

Smart City Initiatives and the Policy Context: The Case of the Rapid Business Opening Office in Mexico City

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ABSTRACT

Managing cities has become an issue of growing complexity around the world. Urban agendas now cover issues such as local economic development, urban planning, crime prevention, environmental sustainability, public transportation, and generation of financial resources for the city government, among others. One of the main questions that arise is what role information and communication technologies (ICTs) play in facing and managing these new and emerging issues. The concepts of “smart city” and “smart government” might be potential answers to this question, since they refer to the actions numerous cities have taken to face modern urban problems in order to make cities more efficient, innovative, and sustainable. In this paper we analyze multiple factors that play a relevant role in the implementation of what can be called a smart city initiative. Based on semi-structured interviews, this paper argues that smartness does not refer only to the automation of procedures, but to a much more complex strategy, which may include process redesign, political support negotiation, and the transformation of organizational structures and institutions, among other important factors.

Keywords

Smart cities, information technologies, competitive policies, organizational factors, electronic government, information integration

1. Introduction

Cities around the world have experienced unprecedented growth during the last four decades. According to data from the World Bank [1], the urban population increased from 34% in 1961 to 52% in 2011. In Latin America, the tendency toward urbanization was even more dramatic, going in the same period from 50.5% to 79% [1]. In addition, cities around the world report high levels of income and productivity and comprise the most important centers for education, medical services, and cultural activities.

Despite the important economic and social role of cities, urgent issues remain unsolved: urban sprawl, air pollution, declines in natural resources, traffic problems, irregular settlements, unemployment, poverty, crime, and insufficient infrastructure are just some of the challenges that must be addressed by governments [2], [3], [4]. ICTs may play a crucial role in solving these problems of growing complexity [2]. According to numerous studies [2][5–7], these technologies might offer a wide spectrum of solutions for new urban issues in at least three different ways: (1) they can provide information to policy makers to adopt more effective solutions; (2) they can reduce the steps necessary to meet the requirements of different government processes; and (3) they could make public services delivery more

efficient and transparent. However, the achievement of these promises can be possible only when other organizational, political and social processes are simultaneously enacted. In order to be smart, a city must enroll in a comprehensive strategy to assemble all significant actors and processes, which implies organizational and political challenges. Therefore, a comprehensive framework to analyze these strategies is necessary. Based on Chourabi et al [5] and a review of recent research about this topic, we analyze what could be considered a smart city initiative in Mexico City, which is managed by the Ministry of Economic Promotion. The Rapid Business Opening Office (RBOO) manages the registration process for all new businesses in Mexico City, including licenses and permits for commercial establishments.

2. Smart Cities: Concepts and Components

Smart city definitions are clearly related to the e-government field, which focus on the way ICTs can help to create better government. For example, Washburn et al. [8] define a smart city as “the use of smart computing technologies to make the critical infrastructure components and services of a city—which include city administration, education, healthcare, public safety, real estate, transportation, and utilities—more intelligent, interconnected, and efficient” (p. 2). In contrast, there are other definitions more focused on capturing the economic, political, and social aspects that should be present in a smart city. For example, Giffinger et al. [9] mention that a smart city is one that is “well performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive, independent and aware citizens” (p. 11).

Many definitions try to offer a holistic vision of the requirements for a smart city. However, rarely are cities engaged in comprehensive strategies to become smart. Some evidence suggests that they make progress by implementing initiatives in specific aspects or policy domains [10-11], which is why we propose to use the term smart city initiative. A “smart city initiative” could be understood as one where ICTs are creatively used to solve public issues in the urban context. Despite the significant role of ICTs in smart city initiatives, recent literature [7][10] has shown that technology is just one element that is embedded in a complex socio-technical system. For instance, it is clear that governments cannot fully adopt technology if there are no clear decisions from political authorities [10-11]. Once it has been adopted, technology influences the mechanisms by which public agencies manage and organize their resources. The adoption of ICTs and the ways they are adopted generate impacts on different aspects, including the well-being of the communities and the economic potential of the city [10]. Once government

authorities perceive and interpret these impacts, they can make new decisions in order to modify certain components or continue with the original plan.

