand their dimension [43]: permanent virtual organizations, virtual teams, virtual projects and temporary virtual organizations. In these the double dimension of the concept (internal and external) and the generality of its application is observed, since they are gathered from structures formed ad-hoc by work teams to networks of permanent companies that form a permanent virtual organization [11].

Table 5. Types of Virtual Organizational Structures

Concept	Virtual Teams	Virtual Projects	Virtual Organization Temporaly	Permanent Organizations
Scope of Internal participation	Internal, towards an organizational function or departmental unit	Between functions and organizations	Between organizations	Between organizations
Members	Small, local	Undetermined	Broad Typically	Small Typically but scalable
Missions	Equipment for specific and continuous tasks	Multiple representatives of the organization working on specific projects	Multiple roles responding to a market opportunity	All the functions of an organization
Project duration	Members change, but the form is permanent	Temporary	Temporary	Permanent
Use of ICT	Connectivity, sharing of knowledge	Data Sharing	Shared Infrastructure	Channel for marketing and the distribution, replacing the physical infrastructure

Source: **The evolution of organizational forms [11], p. 78 & [43].**

Contexto De Las Tecnologías De La Información En El Ámbito De La Administración Pública

In the international context, regarding the use of Information Technology and strategic organizational structures in public administration. The United Nations [44] has defined a framework for the evolution of Electronic Government at four levels of maturity, which has served as a reference for countries to define their own models, these levels are: 1. Emerging level, 2. Level Improved, 3. Transactional level and 4. Connected level. In this case, the municipalities of Mexico are located between the emerging level and in some at an improved level. On the other hand, in e-government forums of the Organization of American States [45], the importance of the models of maturity of an Electronic Government is framed. In this sense, the Organization for Economic Cooperation and Development [46] conducts studies and generates proposals for the satisfactory evolution in the use of technologies and their adequate instrumentation, relying on organizational structures for their operation. The Economic Commission for Latin America and the Caribbean [47] as part of the UN, likewise makes contributions and recommendations towards efficient innovation policies in public administration.

In the Mexican context, the Federal Government in the National Development Plan according to the Government of the Republic of Mexico [48] establishes the National Digital Strategy to "foster the adoption and development of Information and Communication Technologies, An effective government that inserts Mexico into The Knowledge Society, in addition to consolidating a government that is productive and effective in achieving its objectives, through an adequate rationalization of resources, recognition of merit, replication of best practices and implementation of automated management systems. " Replicated this strategy, as a process that is under development. However, the municipalities have lagged, as they do not have a specialized organizational structure to collaborate with the successful implementation of Information Technology. In relation to the national collaborative efforts, on this subject, it is the National Institute for Federalism and Municipal Development [49], making contributions in

the organizational sense - strategic and technological. On the other hand, the National Council of Science and Technology (CONACYT) frequently collaborates with incentives to carry out research that collaborates with this effort. This implies an evolution not only organizational and technological but also cultural and education, since the incorporation of Information Technology in public management impacts both public bodies and society.

METHODOLOGIES OF THE INVESTIGATION

On the other hand, the methodologies of the scientific and technologic research that are they will employ are: Analysis - Synthesis, Induction and deduction, and finally the systemic functional structural:

- Analysis – Synthesis. Analysis is a theoretical process through of the complex whole. It decomposes in different parts and qualities. This allows the mental division of whole in multiple relations and components. The synthesis, establishes mentally the union among the parts previously analyzed and discover it's the essential relation and general characteristics. The synthesis produces on the results previously obtained in the analysis and allow the systematization of the knowledge [50]

- Induction -Deduction. These are theorists process of importance fundamental to the research, so that, for understand is necessary explain each one Induction, is a process through which, starting to facts similar is performed the general propositions, to helping to the formulation of the hypothesis. This process of the research always is in union to the deduction. Otherwise, the deduction form part, of the dialectic knowledge and the reality indissolubly [51]

- Systemic functional structural. Their evidence action the interrelationship of ideas, connection of concepts, systems of recommendations and union of methodologies and strategies, is become in an important via for the explain of the object of research.

