Chapter 6
Social Media in Local Governments in Mexico: A Diffusion Innovation Trend and Lessons

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Abstract Academic research about how local governments use social media platforms are scarce. Most of the research is focused on services, comparative perspectives, or assessment. Little is known about the impact of Twitter and Facebook on communication means or strategic use for promoting a conversation with citizens. Despite these facts, the majority of local governments implement social media into their web sites and communications without any strategy or knowledge about their advantages or perils. Also scholars are blind-folded of what kind of research has to be done on social media and governments to understand this phenomenon and capitalize its use on public service. The purpose of this chapter is to identify new trends and lessons on social media use in local governments. Analyzing a data collection of Twitter and Facebook from the 32 Mexican local governments from 2010 to 2014, we discovered a behavior pattern very similar to the diffusion and innovation theory proposed by Rogers (Diffusion of innovations. Simon and Schuster, New York, 1995). We analyzed our data from this focus and provide five lessons to understand local governments' use of social media.

6.1 Introduction

The current trend of web 2.0 in public administration has reached local governments. The main interaction of citizens with governments is having a transformation: from the use of online formats, forums, chats, and virtual assistants into a more direct relationship using posts on Facebook or tweets over the Twitter platform to communicate with government officials (Sandoval-Almazán and Gil-García 2012).

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However, most of the local governments are using social media platforms without any knowledge or strategy to foster communication and conversation with citizens over their networks (Sandoval-Almazán et al. 2011). Backtalk is more related to neutralizing bad comments, diminishing claims or concerns, and reacting to bad publicity for the ruling political party (Askanius and Uldam 2011; Effing et al. 2013).

Some government portals use web 2.0 tools to promote health services, traffic warnings, or to increase tax collection (Götsch and Grubmüller 2013; Abdelsalam et al. 2013). Very few of them are using these tools to make the portal the center of the government interaction that becomes citizen-driven (Sandoval-Almazán and Gil-García 2012).

Very little research has been done on the impact of social media on local governments (Sandoval-Almazán et al. 2011; Sandoval-Almazán and Gil-García 2011). However, most of the research is related to the organizational impact or the normative challenges facing web 2.0 platforms on government requirements. Research topics such as government-user interaction and policy-making impact through social media have not been broadly studied.

Despite this lack of theoretical background to use social media in local governments, most of them are using the web 2.0 (Grossklags et al. 2011; Karantzeni and Gouscos 2013; Lerman 2007). Some applications of web 2.0 in developing countries are used to mediate citizen participation (Koothoor et al. 2012) as a new channel of interaction, constituting important innovations for government agencies (Ferro et al. 2013). Social Media tools are becoming a new communication channel for citizen communication (Josefsson and Ranerup 2003; Magnusson et al. 2012).

For this reason, the purpose of this chapter is to identify the main gaps on social media implementation from local governments as a starting point for future research on this field. To achieve such a goal, we used the diffusion innovation theory (Rogers 1995) in order to frame our research and to provide a systematic understanding. We collected data from government social media accounts from the 32 local governments in Mexico, from the years 2010 to 2014 that are analyzed with statistical methods to understand their impact.

This chapter is organized in five sections. The first section is an introductory section which describes the use of social media by federal and local governments. The second section is a literature review of the diffusion innovation theory, social media in governments, and local governments' innovations. The third section describes the methodology to collect and analyze data from social media used by local governments and the background of the Internet and social media use in Mexico. The fourth section presents the findings of the quantitative research. The fifth and last section discusses some of the achievements using the literature review, but provides some recommendations and guidelines for improving social media use in local governments.

6.2 Literature Review

The first step to understand the Diffusion Innovation Theory is to visualize the innovations adopted by different channels in time and inside a social particular system (Rogers 1995). Rogers argues that individuals are classified in different levels of disposition to adopt innovations. Members of each category have distinctive features: innovators, early adopters, early majority, late majority, and laggards. One of Rogers' interpretations (1995) is when the adoption curve is viewed as a cumulative percentage curve which draws an "S." This curve represents the adoption rate of innovation in a population.