Therefore, the elements of a smart city initiative should not be seen as having linear relationships, but mutually interdependent ones, where it is very difficult to identify clear determinants of adoption or key factors of success [5]. Thus, it is important to analyze specific initiatives that attempt to make a city smarter through the use of ICTs. The aspects or components identified in the literature can be divided in two categories: first, there are some internal elements such as (1) the way the initiative is governed; (2) the technology that is chosen to address an urban problem; and (3) the management and organization of the resources used to implement the initiative. In a second category, there are some external factors which can influence the direction a specific initiative takes, like (1) the policy context where the initiative is deployed or (2) the reactions of people and communities which are positively or negatively affected by a smart city initiative. Based on previous studies, the following section briefly describes some of these elements or components.

2.1 Internal Factors

Governance. By governance we refer to the institutions where the smart city initiative is embedded [10], [12], [13]. Institutional elements are always present in public administrations and the way they affect a specific initiative depends on the political structures used to distribute power and decisions among agencies and jurisdictions. Institutional arrangements refer to legal, regulatory and informal rules that directly affect the adoption of ICTs for governments [12–14]. Given the complex network of public and private organizations and stakeholders that intervene in policies at the urban level, there is a need for clear mechanisms to allow all these actors to cooperate.

Technology. Another central element of a smart city initiative is the selection and implementation of a particular technology. There is a large scope of technologies to be considered: information systems, communication channels, one-stop windows, mobile, fixed, wired, and wireless describe some of the characteristics of multiple systems and devices governments apply to urban challenges. In addition, a very concrete problem can be addressed by using multiple technologies.

Management and organization. Bureaucracies and the human resources within them who implement the strategy play a central role in its success given that they take action and have a direct relationship with citizens and stakeholders. Financial resources are another key element that will burden the scope and the impact of a strategy, since technology is usually associated with high costs in both infrastructure and equipment. Finally, the objectives, implementation methods, and evaluation of any organization have to be aligned with those that comprise the smart city initiative. It implies that day-to-day work and coordination of a city have to be modified and adapted to better exploit technology [13].

2.2 External Factors

Policy context. This concept refers to the set of laws, regulations, rules, and practices which restrict or allow governments' activities [15]. While this category is similar to that one of governance, there is a fundamental difference in the scope of the terms. Governance refers to the institutional setting where a specific strategy is carried. It comprises laws, regulations and arrangements that were consciously elaborated to affect a smart city initiative. In contrast, the policy context refers to a more general set of institutions that affect the strategy, but were not

specifically designed for it. One critical aspect of the policy context is the relationship among participant agencies involved in a smart city strategy.

Impacts on people and communities. When designing a smart city strategy it is critical for its leaders to clearly identify what communities or target populations they expect to receive the benefits. To have a good map of a smart initiative's relevant communities can significantly increase the probabilities of success, since there is a target where efforts have to be directed to. Some authors even propose that communities can play a role in the design and direction of these strategies, by clearly identifying the skills, limitations, and possible deviations that these communities can bring to the project [10].

3. Research Design and Methods

We have carried out a series of semi-structured interviews at the Ministry of Economic Development in Mexico City between December 2011 and February 2012. Interviewees were members of two teams that were working on the strategy to incorporate ICTs into the process to start a new business in the city. First, we interviewed 6 people related to the implementation of the "Electronic System of Notices and Permits for Commercial Establishments" (SIAPEM), which is a system that receives and consolidates all notices and permits for new business in the city. Then, we interviewed 2 people at the Rapid Business Opening Office (RBOO), which gives citizens a general orientation to the necessary requirements to start a new business. Each interview lasted about one hour. The questionnaire was designed by an international research team focused on the study of smart cities and services integration in North America. The overarching project aims to understand the adoption of smart city initiatives to solve urban problems. The sections of the interview were (1) concept of smartness; (2) technology; (3) management and organization; (4) governance; (5) policy context; (6) people and communities; and (7) primary initiative impacts.