INVESTIGACIÓN DE CAMPO

Determination of the sample

For the determination of the sample the type of population was analyzed, which was integrated by the 2,456 municipalities of the Mexican Republic and that to take a significant sample was used the simple stratified sampling and cualitative analyses (variables) like:

- Gross domestic product
- Total population
- Grade Level Average
- Housing with Internet

Once the variables and the technique for the determination of the sample were defined, the calculation was make.

Equiation:

$$n = \frac{Z^2 pqN}{NE^2 + Z^2\ pq}$$

Where:

      n = Theoretical quantity of elements of the sample (¿?)
      Z = Reliability (1.96)
      p = Percentage that meets the characteristics of the population (93%)
      q = Percentage that does not meet the characteristics of the population (7%)
      N = Population (2, 456)
      E = Error assumed (5%)

Substituting values into the equation:

$$n = \frac{(1.96)^2 * (0.93 * 0.07) * 2456}{(2456 * (0.05)^2) + (2456)^2 * (0.93) * (0.07)} = 96.12$$

The sample to be studied is 96 (rounded) municipalities throughout the Mexican Republic. After finding the number of samples, an analysis of the variables was carried out, to include in the study municipalities to consider the participation of all the States of the Mexican Republic. For this, Table 6 is presented in which the analysis is shown.

Table 6. Analysis of variables by municipality to determine the selection of samples

No.	State	Number of Municipality	Relative Frequency	Relative cumulative frequency
1	Aguas Calientes	11	0.45%	0.45%
2	Baja California	5	0.20%	0.65%
3	Baja California Sur	5	0.20%	0.86%
4	Campeche	11	0.45%	1.30%
5	Chiapas	118	4.80%	6.11%
6	Chihuahua	67	2.73%	8.84%
7	Ciudad de México	16	0.65%	9.49%
8	Coahuila	38	1.55%	11.03%
9	Colima	10	0.41%	11.44%
10	Durango	39	1.59%	13.03%
11	Estado de México	125	5.09%	18.12%
12	Guanajuato	46	1.87%	19.99%
13	Guerrero	81	3.30%	23.29%
14	Hidalgo	84	3.42%	26.71%
15	Jalisco	125	5.09%	31.80%
16	Michoacán	113	4.60%	36.40%
17	Morelos	33	1.34%	37.74%
18	Nayarit	20	0.81%	38.56%
19	Nuevo León	51	2.08%	40.64%
20	Oaxaca	570	23.21%	63.84%
21	Puebla	217	8.84%	72.68%
22	Querétaro	18	0.73%	73.41%
23	Quintana Roo	9	0.37%	73.78%
24	San Luis Potosí	58	2.36%	76.14%
25	Sinaloa	18	0.73%	76.87%
26	Sonora	72	2.93%	79.80%
27	Tabasco	17	0.69%	80.50%
28	Tamaulipas	43	1.75%	82.25%
29	Tlaxcala	60	2.44%	84.69%
30	Veracruz	212	8.63%	93.32%
31	Yucatán	106	4.32%	97.64%
32	Zacatecas	58	2.36%	100.00%
Total		2456	100.00%	-
Promedio		76.75	3	

Source: Own (2017)

Once the segmentation was done, and considering the variables, it is confirmed that the sample is 96, taking 3 municipalities from each state of the Mexican Republic. The selected municipalities were (See Table 7).