Nowadays, local governments using technology need to innovate new strategies in order to encourage interaction with citizen and a better delivery of services (G2C); but the adoption of technology is gradual.

The use of technology in local governments has always been presented in different forms or levels; however, it has only been analyzed recently. Two surveys that assess the impact of technology adoption, effects, or consequences have been measured since 2001 (West and Berman 2001; Wolf et al. 2001). Ho (2002) analyzed the one-stop shopping strategy in different local governments that started using technology. Ho linked socioeconomic factors with organizational relationships.

Ho's research (2002) on local governments' impact on technology was divided later into several paths: (1) Technology: Holden et al. (2003) and Odendaal (2003) analyzed the impact of information and communication technology on emerging economies using the case of South Africa. (2) The impact of trust on local governments' technology implementation has been researched by Tolbert and Mossberger (2006). (3) The analysis of the UK implementation of ICT in local governments as a way to transformation (Panagiotopoulos et al. 2011).

On the other hand, implementation of online services in local governments started with the research of Hoogwout (2002) and Asgarkhani (2005) and the idea of introducing enterprise services in governments was developed by Shackleton et al. (2006). Also the Italian service delivery developed by Italian governments is an interesting contribution for this area (Nasi 2009; Nasi et al. 2011). An important contribution of online service delivery at local level was developed by Veenstra and Zuurmond (2009) who found that an externally oriented management strategy in place, adopting enterprise architecture, aligning information systems to business, and sharing activities between processes and departments, is positively related to the quality of online service delivery. Candiello et al. (2012) introduced the monitoring of services regarding quality and impact. More scholars have done research on the e-services perspective: Attoura and Longhi (2009), Mahadeo (2009), and Tudor et al. (2009).

An important contribution to understand local governments' use of technology comes from the research of Norris and his team in 2004. It was the first attempt to understand the use of technology in America. The next survey used previous results from Holden et al. (2003) and Moon and Norris (2005) along with focus groups on

municipal web sites in order to understand the impact on e-government. The next step of this longitudinal study was made in 2005 by Moon and Norris (2005), in which they found that e-government adoption at the grassroots is progressing rapidly (if measured solely by deployment of web sites). However, the movement toward integrated and transactional e-government is progressing much more slowly (Norris and Moon 2005). A complementary research on this study was held by Scavo (2007) who complemented previous surveys from Norris on the U.S. The most recent paper of this longitudinal study found that e-governments have not produced the results they predicted (Norris and Reddick 2013).

A pioneer work using collaboration technology and e-commerce related to local governments was made by Reddick (2005), who surveyed the Texas County finding an improved customer service, but also a barrier for transactions.

Another area of research is to understand how local governments transform into e-governments, developing capabilities or solving problems. A pioneer research was made by Streib and Willoughby (2005), in which they found out some hurdles and advantages for e-government implementation. Another research was performed by Torres et al. (2005), analyzing 47 regional and local governments. A complementary path was developed by Cotterill and King (2007), who introduced the concept of partnership in public sectors and the idea of the social network study.

More research has been done about the description and use of technology by local governments. The study of Wohlers (2007) analyzes sophistication and trends at local level. He found that local e-government sophistication increases for municipalities governed by professional managers, endowed with more organizational resources, characterized by higher socioeconomic levels, and increasing the number of users.

Nevertheless, the assessment perspective of local e-government has been scarce in the early years of e-government implementation in local governments; much research has been done since 2010. Research from Sandoval-Almazán and Gil-García (2010) evaluates more than 100 municipalities in Mexico in order to understand their lacks and problems. A similar research has been performed by Andersen et al. (2011) in New Zealand and Australia. A complementary perspective related to assessment was developed by Ahn (2011) who used several sources and statistical methods to understand different viewpoints of the municipal perspective of the U.S.

With this same assessment perspective, the seminal work from Luna-Reyes et al. (2011) focuses on developed groups in several Mexican municipalities, which allows researchers to understand the way Mexican users interact with their government. Sandoval-Almazán et al. (2011) complement this research assessing local government portals in Mexico. He found a strong relationship between the development of web sites and citizens' interactions.

