


# Designing E-Government Legal Institutions: A State-Level Comparison in Mexico

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## ABSTRACT

The aim of this article is to understand the way digital government laws are designed through the analysis and comparison of general objectives, governance mechanisms, and roles assigned to stakeholders of six local state digital government laws in Mexico. The findings reveal a strong degree of similarity between general objectives and implementation mechanisms in those six laws, showing a mix of traditional bureaucratic features and new public management features. The authors also find significant differences between those laws in the mobilization of behavior-constraining rules to fulfill e-government processes and solution-guiding mechanisms to foster innovation.

## KEYWORDS

E-Government, Information Technology, Laws, Public Administration

## INTRODUCTION

Using information and communication technologies (ICT) to transform the public sector and enhance democratic governance usually requires the support of updated legal frameworks necessary to bring validity, legitimacy and predictability in bureaucratic processes (Carter & Bélanger, 2005; Chadwick, 2011; Cordella & Tempini, 2015; de Castro, Reed & de Queiroz, 2015; Deligiaouri, 2013; Wahlborg, 2014) and to support transactions with external stakeholders (Bertot, Jaeger & Grimes, 2012; McNutt, 2012). Legal regulation also shapes in advance the 'rules of the game' in the use of technology (Faulkner, Lange & Lawless, 2012; Goodwin, Susar, Nietzio Snaprud & Jensen, 2011) as a basis to transform governments (Almarabeh & AbuAli, 2010; Athopoulos & Fitsilis, 2014; Gil-Garcia & Pardo, 2005; Post, 2017; Rose, Flak, & Sæbø, 2018; Rubino-Hallman & Hanna, 2007), especially in situations of weak institutional frameworks, limiting interagency coordination necessary to implementation and control of IT systems (Basu, 2004).

However, scholars have tended to neglect the importance of laws to lay a basis to the execution of IT projects to produce public value (Rubino-Hallman & Nagy, 2007; Petrauskas, 2018). Most studies dealing with the effects of the introduction of ICT-related administrative strategies and programs refer to the necessity of e-government laws, without elaborating much further (Kim, Pan and Pan, 2007; Athopoulos, and Fitsilis, 2014). Hence, there is a need to study the concrete conditions affecting the design of laws to enhance e-government.

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This is an important gap to address, on a conceptual and practical standpoint, as, in the absence of clear or adequate legal frameworks to develop ICT projects in public administrations, projects may be delayed, resulting in a loss of public value, as resources may be wasted and citizens' needs not fulfilled (Gil-Garcia & Pardo, 2005; Gil-Garcia & Martinez-Moyano, 2007), causing public administrators to play catch-up with the evolution of technology (Cerrillo-i-Martinez, 2012, p. 203). Hence our research questions are: How are e-government laws designed? What are the factors that determine the contents of e-government laws in Mexico?

In this article, we describe e-government legal frameworks in Mexico's local state governments. We analyze a specific legal figure which appeared recently in Mexico's institutional landscape, named "Ley de Gobierno Digital" (Law of Digital Government) to convey regulatory improvements to improve government effectiveness and sustain innovation in this context. We compare the laws of six different states to highlight commonalities and differences in legal frameworks. In doing so, this study shows the influence of both Mexican traditional public administration and New Public Management logics into the legal design of e-government laws in Mexico. Thus, our study draws the attention of scholars of public administration towards such models in the design of laws to control processes and sustain the coordination between the stakeholders involved, looking at their respective roles and interrelations.

In terms of contribution, our article proposes a novel way to analyze e-government laws, through a qualitative contents analysis of e-government laws in Mexico, at the sub-national state level, revealing specific governance orientations, while the few existing literature that exist regarding e-government laws mostly remains on general conceptual perspectives.

This article is structured as follows: we first develop a literature review regarding the role of legal frameworks in e-government initiatives, and conceptions of e-government; then we present a structured analysis of the text of the laws promulgated to establish a comparison, showing similarities and differences between those laws, regarding their general objectives, governance structures and roles of the different stakeholders involved. We propose a discussion to highlight the way laws and institutional conditions are intertwined with each other. In the conclusion section, we provide some recommendations for practice and public policy and indicate research limitations and further research opportunities.