Table 7. Selection of the sample (Source: own 2017)

No	State	Municipality	No	State	Municipality
1		San José de Gracia	49		Tlalnepantla
2	Aguas Calientes	Asientos	50	Morelos	Jantetelco
3		Aguascalientes	51		Cuernavaca
4		Playas de Rosarito	52		Del Nayar
5	Baja California	Ensenada	53	Nayarit	San Pedro Lagunillas
6		Tijuana	54		Tepic
7		Comondú	55		Mier y Noriega
8	Baja California Sur	Mulegé	56	Nuevo León	Melchor Ocampo
9		La Paz	57		San Pedro Garza García
10		Calakmul	58		Asunción Tlacolulita
11	Campeche	Champotón	59	Oaxaca	Villa de Chilapa de Díaz
12		Campeche	60		San Sebastián Tutla
13		Escobedo	61		Ahuatlán
14	Coahuila	Matamoros	62	Puebla	Tepeojuma
15		Monclova	63		San Andrés Cholula
16		Ixtlahuacán	64		Landa de Matamoros
17	Colima	Coquimatlán	65	Querétaro	Huimilpan
18		Villa de Álvarez	66		Corregidora
19		Sunuapa	67		José María Morelos
20	Chiapas	Tzimol	68	Quintana Roo	Tulum
21		Tuxtla Gutiérrez	69		Cozumel
22		Huejotitán	70		Santa Catarina
23	Chihuahua	San Francisco de Conchos	71	San Luis Potosí	Ciudad del Maíz
24		Chihuahua	72		San Luis Potosí
25		Milpa Alta	73		Badiraguato
26	Ciudad de México	La Magdalena Contreras	74	Sinaloa	Navolato
27		Benito Juárez	75		Culiacán
28		San Pedro del Gallo	76		Onavas
29	Durango	Pánuco de Coronado	77	Sonora	Etchojoa
30		Durango	78		Hermosillo
31		Atarjea	79		Jonuta
32	Guanajuato	Apaseo el Alto	80	Tabasco	Teapa
33		Guanajuato	81		Centro
34		Tlacoapa	82		San Nicolás
35	Guerrero	Leonardo Bravo	83	Tamaulipas	Antiguo Morelos
36		Chilpancingo de los Bravo	84		Ciudad Madero
37		Juárez Hidalgo	85		Españita
38	Hidalgo	Mineral del Chico	86	Tlaxcala	Contla de Juan Cuamatzi
39		Pachuca de Soto	87		Tlaxcala
40		Tuxcacuesco	88		Aquila
41	Jalisco	Teocaltiche	89	Veracruz	Manlio Fabio Altamirano
42		Zapopan	90		Boca del Río
43		San José del Rincón	91		Chacsinkín
44	Estado de México	Ayapango	92	Yucatán	Santa Elena
45		Metepec	93		Mérida
46		Tzitzio	94		Melchor Ocampo
47	Michoacán	Gabriel Zamora	95	Zacatecas	Apozol
48		Morelia	96		Zacatecas

## RESULTS OF DOCUMENTARY AND FIELD RESEARCH

The research was done in a mixed way, the first through field research and the second through documentary research carried out on the web pages of the selected municipal governments, as well as official websites, where is identified the type of organizational structure that Has the municipalities. Derived from this second, the results obtained are as follows (see Table 8):

Table 8. Type of Municipal Structures

Type of Organizational Structure	Sample	Percentage
Divisional	9	9%
Functional	65	68%
Matrix	1	1%
Simple	21	22%
Total	96	100%

Source: Own (2017)