There are at least three different streams of research in the assessing of government web sites: e-citizen; web site development; and web 2.0. The first stream has been studied by different scholars such as Manoharan and Carrizales (2011); the e-citizens perspective by Sandoval-Almazán and Gil-García (2012) and finally

assessment of the use of the web 2.0 on local e-government web sites by Almazán et al. Another related research reveals four patterns of social media use by local governments such as: "social media for dissemination, social media for feedback on service quality, social media for participation and social media for internal work collaboration" (Oliveira and Welch 2013, p. 397).

From the comparative perspective, we can find studies that compare the local e-government from the U.S. and Germany (Wohlers 2009). Royo et al. (2011) compares the German and Spanish local government using the citizen perspective as a comparison framework. Other comparisons are the administrative discretion analysis in Egypt (Reddick et al. 2011) and the Norwegian study of digital divide and local government geographical challenges (Sorensen and Munoz 2011).

Some ideas rise from this literature review about local e-government. For example, most research focuses on describing infrastructure, but less in understanding the organizational impact. There is important quantitative research—descriptions, surveys—about assessing technologies, software, and applications. Also there is a strong association between local and municipal governments. For some scholars, the limits between these two different levels of government are very narrow or inexistent. Finally, some research is oriented to the new trend of smart cities.

This literature review reveals the scarce amount of research on social media in municipalities. The lack of studies is the main argument for introducing a qualitative data collection, which is complemented with a quantitative analysis retrieved from 4 consecutive years of social media data. The purpose of this mixed research is to provide new insights and encourages further research for this topic.

There are four studies, which are very similar to this one. The first one is from Bonsón et al. (2012) who researched on Spanish municipalities getting to the conclusion that the social media use is still on its "infancy." In the second study from Hofmann et al. (2013), a multi-method analysis was used to examine 15,941 posts and 19,290 comments on Facebook pages in 25 of the largest German cities. They described the use of Social Network Sites (SNS) and how they promote communication between governments and citizens. Another research analyzed the use of Twitter in Turkey. Other scholars' findings revealed that this platform is used mostly for self-promotion and political marketing (Sobaci and Karkin 2013). Finally, there is the research from Mossberger et al. (2013), who examined the use of social networks in 75 of the largest U.S. cities between 2009 and 2011. During this period, they found that the adoption of Facebook skyrocketed from just 13 % of the cities in 2009 to nearly 87 % in 2011, and similarly, the use of Twitter increased from 25 to 87 %.

In Mexico, the use of social media started in 2010. More and more governments have been adopting this technology to interact with citizens (Sandoval-Almazán and Gil-García 2012). Research from Sandoval and Gil García (2013) analyzed Twitter and Facebook accounts of local governments in Mexico from 2010 to 2012 and presented a content analysis of two cases—Sinaloa and Yucatán—stating the emerging condition of social media implementation in local governments. These two studies are the direct antecedent of this study, which includes a statistical analysis and the theoretical perspective of the Diffusion Innovation Model.

6.3 Methodology

Internet research, especially regarding social media, is difficult because of the characteristics of this technological phenomenon: rapid evolution of the platforms, changing capacity, and constant innovation on software and hardware. However, the use of the traditional method (Creswell 2009) will help to understand the limitations and paradigms of e-research (Estalella and Ardevol 2011). This research is part of the longitudinal study of social media data in Mexico for which we collected data from different levels of governments since 2010. This research has three main stages:

1. Validation of social media platforms.
2. Data collection on specific periods of time.
3. Data analysis using different statistical methods.

At the first stage, we monitored Twitter and Facebook local governments' accounts from a universe of 32 local web sites. For the second stage, we have been collecting data during March, June, and October of each year since 2010. For the purpose of this chapter, we also collected data during August 2014. Data collected from Twitter are tweets, lists, number of followers, and number of following. Data from Facebook is only the number of likes received. These variables allow us to find the increased use of social media in each local government. No data were collected on June 2012, but it was possible to collect in June 2013. However, this does not affect the behavior of the data collected or the study.