4. Preliminary results

Governance. During the last twenty years, Mexican cities have played an increasingly important role in the national economy [16], which has trigger an unprecedented level of competition in order to attract and retain investments and human talent [17]. Local governments have faced the challenge of being facilitators for the installation of new business, which involved the adjustment of their regulatory frameworks. Mexico City is no exception to this important movement and in 2006 the incoming government decided to create the RBOO. The main objective of this office was to streamline the process and reduce the number of steps entrepreneurs had to follow in order to start a new business. This office was also in charge of guiding individuals to meet all the legal steps involved with opening a new enterprise or modifying the current one. The guidance is important given that laws and regulations to start a new business in the city are many and, in some cases, extremely complicated. These regulations are applied depending on a large set of conditions such as the firm size, line of business, waste generated, location, influx of customers, adjacencies with other businesses, parking lot size, noise generated, etc.

To streamline the process and address all the necessary regulations, the Ministry of Economic Development decided to implement the SIAPEM, which is a system developed to facilitate and monitor the completion of all legal steps to start a new business. This system is based on an online quiz that has to be filled out by anyone interested in starting and operating a business

in the city. The interactive quiz requires information about previous steps taken by the person to evaluate if all requirements have been covered. In the case that the business is small and the environmental impact is low, at the end of the quiz the person might be able to print the “license for operation”, which is the most important document delivered by the local government because it authorizes a new business to start operating. An important characteristic of SIAPEM is that the system takes the information the citizen provides on good faith and trusts that the person is not trying to cheat. However, there is a verification process implemented by the Administrative Verification Institute whose purpose is making sure that the actual characteristics of the business match those declared in the SIAPEM.

In contrast, non-low impact enterprises have a very different process, given the risks associated with certain businesses or possible negative externalities to the surrounding area. The problems start here for enterprises where their size, line of business, and location make them candidates for additional regulations. For example, a restaurant, depending on its size (more than 20 square meters) is subject to regulations for disaster prevention, civil protection, and parking lot space availability. Even more, if this restaurant is small, but serves alcohol or produces certain levels of waste, it is subject to special regulations too. These regulatory frameworks are spread over diverse organizations within the local government, including the Central City Government and its municipalities (*Delegaciones Políticas* in Spanish). Some of the most important agencies that regulate new businesses at the city level are the Ministry of Urban Development and Home, the Ministry of Environment, the Ministry of Health, the Ministry of Disasters Prevention, and the Department of Urban Development. Among these organizations there are not unique procedures, nor similar timelines for completion. They have developed isolated information systems which are neither interconnected nor interoperable, and their rules for capturing data are not harmonized either.

Technology. Referring to technology, all of the people interviewed concurred that this factor plays an important role in the design of policies to address urban problems. In fact, for some of them, there is a deep belief that ICTs should play a central role in public administration by substituting many of the tasks public servants perform now, allowing citizens to complete most of the necessary steps to open a new business online. The system is based on an electronic platform that connects to a database hosted in the cloud, where the information of all new businesses is stored. They use a user-friendly technology given that, for many people, it would be their first contact with ICTs. The system is based on a quiz that asks the owners about the characteristics of their business and checks if every necessary step has been covered, but some citizens still have trouble filling out the questions given their low expertise with technology and legal procedures. Therefore, it is important for RBOO and SIAPEM to have a citizen-centric approach, particularly with citizens that are not familiar with ICT’s and live far away from the RBOO offices.

With this system, a citizen is able to notify the city’s government when he or she is about to start operating a new business. In the case of a low-impact business, the citizen is able to perform all necessary steps on line, which has important benefits for the city, particularly in three main aspects: facilitating the economic activities of the city, encouraging people to accomplish the legal obligations of their business, and bringing in a new flux of information for city government, since through the system, policy makers may have status reports on how many new enterprises are opening, as well as their size, location, line of business, and so

forth. This information constitutes a powerful input about the economic activities in the city in order to design better policies.