Graphic 1. Representation of municipal organic structures
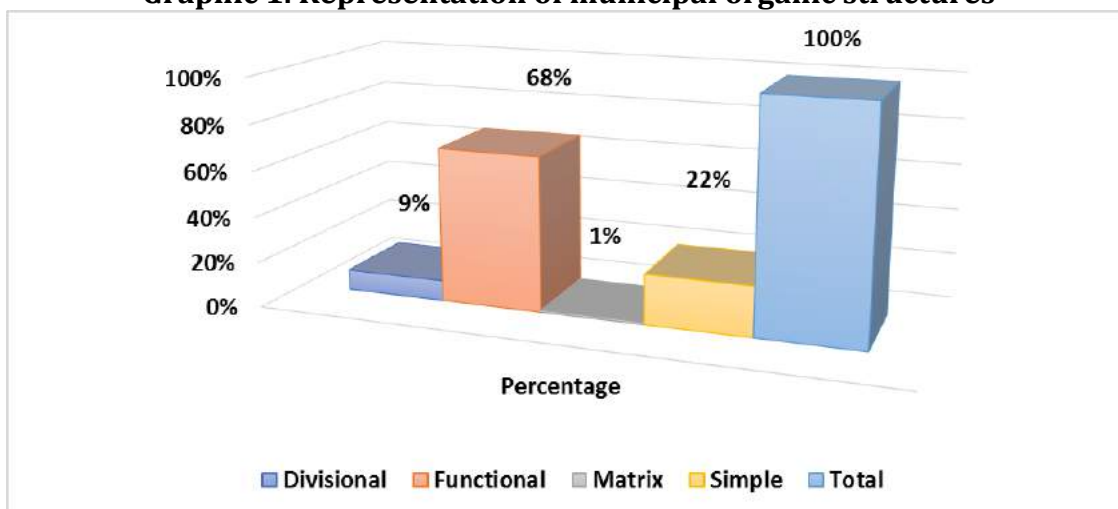
Soucer: Own (2017), according to the Table 8

As can be seen in Table 8 and Graphic 1, 68% of municipalities use a Functional organizational structure, while 22% use simple structures, finally, 9% of municipalities have divisional structures and only 1% matrix.

By performing a qualitative (complementary to the qualitative) analysis, the behavior analyzed in these results indicates that the more complex the organization goes from a Simple to a Functional, from Functional to Divisional and from Divisional to Matrix structure.

On the other hand, entering the analysis on whether the organizational structures contemplate an area on Information Technologies or related, the result can be visualized in the Table 9.

Table 9. **Areas identified with Information Technology or related functions, within the municipal organizational structures.**

Description of the area	Frequency	Frecuencia relativa
Systems administrator	1	1%
Computer and Asset Control Coordination	1	1%
Department of Digital Government / Information Services Department	1	1%
Department of Information Systems	2	2%
Department of Computer Systems	1	1%
Department of Systems Technology	1	1%
Computer Department	2	2%
Department Systems and Maintenance	1	1%
Information Management	2	2%
Directorate of Informatics and Technological Systems	1	1%
Systems Management	2	2%
Systems and Information Management	1	1%
Technology Direction	1	1%
Direction of Information Technologies	3	3%
Direction General of Information and Communication Technologies	1	1%
Computing	1	1%
IT and Social Communication	1	1%
Computer and Systems	1	1%
No Information Technology or Similar Area	71	74%
Unit of Information Technologies	1	1%
Total	96	100%

Source: Own (2017)

As can be seen in Table 9, 74% of the municipalities in the sample do not have an area assigned to attend functions on Information Technology (IT). The rest is dispersed between coordinations, departments and Unit of Information Technologies as shown in Table 10.

Table 10. **Grouping of areas with functions of Information Technologies within the structures municipal organizations**

Description of the area	Units	Percentage
Leadership	1	1%
Coordination	1	1%
Department	8	8%
Direction	11	11%
Unit	4	4%
Without Information Technology or Similar Area	71	74%
Total	96	100%

Source: **Own (2017)**

It is important to identify the department and the hierarchical level assigned to IT functions since IT will have greater responsibilities, obligations, authority and interference in decision making. As can be seen in Table 10 and Graph 2. Only 11% of the sample is assigned to one

address, and the others have hierarchy of lower levels so their responsibilities, obligations, and decision making have less authority.