For the third stage, we run a descriptive and a correlational analysis. The descriptive analysis was useful to explain the behavior of the adoption of the social media by citizens in each local government and we also ran a correlational analysis to find a relation between social media variables that could explain the citizens' behavior.

For the fourth stage, we transformed average data to a normal form for each period to homogenize the units of each variable trying to find singular data behaviors based on the use of technology and its ad option by citizens. Followers are sufficient to understand the increase of users (citizens) of Twitter and "likes" is only studied in order to understand the Facebook user trend.

Finally, we made a regression of the normalized data using a polynomial trend line fourth grade to interpolate all data trying to draw a constant soft curve. This data was compared and analyzed. We found that users' behavior is similar to the one shown by the Diffusion of Innovations Theory (Rogers 1995).

6.4 Findings and Discussion

6.4.1 Findings

The general user behavior of the sample is shown in Fig. 6.1. The most notable increase can be seen in followers, likes and tweets. Generalizing this trend, we can say that government use of social media is increasing in Mexico by the time of our
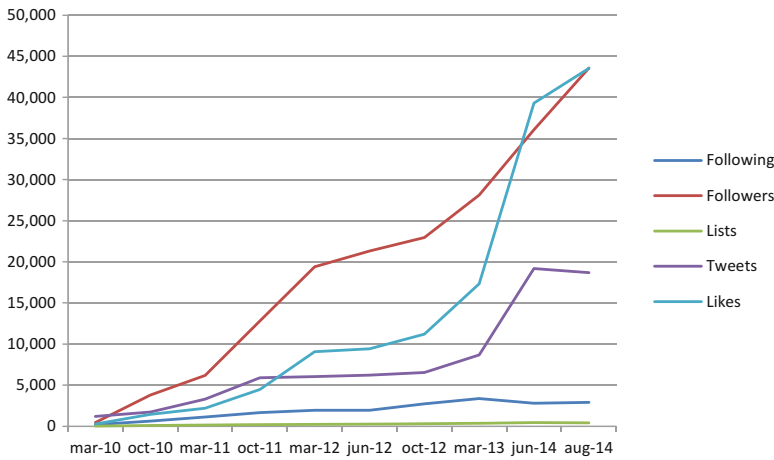
Fig. 6.1 Data collected from 2010 to 2014

study. Local governments are making efforts to use social media to provide services and communicate with users which is consistent with our literature review.

Data supports the idea that citizens and governments increased their interaction using social media tools through the consistent increase of Twitter and Facebook. The numbers of "likes" and followers reveal an increasing trend through time (see Fig. 6.1).

Figure 6.2 shows the transformed data of the normal distribution $z = \dfrac{x - \mu}{\sigma}$, although we don't have the population's average and standard deviation. They are estimated with the sample ones' (we have 32 cases). This is a better way to compare all the variables because they are in the same scale and distribution. A similar behavior can be seen on every variable which increased consistently, for example, the variables of lists and followers (see Fig. 6.2).

The variables of followers from Twitter and "likes" from Facebook are described on Fig. 6.3 that shows the polynomial trend line of fourth grade. This is a quantitative behavior of the data which represents an "S" curve, similar to the one described by the Diffusion of Innovations Theory (see Figs. 6.3 and 6.4).

Rogers (1995) argues that the diffusion of innovations is the process by which innovation is communicated by certain channels. The categories of adopters are: innovators, early adopters, early majority, late majority, and laggards.

According to this theory, innovators are people who are willing to take risks. Initially there were few, but by the time there is an acceptance of new technology and more people adopt more diverse technology. For the correlation test, only those important ones with a level of significance of 0.05 and 0.01 are discussed here.