Management and organization. There are three people working at the RBOO and four at SIAPEM. In the first organization they divide the work according to the 16 municipalities of the city. They provide information and guidance to entrepreneurs who want to start a new business. They teach them how to make proposals and petitions to authorities in case of special considerations. They locate the place where the business is about to start via Google Maps and then check if there are any special regulations over the area. They follow the citizen’s interactions within the public administration and constantly communicate with other agencies to monitor the progress. However, they are not empowered to command and coordinate the business opening process, since it is spread throughout different agencies in the City Central Government and the municipalities. This lack of political and legal capacities reduces their influence on the economic policy of the city, since the approval of permits and licenses depend entirely on other organizations. In the SIAPEM, they divide the work based on the 16 municipalities as well. However, some of the people are more concentrated on generating reports, while others guide the citizens in the use of the SIAPEM platform, providing special attention and consideration for users who are not familiar with ICTs. For them, the most important challenge they overcame was the creation of the system, given that it demanded extraordinary work in order to design all of the steps and procedures that had to be incorporated into the system.

Policy context. This initiative had a crucial change in the last year, due to an important evolution in the policy context. In January 2011, a new Law of Commercial Establishments was enacted, which gave the SIAPEM a mandatory status: every business that is going to start operating has to get its “opening notice” through this system. In the past, this step could be done face to face or online, but now it can be only accomplished through the SIAPEM portal. This legal change yielded a real transformation in terms of the number of new business recorded: in 2010 they registered a total of 8,891 new businesses, while in the first 10 months of 2011 they had about 30,000 records. It does not mean that these 30,000 enterprises were necessarily new, but that they were complying with the requirement to register. It is important to say that there was an active campaign that pushed all businesses to fulfill local government requirements. Therefore, many non-registered business regularized their operations in a relatively short period of time.

Impacts on people and communities. There is no doubt about the positive impact the system has had on the economic activities of the city, particularly on micro, small, and low impact enterprises, which represent an important share of the total number of new businesses opened. The new system, SIAPEM, facilitates the opening of new small companies, particularly those that are managed by low-income families, allowing them to be self-employed and self-sufficient. Those businesses can start operations by completing all necessary steps online. An example of this is “Milpa Alta”, a municipality that is located relatively far from city downtown and whose economy is still based on agricultural activities. There, the people and communities who have benefited most are families who have been able to start their new businesses, while meeting all necessary steps in the law. In this municipality, they reported 6 records for new businesses during 2010, and around 1,000 during the first ten months of 2011. Another positive impact is the new flow of information for policy makers within the local governments. Through the use of this system it is possible to get a very well detailed report about

the economic activities all over the city. In this way, government officials are able to design programs or make critical decisions to promote the creation of new enterprises, regulate the proliferation of a certain line of business, and regulate land uses.

5. Final Comments

The evidence provided by the case presented here allows us to make some contributions to the initial smart cities integrative framework. Adopting the original framework was very important in order to obtain and understand all the relevant factors that affect smart city initiatives. However, empirical cases, like the one analyzed in this paper, can help to understand how the different factors are related to each other and build a process model for the development of smart city initiatives. According to the results from the case, it seems that there has to be a legally empowered political decision to carry out a series of changes and innovations in government services and processes. For example, the creation of SIAPEM and its mandatory status served as a trigger, which activated a series of changes in organizational and technological aspects.

Organizations must adapt and change their work practices in order to accomplish new goals and tasks specified in the policy context through political decisions. In this case, we can observe how public managers in two agencies divide the work and perform some activities in a coordinated manner to achieve the objective of facilitating the establishment of new businesses. In the same way, the authorities chose a technology because they were trying to reach certain objectives, but adapted it to users' needs and applicable regulations. That is why SIAPEM has a user-friendly technology, based on an interactive quiz, but it only becomes relevant at the last phase of the whole process. These three factors affect the implementation of a smart city initiative in similar ways, but they do not necessarily happen at the same time. Additional research is needed to understand the interplays among different contextual variables and their potential impact on the results of a smart city initiative. Similar systems to SIAPEM can be implemented in other Mexican cities, but it is necessary to consider the legal context, since each state in Mexico is empowered to create their own laws and municipalities also create their own local rules and regulations.

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