Graphic 2. Grouping of areas with functions of Information Technologies within the structures municipal organizations
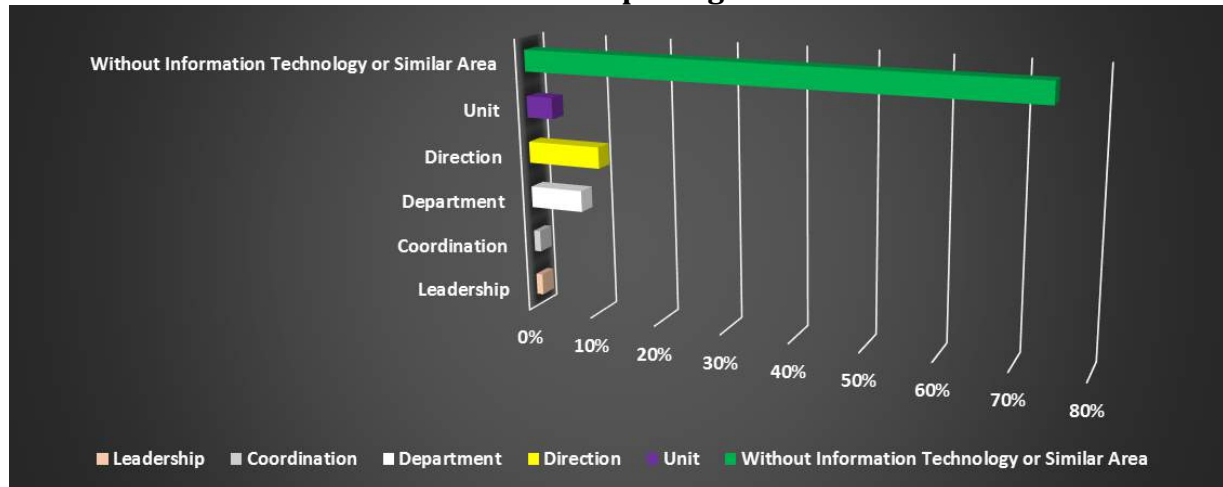
Source: Own (2017), according to Table 10

Table 11. Direct reporting areas of IT

Description of the area to which they report	Frequency	Relative Frequency
General Administration Coordination	1	1%
Department of Social Communication	1	1%
Office of the Municipal Presidency	1	1%
Treasury Administration and Monitoring Department	1	1%
Direction of Planning and Communication	1	1%
Direction General of Public Safety and Traffic	1	1%
Office of the Mayor	1	1%
Department of Materials Resources	1	1%
Municipal president	4	4%
without area of Information Technology or similar	71	74%
Secretary of Administration	3	3%
Secretary of Administration and Finance	1	1%
Secretary of the Town Hall	3	3%
Sub coordination of Social Development	1	1%
Admissions and Innovation Branch	1	1%
Municipal Treasury	4	4%
Total	96	100%

Source: Own (2017)

Another important aspect to analyze is the area to which the Information Technologies or related within the municipal structure. As can be seen in Table 11, only 4% report to the presidency, followed by the Municipal Treasury with the same percentage and 3% to the City Hall Secretariat. While this is not good or bad, it is important to mention that the more hierarchy the IT area has, the more interference it has in decision making, authority and responsibility.

Proposal Of A Specialized Organizational Structure To Satisfactorly Incorporate Information Technologies

Una vez que se ha llevado a cabo el análisis de la información histórica y teórica de las estructuras organizativas, y se ha realizado la investigación documental y de campo, se propone una estructura organizativa municipal para incorporar las Tecnologías de la Información. La estructura organizativa propuesta en la administración pública municipal, consta de 3 fases que se deben al crecimiento en la complejidad de las organizaciones, así como a la incorporación de Tecnologías de la Información.

Phase 1. Inclusion of an area of Information Technologies. The transcendence of the proposal, lies in the strategic incorporation of the information technologies as part of the organizational structures of the local government. Derived from the above, its detail the proposal.
Proposal one organizational structure strategic:

- Proposal of positions, functions, obligations and responsibilities, with the normative support

- Suggestion of interaction that will have the organizational structure

- Analyses cost/ benefit of the proposal.

- Normative strategies for the collaboration of the proposal in the decision making like: municipal programs, municipal plan of development, municipal band, regulations, among others.