A highly significant relationship between the number of followers and lists in each sampling period prevails in the correlation test (see the Appendix). This relationship can be explained due to the fact that having more followers implies the
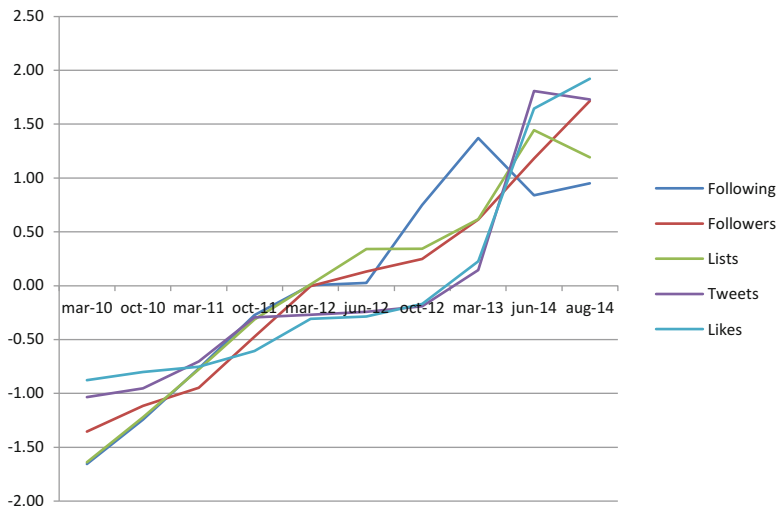
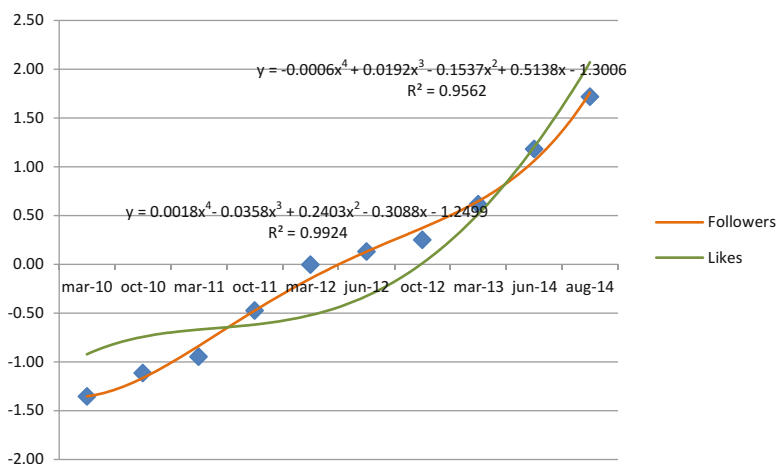**Fig. 6.2** Normalized data social media on local governments 2010–2014

Fig. 6.3 Polynomial trend-line fourth grade

necessity of classifying them into different categories and also because the increase of lists in the local government social media tools implies more followers who will be attracted to follow that social network.

An interesting case occurred during the period of March 2010 where there was a high correlation between the number of followers and following (see Table 6.A1 in the Appendix). An explanation for this could be that a massive use of Twitter as a social network in the government started during that year.
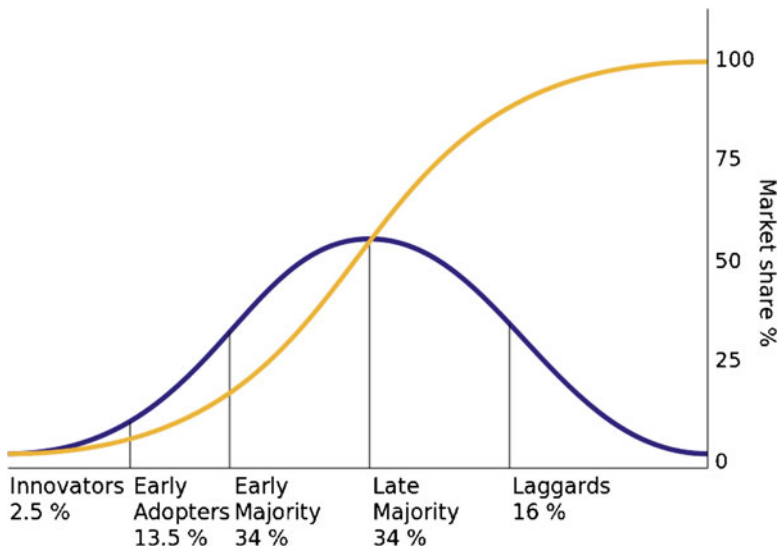
Fig. 6.4 Market share in diffusion of innovation theory (S curve)

A different case occurred in October 2010 and March 2011. There was a medium-high relationship between the "likes and following" in governments' social networks (see Tables 6.A2 and 6.A3 in the Appendix). Also, a medium relation between followers, tweets, and lists can be seen in October 2011 (see Table 6.A4 in the Appendix).