## THE ANALYSIS OF E-GOVERNMENT LAWS

In this literature review, we look at the role of legal frameworks in e-government initiatives, and conceptions of e-government, focusing on the traditional public administration (TPA) and the New Public Management (NPM) perspectives.

Designing changes in the regulatory environment responds to the challenges of ICT-related project development, allowing or enabling the adoption of emerging technologies in governments, through appropriate IT policies and standards (Gil-Garcia and Pardo, 2005: 195-196) bringing stability, continuity, legitimacy, predictability, security and fairness for citizens regarding government's actions (Almarabeh and Abu Ali, 2010; Deligiaouri, 2013; Wihlborg, 2014).

Legal research revolves around the conflict-resolving potential of law, analyzing its functions and the problems it addresses encompassing laws: 1. as direct command, supported by the threat of sanctions; 2. laws defining and conferring rights, to selectively extend or withhold officially recognized status to designated classes of public officials, and 3. laws providing selective incentives rather than negative sanctions, to shape policy and allocate public benefits (Feeley, 1976: 55-56; Rosenfeld, 2000), affecting stakeholders' existing rights, privileges, benefits or obligations (Jaeger and Bertot, 2010).

In that sense, we can identify a dual view to analyze e-government implementation measures, looking at: 1. *behavior constraining provisions*, corresponding to command and sanctions, establishing common decision-making structures and the development of new routines for the implementation of ICT systems (Schartum, 2010), such as performance monitoring systems, to ensure that e-government

Table 1. Framework comparison between PA and NPM

	Traditional public Administration	New Public Management
<b>Causal Principle</b>	Politics	The economy
<b>Organizational Focus</b>	The State: relations of domination, orientation towards bureaucratic rules	The market: Relations of exchange
<b>Core process</b>	Hierarchy: chain of delegation	Contract
<b>Incentives</b>	No incentives apart from social welfare	Productivity-based incentives, meeting citizen needs
<b>Leadership and control</b>	Command and control emphasize centralization, hierarchical power, authority and strict process-based control	Output-based control, decentralized, flexible, adaptative, and shared leadership

Source: own elaboration based on Dunleavy et al. (2006) and Iacovino, Barsanti and Cinquini (2017).

initiatives are consistent with the provisions of e-government laws, and 2. *solution-guiding rules systems*, based on the identification and distribution of rights and incentives (Gil-Garcia and Martinez-Moyano, 2007),

To design e-government laws, public managers are prone to mobilize specific e-government models, understood as interpretive schemes as “shared, fundamental (though often implicit) assumptions about why events happen as they do” representing “organizations’ values (desired ends and preferences) and interests (views of the appropriate allocation of scarce resources)” (Bartunek 1984, pp. 355-366). Traditional public administration (TPA) and the New Public Management (NPM) are two dominant perspectives commonly used to analyze public administration in many different contexts (Bonina & Cordella, 2008; Bryson, Crosby and Bloomberg, 2014; Goldfinch & Wallis, 2010).

The characteristics of each perspective will define the focus of the legal design for e-government. Those features are summarized in Table 1.

Both perspectives lead to different outcomes: the TPA perspective is based on internal processes and bureaucratic rules (Bortolotti and Faccio, 2008; Norris, 2010) and NPM perspective fosters on the relation with citizens in a more open government (Denhardt and Denhardt, 2015, p. 668). Traditional leadership models based on command and control emphasize hierarchical power, authority based on position, and strict managerial control. A more modern governance system calls for a more flexible, adaptive, and shared leadership to suit the turbulence and complexity of the newly globalized system in which governments act nowadays (Pollitt, van Thiel and Homburg, 2007). In that sense, TPA places more emphasis on constraining behavior, while NPM places more emphasis on solution-guiding rules.

The key challenges for an academic analysis of e-government laws remain to: 1. Identify objectives, key areas and key tasks corresponding to functions and goals of e-government as stated in those laws, 2. design governance structures, defining the instruments of coordination within the administration to ensure interoperability, and 3. The roles of each stakeholder, defining their competence, rights and obligations, responsibilities and main resources, potentially addressing the necessities of distinct user groups with distinct agendas and interests (Kiškis and Petrauskas, 2003).

In doing so, we address the general orientation, or the ‘spirit of the law’ in terms of underlying government model presiding over their design.