- Suggestions in the distribution of municipal budget, for the works strictly of technological modernization through, the systematization of administrative process and operatives, as well as systems of strategies support

- Proposal of processes that stimulates the transparency in the activities and process, per the laws, propitiating well the feedback and increase the credibility with the citizens

- Propitiate through administrative and technological conceptual models, the viability of information among the municipal dependencies and citizens, backed with the normative framework corresponding

- Propose program, aligned to the normative framework for increase gradually the efficiency and efficacy in the municipal processes, for offer a best service to the citizens, and internally generate a web of knowledge of information

- Recommend reengineering of process, and therefrom, propose corrections, delete duplications of the functions areas, with the goal to maximize the resources and speed up the benefit of the local public services

- Recommend through different technologies platforms, the interaction between the municipal authorities and the citizens

- Backed the proposal, supported for the regulatory framework, or in failing proposal a series correction with the goal of include of the information technologies in the municipal environment satisfactorily

- Process of strengthening for the incorporation of the information technologies in the local organizational structures

It shows the next conceptual diagram the proposal (According the Ilustration 5).

Ilustración 5. Organizational structure of the proposal
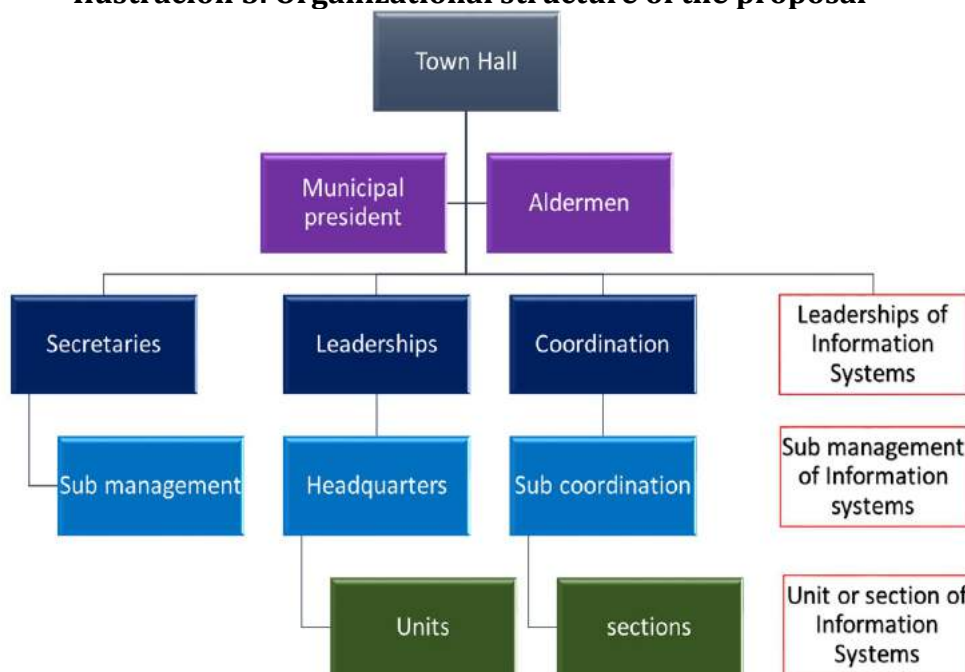
Source: own (2017), take as references: Municipal Organic Law of the State of Mexico, Municipal laws (2013) and Internal regulations (2013) of the municipals.

As can be seen in Illustration 5, it is suggested to start with an Information Technology section, and depending on the degree of assimilation and use (adapt UN evo - lution indicators), increase the hierarchy to Directorate or Secretary with direct report to the municipal presidency.

Phase 2. Evolution of Simple, Functional and Divisional Structures to Network Structures. Although the complexity of the organization is an important factor for structures to evolve, from my point of view, they can initiate the transition from simple, functional and divisional Structures to Network structures where the current functions will not be lost, rather it will have an interaction with the other areas in a permanent way to collaborate with the achievement of the general objective.

As can be seen in Illustration 6, the municipal structure is organized in such a way that the secretariats, management and other areas remain with the same hierarchical level as they had in simple, functional and divisional structures. What is added is the interaction and service provided between the areas, which will be reflected in a better communication, giving rise to feedback, complementing ideas and knowledge without losing authority and functions. On the

other hand, it is important to point out that the normative part must be modified according to the suggestion of areas and their interaction, in order to delimit their interrelation and scope.