The first relation found in October 2011 is also found in March 2012 and June 2012 (see Tables 6.A4, 6.A5 and 6.A6 in the Appendix). In October 2012, March, June, and August 2014, there were no other important relationships among variables, only the ones mentioned before (see Tables 6.A7, 6.A8, 6.A9 and 6.A10 in the Appendix). An explanation for this kind of relationship among variables and their increases could be found in the diffusion of social networks among citizens and government users. Different uses for these technologies could augment their numbers.

The contribution of these findings is that the pattern followed by citizens adopting the use of technology in local governments in Mexico is very similar to the pattern of the model of diffusion of innovations. The social media behavior of local governments in Mexico is very similar to the innovators and early adopters, and nowadays, some of them can also be considered laggards.

Another finding is the increase of people adopting networking technologies which could be related to the interaction and use of social media tools and public officers. However, this possible relationship will create some difficulties if we intend to measure or forecast some data related to social media in the long term, because the level of interaction will be unknown.

In the early stages of this study, we found relations among variables because there were few and similar users. In recent periods, we can't find significant relations anymore because of the different kinds of users of social media tools used by local governments.

6.4.2 Discussion

Accordingly to our findings, we discovered five main gaps that can be used for further research in this area.

1. Lists vs. Followers.
2. Finding a relationship during 2013 and 2014 was more difficult because data became more heterogeneous.
3. There is relation cycle among more tweets—more followers—more lists. What is relevant? The number of messages—tweets—or the quality of the message?
4. The intense use of Facebook more than Twitter.
5. The Technology Diffusion Theory and the evolution of the social media implementation.

We found a relationship between the variables "lists" and "followers" in the first gap. This could be explained because of the larger number of followers who can increase the lists. However, this assumption could be wrong. The web masters of the government Twitter account will not necessarily create more lists having no direct effect in this relationship. However, these kinds of assumptions lead us to think up some more questions for further research: Will the content analysis from tweets change the relationship between followers and lists? Is the increase of users related to the quality of tweets or to any other contextual factors?

The second gap is related to a more complex issue: users' diversity. Users became so diverse during 2013 and 2014 that we could not group them on a similar path. This also means an important increase in the number of users of all local government accounts. With that amount of users' characteristics, it seems impossible to try to analyze them with a single method or strategy. This problem unfolds new kinds of research possibilities for the understanding of users of social media in local governments. Following the Rogers Diffusion Theory: Is an early adopter user still using social media in local government? How to interact, to send messages or to produce engagement with different types of users? Is it still valid to consider Twitter as a single communication channel or has it become a complex relations network for governments?

The third gap is related to the modeling of the use of social media in government communication. We found evidence that supports this cycle (tweets-followers-lists). However, we should do some more research to validate this with other measures—municipal or national social media platforms. Furthermore, this kind of model allows us to produce other models that can be used to understand the relationship between cost, strategy, and uses of social media in governments.

The fourth gap can easily be explained. Facebook access is wider and older than Twitter. But also other factors such as mobile access, usability, type of messages, frequency of use, etc. can determine which platform could be more efficient depending on the purpose. Nowadays, the use of Twitter and Facebook occurs with the same proportion; nevertheless, we do not know which platform could be more efficient for government purposes such as engagement, information, or crises situations. This gap opens the discussion about differentiating the use of both platforms for government efficiency and a coordinated strategy for social media.