## METHODOLOGY

In order to answer our research question, we used a qualitative contents analysis methodology to analyze e-government laws in Mexico. In qualitative contents analysis, researchers make a set of categories emerge from the contents of a collection of texts, and then observe and highlight instances

**Table 2. General presentation of current e-government laws in Mexican states**

STATE	TITLE	DATE OF APPROVAL
<b>Puebla</b>	Digital Government Law for the State of Puebla and its Municipalities.	4/02/2015.
<b>State of México</b>	Law of Digital Government of the State of Mexico and its Municipalities.	06/01/2016.
<b>City of México</b>	Federal District Electronic Government Law.	07/10/2015 (Reformed in 15/09/2016).
<b>Sinaloa</b>	Law of Electronic Government of the State of Sinaloa	01/08/2016
<b>Tabasco</b>	Law of Digital Government and Electronic Signature for the State of Tabasco and its Municipalities.	15/02/2018
<b>Durango</b>	Law of digital government of the State of Durango	19/07/2018

Source: from official government sources

that fall into each category, researching patterns, and ensuring reliability and validity of the coding scheme and interpretations. (Silverman, 2011).

In this article, we followed the steps of Bauer (2000: 149) and Silverman (2011: 65) to conduct a qualitative contents analysis:

1. *Selection of relevant texts*: we collected the texts of the laws from six Mexican state governments, in Sinaloa, State of Mexico; City of Mexico, Tabasco, Puebla, and Durango. As reported in Table 2, digital or electronic government laws are recent in their creation. Only those six states among the 32 states in Mexico have promulgated such laws so far.

2. *Construction of a coding scheme* that fits the materials employed:

In the protocol for data analysis, we conducted a first round of codification, observing the structure of each law and its different sections. The main researcher selected the parts to be coded. Then, two researchers listed the main headings and sub headings of the laws. From a first reading of each law, a list of codes emerged, according to main chapters, under four main facets: a. general objectives assigned to those laws, b. governance structures, through the analysis of new ad-hoc institutions and two groups of stakeholders, namely the administrative bodies in charge of the implementation of the law, and the participating bodies (ministries) in charge of application, c. The main roles of the entities in charge of the implementation of the law and d. the instruments allowing coordination between stakeholders.

3. *Coding of the text*: The two researchers analyzed the text line-by-line and allocated codes to the texts, independently, according to those categories. In axial coding, four analytical processes occurred: (a) continually relating subcategories to a main category, (b) comparing categories with the collected data, (c) expanding the density of the categories by detailing their properties and dimensions, and (d) exploring variations in the phenomena, following Brown, Stevenson, Troiano & Schneider (2002).

4. *Identification of similarities and differences*: The two researchers identified similarities and differences in the contents of the different laws, analyzing verbs of action to make the dichotomy emerge between behavior-constraining and solution-guiding rules (Gil-Garcia and Martinez-Moyano, 2007), corresponding to the distinction made in the literature review between TPA and NPM models, In other terms, In order to operationalize those two constructs, as far as behavior-constraining mechanisms are concerned, we propose to look at modes of control to make participants accountable; report performance and enforce possible sanctions, regarding their obligations. In terms of solution-guiding mechanisms, we looked at how the law projects modes of coordination and lines of communication to ensure interoperability and to encourage innovation in e-government processes.

5. *Control and validation of the coding scheme*: A third researcher controlled the coding scheme and its application to reinforce validity and comprehensiveness, checking that no essential aspect of the laws was left aside.

6. *Edition of data file*: we finally set up a data file for general analysis of similarities and comparisons

## CONTEXT OF THE STUDY

Over the last two decades, Mexico has developed first a series of fragmented regulations, covering only separate aspects of It governance so far, such as electronic signature, data protection and data security. The context in Mexico is further complicated by the necessity and lack of coordination of e-government goals and resources between the Federal, State, and local governments. The government of Vicente Fox, fostered, from 2001, the implementation of the e-Mexico program to promote the use of technology. The first transparency and accountability regulations came to light in 2002. The administration of Felipe Calderon promoted regulations regarding digital signature and the digitization of government databases such as a crime database. The government of Peña Nieto improved the law of transparency law with two regulations focused on the protection of personal data and privacy, and the promotion of open data in governments. It launched and promoted a national digital strategy (EDN) focused on education, health, economy and security, fostering different programs and strategies to reduce the digital divide and promote the digital inclusion of poor people.