The application of the Network structure depends on the maturity in the application of phase 1 (See Illustration 5), where it is necessary to elevate the Information Technology Department with a direct report to the municipal presidency, in addition to the Technological infrastructure needed to support the change to a Network structure.

Illustration 6. Network Organizational Structure

Direct reporting line
Line of service and interaction
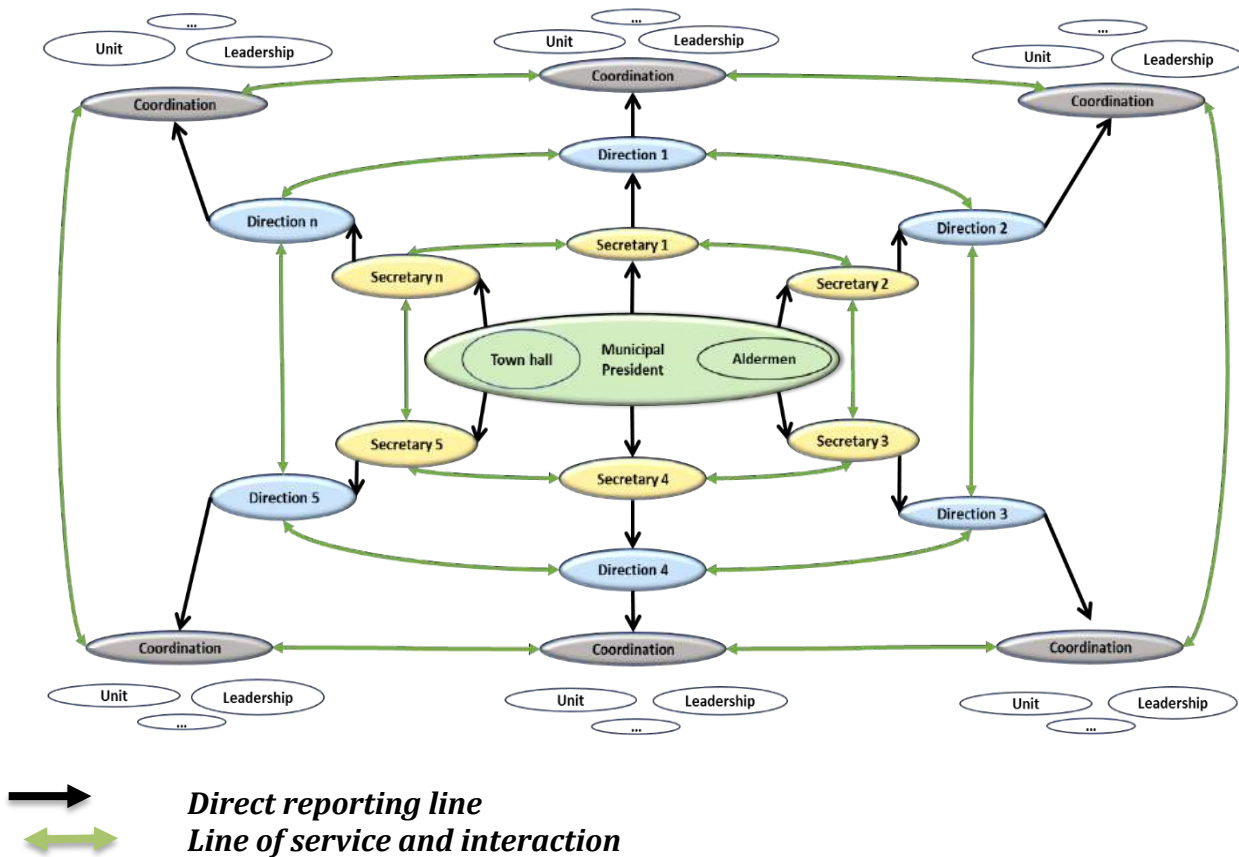
Source: Own (2017)

Phase 3. Network and Virtual Structure. In this phase, it is important to assess the maturity of phase 2 (through e-government indicators, suggested by the UN [44]), where the degree of maturity will result in a Network and virtual structure. Where Information and Communication Technologies play an important role. Given the nature of this research will focus only on information technologies.