The EDN contemplates the importance of legal frameworks, albeit in general terms, to enable innovation and productivity in e-government, bringing legal harmonization, including for the purchase of services, at the Federal level, especially in the health and education sectors. (Gobierno de México, 2018).

In order to offer a regulatory framework more adapted to today's requirements, the federal government and regional state governments have worked together to design and implement electronic signature laws in different services and government tasks such as licensing or procurement. In spite of those efforts, Mexico is still lagging behind in terms of e-government development (UNPND, 2018) in which it went down by five ranks in the last two years, from the rank 59 to 64.

E-government laws in Mexico are supported by a corpus of existing laws, such as data protection laws (Ley de Protección de datos), organic laws of public administration (Ley orgánica de administración pública) and laws of administrative responsibilities, which establishes the basis for the organization of public administration, laws of regulatory improvement, and laws of transparency of information. Mexico City differs from all others states for having already a law, promulgated in 2012, for the development of the Federal District as a digital and knowledge city, which for the first time in Mexico, established the initial basis for a law of digital governance.

## DATA ANALYSIS

In this section, we analyze the six state-level digital government laws existing in Mexico. As indicated in the methodology section, it is divided into four key areas: 1. General objectives; 2. Governance structures, 3. Stakeholders roles and responsibilities and 4. Instruments establishing linkages between stakeholders. Those areas reflect the organization of the laws themselves. The six laws under review contain articles referring to the creation and definition of roles of new institutions, as well as specifying the roles and obligations of the existing government entities involved in the development of ICTs in the state. They also specify the instruments they will use to do so. Finally they include provisions about electronic signature, data protection and sanctions.

## GENERAL OBJECTIVES

The laws of Puebla and State of Mexico contain large preambles, addressing the needs and rights of citizens regarding the use of technology, while affirming the importance to centralize and regroup data in single window service platforms and centers, as well as establishing the legal base for the use of electronic signature.

All of the present laws make an explicit reference to the enhancement of the public value related to citizens: the general orientation is to improve quality of services, information and transparency and to encourage citizens' participation and inclusion. Those laws also push for the active promotion and diffusion of values and main instruments of e-government among stakeholders in the different states, in particular to promote user-friendly interactions with citizens through digital databases and online platforms. In that sense, most laws emphasize specifically the necessity to transform information portals to install transactional services.

Those laws also address the other facet of public value, related to government efficiency, referring to a common effort to be carried out by the different state agencies and entities and municipal governments to improve coordination and interoperability. Those laws are deemed as important to give political support to encourage public policies using information and communication technologies. Only the City of Mexico's law contemplates environmental and "zero paper" concerns.

## GOVERNANCE STRUCTURES

Governance structures define the linkage between power relations and technology enactment. What is particularly interesting is that all the six laws under study contemplate the creation of a new ad-hoc institutions in the form of a commission or a council.

Power in those commissions or councils is represented by the Ministry of Finance in Puebla and in Durango, in the figure of the President, Executive Secretary, or Technical Secretary of the Commission; from the Oficialia Mayor (General Administrative Office) in the City of Mexico; from the Ministry of Innovation in Sinaloa and from the Ministry of administration in Tabasco. The representativeness of the different state entities in the commission is more balanced in State of Mexico. Another difference between states lie also in the inclusion of different additional members, between 30 members or so for Tabasco and State of Mexico, and relatively less members in the other states, with 9 in Puebla and 13 in Sinaloa for example. The City of Mexico and Durango privilege IT people from the different ministries and bodies, while the other states include the presence of different and diverse stakeholders, from municipalities, congress or autonomous entities. Only Tabasco and Sinaloa include members from civil society, especially from the business community.

## STAKEHOLDERS' ROLES AND RESPONSIBILITIES

We can identify differences between the six states, according to their different emphasis on behavior-constraining mechanisms in Table 3, or solution guiding roles as shown in Table 4.