As can be seen in Illustration 7, the basis and support of the proposal is the Network structure, and in it are added virtual structures with the possibility of interacting and covering the four-dimensional needs of e-government [44]:

1. Government to Government

2. Government to Citizen

3. Government to Enterprice

4. Government to Employee

This model will generate knowledge networks, databases and interaction between different factors, which will allow the analysis of information for long-term decision-making (See Illustration 7).

Illustration 7. Organizational Structure of Red - Virtual
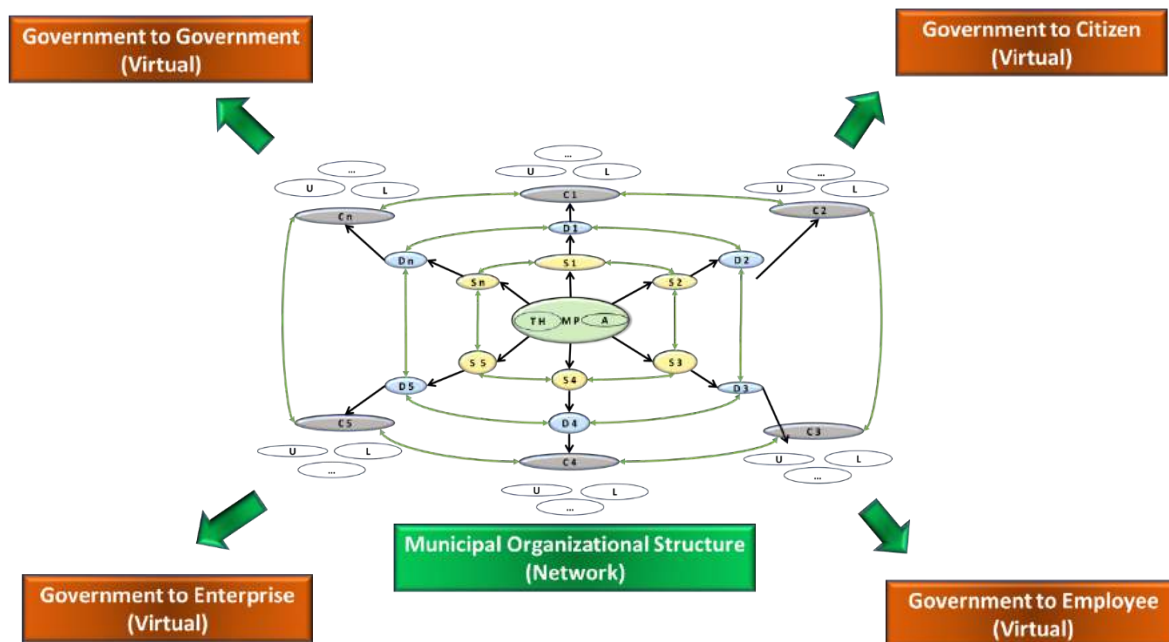
Source: Own (2017)

Finally, the transition times between the phases, depends on the complexity of the organizations, where the planning and the creation of the infrastructure would sufficiently robust to give opportunity to the evolution of the structures.

CONCLUSION

Municipal organizational structures, although complex and based on the normative framework in which their attributions are delineated, is important to modernize given the problems they face in increasing demand for public services and scarce resources. In this sense, Information Technologies, are an important alternative solution to this problem. However, for its optimal functioning, it is necessary to have technological infrastructure and an organizational structure in which it is sought to participate in the making of municipal strategic decisions. For this purpose, it is suggested to create a Figure of Direction or Secretary of Information Technologies (See Illustration 5) in the organization chart, which may have decision making and direct interference in municipal planning, and then evolve to phases 2 and 3 (See Illustrations 6 and 7)

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