### The Roles and Responsibilities of Commissions and Councils

The first aspect to be noticed is the general orientation of the Commission or Councils towards behavior-constraining roles or solution-guiding roles. Clearly, the Council in the State of Mexico and to a lesser degree the Council of the State of Sinaloa take on a much more assertive role regarding the monitoring of agents' behavior, in contrast to the City of Mexico, Puebla and Tabasco where the Commissions and Councils tend to privilege a solution-guiding orientation, even though it is not absent for the first two states we mentioned here above. In Durango, both orientations co-exist.

**Table 3. Behavior constraining roles of commission and councils**

<b>The Commission (or the State Council of Electronic Government) must:</b>	<b>Puebla</b>	<b>Sinaloa</b>	<b>Edomex</b>	<b>Tabasco</b>	<b>CDMX</b>	<b>Durango</b>
Approve the Digital Government Strategic Program and the digital agenda	Yes	Yes	Yes	Yes		Yes
Approve the Annual Technological Development Program	Yes	Yes	Yes			Yes
Approve the implementation of the e-Government public policy, through the use and strategic harnessing of information technologies.		Yes	Yes			
Approve the ICT Standards project			Yes	Yes		
Approve the instruments of orientation about rights and duties of the subjects of this Law		Yes	Yes			
Approve the technological platform which guarantees effective control with relation to the safety of information systems supporting electronic services and permits		Yes	Yes			Yes
Approve the members composing the register of electronic certificates			Yes			
Ensure that the subjects of this Law comply with what is necessary for the operation and implementation of the state service centers and the register of accredited persons		Yes	Yes			
Present to the Ministry of Finance the part of the budget dedicated to electronic government to Ministries			Yes			
Monitor and evaluate the actions and advances of the Subjects of the Law in the application of criteria, norms and procedures related to the strategic use of ICTs.		Yes	Yes	Yes		Yes

Source: from official government sources

It is important for governance purposes to look at the way Commissions and Councils work in a complementary fashion with the technical Ministry in charge of linking and coordinating Commissions and Councils to the subjects of the law to which the law is applied.

### *The Role of Technical Ministries in Charge of Coordination*

Interestingly, technical ministries tend to resort more to behavior constraining rules when the Commission or Council is more oriented towards solution-guiding mechanisms, and vice versa.

Meanwhile, the essential role of technical ministries is to implement strategies, actions and projects related to the electronic government, thanks to standardization, data homologation and interoperability, playing a coordination role between different ministries, universities, and the social and private sectors.

They also engage into knowledge sharing to diffuse best practices in ICT development, using open data and mobile applications. They are in charge of the management of the general public services platform, to guarantee their accessibility and availability in the state.

**Table 4. Solution guiding roles of Commission and Councils**

	Puebla	Sinaloa	Edomex	Tabasco	CDMX	Durango
To disseminate the norms and criteria in the area of information technologies and communications, including the use of the electronic signature	Yes				Yes	
To promote interoperability among existing technologies at the federal, state and municipal levels to achieve the cooperation and coordination necessary to ensure the success of Digital Government.	Yes	Yes	Yes	Yes		Yes
To <b>promote</b> the creation of instruments which guarantee the right of persons to implement digital permits and use digital services		Yes	Yes	Yes		
To <b>design and recommend</b> instruments which guarantee the right of persons to obtain digital permits and use digital services	Yes					Yes
Propose modifications to technical standards					Yes	
To work with the relevant Ministry in the maintenance and improvement of the Registry of Procedures and Services.	Yes					
To incorporate the best practices of the technology sector, by means of global licensing and training or other schemes applicable at the governmental level.	Yes			Yes		Yes
To propose the implementation of public policy best practices in the area of ICTs that meet the needs of the Public Administration Bodies, to issue recommendations, from the strategic plans of information and communications technologies to the Bodies of the Public Administration.	Yes				Yes	Yes
To propose the development of a platform which guarantee systems security	Yes					
To stimulate the development of innovative solutions establishing and optimizing state-level digital permits and services	Yes					
Collaborate in the analysis of the viability of the new projects, in the matter of technologies of the information and communications.					Yes	
Boost ICT-related transversal projects through the creation of specific work groups and approve their objectives and work plans				Yes	Yes	

Source: from official government sources

### *The Roles and Responsibilities of Other Ministries and Municipalities*

Other ministries which are subject to e-government comprehensive law must promote the use of digital permits and services available in their dependencies, perform the digital agenda, store the digital documentation, implement control systems, revise the infrastructure, present to the Council their work programs and attend users requests about access to digital platforms. Subjects of the law must implement the policies approved by the Commission, incorporate best practices, and elaborate their annual plan.

Sanctions are the usual sanctions contemplated in the general provisions of the law of responsibilities of public servants to which digital governments laws make reference to. The State of Mexico and Puebla in particular further specify that sanctions may be applied if public servants in their own entities fail to incorporate digital procedures and services, “converting their informational portals into transactional portals”, while protecting personal data. Only the State of Mexico make an explicit reference to the importance of giving “continuity to programs related to the application of information and communication technologies, regardless of change of state or municipal administration”.

The laws are more succinct regarding the obligations of the municipalities. Municipalities establish policies and standards regarding ICTs, and foster coordination and collaboration agreements with the different levels of government and the civil society for the use of ICTs, in alignment with the state development plan. In the State of Mexico, the law emphasizes the importance of maintaining the continuity of the government processes and obtain technical avail from the direction of the General Direction of Information Technologies. The role assigned to municipalities in the law of the State of Durango are a little more extended: they must assign a specific area dedicated to ICTs, organize transactional portals and elaborate an annual plan of technological development.

### *Instruments Linking the Subjects of the Law With Each Other*

The Commission or Councils, the technical ministries and the subjects of the law are connected thanks to a series of instruments they exchange to implement e-government processes, namely the digital agenda and a series of annual technological plans.

For example, the contents of the Digital agenda specified in the law in the State of Mexico and Tabasco indicates an implied e-government model, based on eight different axis: infrastructure and connectivity, e-government processes, education, health systems, digital economy, social inclusion, natural environment, and security, in conformity with the State development plan, and the EDN. The digital agenda must include a diagnosis, strategies, processes and mechanisms to implement the objectives and assessment criteria. It also contains explicit reference to the preference to be given to the use of free software, and dispositions to avoid dependency towards developers in the case of private software.

The law in Puebla stipulates, in general terms, the instruments to be approved by the Commission in the articles 12 to 18. In the state of Mexico, government bodies must present their work programs to the Council, specifying the frequency of deliverables, including actions and contributions to the performance indicators of the Strategy of Information and Communication technologies, their inventory of technological resources, the cost of operation of the previous year, the timetable of their resource commitments over the year, their projects, the standards and the security rules they use.

In most states we can identify common instruments beyond the digital agenda, such as annual plans, standards and norms, criteria, best practices, interoperable platforms, registry of certificates, identification rules and budgets. Only the laws in Tabasco, City of Mexico and Durango contemplate the creation of specific work groups to collaborate in the analysis of new projects viability of the new ICT projects, or to boost ICT-related transversal projects.

Our research reveals that local governments of Puebla and Mexico City followed the solution-guiding approach for the legal design of their e-government; States of Sinaloa and Estado de Mexico were more focused on behavior constraints. States of Tabasco and Durango show a balance of solution-guiding elements and behavior constraints.

Those laws show a different balance between TPA and NPM. The laws that convey more solution-guiding mechanisms and give a more prominent role to civil society firmly position their government under the auspices of NPM as an organizational focus. In terms of behavior-constraining mechanisms, those laws still show a dominance of traditional bureaucracy, as shared leadership, in spite of some provisions to delegate power to commissions and certain responsibilities to executing Ministries, remain under the firm grip of the coordinating ministries. This dual logic follows the ambiguity prevailing in Mexico's public administration itself, between two distinct models, between the traditional administrative patterns on one side, and new public management logics on the other side (Iacovino, Barsanti and Cinquini, 2017). The uneasy coexistence of this dual logic also reflects a lack of a clear definition of what e-government is and what it should do in Mexico's state governments.

## DISCUSSION

Existing laws tend to emphasize both bureaucratic norms and social values regarding especially interoperability and data protection, to give legal status to government reform, clarify and/or simplify rules to allow for public action, or recognize the validity of electronic documents and transactions. Mexican laws are consistent with those trends. Electronic signature appears as a main concern as it is deemed as an essential basis for the communication between citizens and governments in all of those laws with different emphasis, due to the particular institutional trajectory and legislative evolution of each state. Interoperability and data protection are also affirmed as priorities.

As far as Information technologies are concerned, legislatures must ensure that laws are sufficiently updated to recognize electronic documents and transactions.

The originality of those laws in Mexico does not rest so much in their objectives as in the creation of new ad-hoc institutions and the institutionalization of the instruments structuring the relation between participants regarding the implementation of e-government processes. Such laws, at a normative level, are supposed to embody a representation of what an e-government stands for and an implied model to administer public services related to e-government. In this model, functions of e-government tend to be centralized, which could represent an obstacle to implement regulations, promotion and innovations related to e-government, whenever ICTs would not be a priority in the State. This may be less of a problem in Sinaloa and Tabasco where the Commission or the Council is headed by a Ministry of Innovation.

Laws contain status-conferring norms where the legitimization of a symbolic order comes into play. The laws under study give extended attributions to a ministry in charge of coordination of ICT-related efforts in the state. The Governor from the State is the head of the commission or council in Tabasco and in the State of Mexico; the head of the Ministry of Finance or General Administrative Office in charge of coordination of e-government efforts in the states of Puebla, Ciudad de Mexico and Durango heads the Commission or the council. An interesting case of the E-government law is the state of Mexico as it shows a motivation to claim the management and control of government process related to the use of ICTs in the local government from the perspective of the Ministry of Finance. Because of the presence of those interest groups, changing laws may not change institutionalized rules or practices, or guarantee executive and legislative support, including norms, actions, or behaviors that people share, beyond laws and regulations. As such laws tend to institutionalize the role of a specific group of power present in each administration.

Those laws rest on a common implied model of e-government, entailing a specific design. Those e-government laws are complex laws, showing multiple orientations towards citizens and administration. The laws we analyzed in Mexico reflect a trend in public administrations following a mix of traditional public administration (TPA) and/or New Public Management (NPM) models (Iacovino, Barsanti, and Cinquini, 2017). Thus, those theories help us to interpret the descriptive data, to make sense of the spirit of Mexico's e-government laws at the sub-national state level, creating a strange mix between both, as if public administrators always had the temptation to evolve towards complete NPM-style provisions, without being able to depart completely from old habits and institutional constraints.

Those laws leave behind a certain number of issues: First, the topic of alignment with the Federal level is hardly emphasized while it should probably be a priority in order to achieve interoperability not just at the regional state level but also nationwide. The law of the State of Mexico mentions in the article 9 the necessity to promote interoperability with the Federal level, but such an article does not appear elsewhere. What is mentioned in those laws, in a very generic way, is the possibility to sign agreements with the federal level, as an option. The differing focus on solution-guiding vs behavior constraining mechanisms reveals the absence of a national policy for open government. The states could have followed the Federal regulation if it had existed, but instead they created their own

regulations based on their own public administration background, e-government needs and experience of information technology in government.

Second, those laws remain shy in terms of getting rid of the traditional bureaucratic model to evolve towards NPM-inspired provisions. They do not emphasize contracting rules with external providers: there is hardly any mention to interactions with the private sphere. Some laws only indicate the importance of developing applications through free software to avoid undue dependence over suppliers. There is a need to provide governments with more flexibility to sign multiannual service contracts to face the complexity and size of future projects for governments, regarding the use of cloud services for example to develop innovative ways to exert control.

Third, those laws do not formulate specific incentives for actors. The performance expected from actors remains unclear because of a lack of precise definition of the role that the government should play, as a software developer, a systems maintenance operator or a coordinating entity to translate citizens' needs into tangible and relevant services. The remaining hesitation between TPA and NPM which appears through the analysis of the text of the laws could create distortions that may impede further progress of e-government at the state-level in Mexico. New Public Management is not new anymore, but it is far from being dead especially in emerging countries, such as in Mexico, in spite of the emergence of new challenges (Bonina & Cordella, 2008; Gil-García, Sandoval Almazán & Luna-Reyes, 2015). It tends to recombine with more traditional features of traditional administration, rather than evolving towards a public administration more opened to society, in spite of good intentions displayed in the text of laws.

Alternative conceptual approaches have been explored to describe emerging paradigms in public service delivery, under different terms, such as Denhardt and Denhardt's [2011] New Public Service (NPS), or Hood's Public Value Management (PVM) (Hood, 1991), or Osborne's New Public Governance (NPG) concept (Osborne, 2010). Those different, yet converging approaches (Greve, 2010), are all marked by the extension of the number of diversity of stakeholders in public deliberations, the imperative of an enlarged democratic debate, where the civil society becomes an active co-creator of public value. Public administrators in those perspectives, act as a catalyst to empower networks, and must deliver long term results beyond the traditional boundaries of public organizations.

For sure, the text of those laws make constant references to citizens' needs (Bertot, Jaeger and Grimes, 2012; Bannister and Connolly, 2014). In terms of bureaucratic norms and standards, an important objective is to improve interoperability between government agencies, "implying that information systems are linked together and partly integrated, creating complex connections. Integration may imply that amendments in one piece of legislation entail the need to change interconnected information systems of other government agencies as well." (Schartum, 2010: 74). A second important objective to focus e-government regulations is related with data protection, to ensure the confidentiality of personal and proprietary information, while permitting accessibility, usability and preservation to relevant government agencies (Schartum, 2010). Other assigned roles can be: giving legal status to government reform, clarify and/or simplify rules to allow for public action, or recognize the validity of electronic documents and transactions (Almarabeh and AbuAli, 2010).

Still, existing laws in Mexico hardly fit those more advanced conceptions. The participation of civil society in the commissions remains very shy. The only apparent opening to civil society appears in the composition of the Commission or Council in Tabasco and State of Mexico, but in other states civil society is hardly represented. Furthermore, those laws do not contemplate networks of collaboration crossing boundaries, at the exception of the City of Mexico. Thus, the role of citizens in public policy deliberations regarding e-government remains underdeveloped.

Digital government laws in Mexico have been promulgated in only six states in Mexico so far. Even though most of those laws are published and approved by the local congress, half of them are not implemented yet, because their commissions or councils have not been inaugurated, to start the process of implementing secondary rules.

## **CONCLUSION**

In this article, we described existing e-government laws in Mexico, at the regional state level. We showed the relevance of the analysis of the spirit of those laws considering a combination of behavior-constraining and solution-guiding rules to sustain the coordination between the stakeholders involved, looking at their respective roles and interrelations. This analysis emphasizes the importance of idiosyncratic local institutional conditions in the creation of specific institutions to ensure interoperability of digital initiatives in local governments.

We contribute to the literature by proposing a novel way to analyze e-government laws, through a qualitative contents analysis of e-government laws in Mexico, at the sub-national state level, revealing specific governance orientations.

In terms of implications for practice and recommendations for public policy, the fact that those laws already exist calls the attention of decision makers towards the growing strategic importance of laws to control and encourage the sector. As regional governments communicate with each other, there is a possibility that this kind of regulatory framework may extend to other states in the near future. Whatever may be the next state adopting this kind of legal framework, such laws remain a work in progress and should be adapted according to technological innovations and changes in other laws affecting the development of e-government. Public policy makers should be aware that laws and regulatory frameworks may be limited in their impact if they fail to take into account inconsistencies and inefficiencies in the representation of the interests of the main stakeholders in the writing and execution of the laws and regulations.

The ambiguity in the allocation of tasks between stakeholders call for the adoption of a single norm of governance that is still far from being unified, as It governance norms in the private sector, such as COBIT (Weil and Ross, 2004).

The sample of this research remains limited to the 6 states promulgating those laws. It would be relevant to show how other states manage their IT project coordination at the state level without such laws.

Future studies should address at least three main directions. The first one is to compare those laws with local government laws and regulations from other countries. International comparisons would also allow the identification of specific institutional factors shaping the design of such laws. A second direction is to formulate conditions to transfer e-government models and practices within government agencies or municipalities, which is not the case presently. The third direction for future research is to assess the potential of specific, alternative public agencies to manage technology in Mexico. It would also be interesting to compare e-government efficiency between states adopting this kind of law and those who did not. It would be interesting to look at the relative efficiency of laws emphasizing behavior constraining or solution guiding mechanisms. Lastly, there is a need to consider the future of IT systems in Mexico under the tenets of New Public Governance as we developed in the discussion as a fruitful area for further research.

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