And finally, the fifth gap, the validation of the diffusion theory of social media used by local governments for citizen in Mexico is an unexpected contribution. Our graphs and analysis match with this theoretical technology adoption framework. Once our framework is validated, we should address the following questions: Which social media strategy should be considered as for laggard members? Which local government strategy has a more innovative strategy capturing early adopters' attention? Is there any strategy to move faster into another stage of the diffusion theory? Are Facebook and Twitter different strategies which could have a differentiated aspect in the diffusion theory?

6.5   Conclusions and Recommendations

The main purpose of this chapter is to introduce some new research ideas or paths to analyze social media in local governments. We found five gaps that could be used as a preliminary approach to understand the use of social media in local governments. More research—qualitative research—is needed to support some of these gaps and to solve some of the questions related to it.

Previous research on Facebook' posts found that the relationship with government officials is still weak (Hofmann et al. 2013). Other research focuses more on single studies (Sobaci and Karkin 2013). This research describes a 4-year data collection (2010–2014), which allows us to analyze, interpret, and describe these potential gaps of research.

There are important limitations for our approach. It is mostly based on quantitative data that was collected directly from the social media platforms of each local government. This data is always changing. Our data does not consider new users on Twitter and Facebook which were generated by automatic bots. This could artificially increase the data that some states show without being aware of it. More research has to be done to validate real users in each case and also it is really important to search about content analysis to discover what kind of conversation, information exchange, or collaboration is being used by government and citizens (followers) on the social media.

Another limitation is the aggregated data of the platforms—Twitter and Facebook. It would be helpful to disaggregated data in order to place local governments into a category of the theoretical framework—innovators, laggards, early adopters.

Further research on the social media use in local governments must address several concerns. For example, the problem of personal users' information privacy or other concerns when interacting with social media tools used by governments. This is an important topic to be considered. Also, the security of the government information is another aspect that must be under subject of research to avoid hackers or the misuse of important information for decision-making.

Another important aspect regarding social media use for local governments is the internal regulations that the local CIO responsible for the Twitter and Facebook account needs to have in order to know which government information has to be released and which one to be kept or handled in a different way. These regulations could change accordingly to local constitutions or open government strategies.

The strategy of engaging citizens and government information is another issue that has to be considered by the CIO of the local government who is in charge of the social media platforms. There are some improvised decisions and reactions about the use of Twitter and Facebook. There is too little research in order to understand the best practices or pitfalls on social media use for government. It could be very helpful to provide some ideas about this topic.

The last research idea is to understand the bureaucratic changes caused by the social media tool use in government organizations. Researches about changes, adapting strategies, and cost reductions are important in order to assess the indirect impact caused by Facebook and Twitter government accounts. How are stakeholders, public officials, and politicians related before disclosure of some information for citizens using these channels?

All of these concerns relate to: privacy of information, security, internal regulations, engagement strategies, and organizational changes. All of them are related to social media in local governments. Our research is embedded in the assessment and metrics concern to understand the impact of social media. One purpose of our findings is to reduce the learning curve on measuring social media and provide a different insight into the theoretical approach to this practical field.

Appendix

Table 6.A1 Correlation test for March 2010

March 2010	Following	Followers	Lists	Likes
Following	1			
Followers	.853**	1		
Lists	.800**	.991**	1	
Likes	.473**	.350*	.371*	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A2 Correlation test for October 2010

October 2010	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.493**	1			
Lists	.451**	.792**	1		
Tweets	.402*	.505**	.499**	1	
Likes	.668**	.463**	.417*	.602**	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A3 Correlation test for March 2011

March 2011	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.399*	1			
Lists	.322	.791**	1		
Tweets	.338	.532**	.482**	1	
Likes	.615**	.402*	.403*	.527**	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A4 Correlation test for October 2011

October 2011	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.360*	1			
Lists	.336	.711**	1		
Tweets	.244	.523**	.531**	1	
Likes	.267	.494**	.149	.088	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A5 Correlation test for March 2012

March 2012	Following	Followers	Lists	Likes
Following	1			
Followers	.306	1		
Lists	.129	.593**	1	
Likes	.125	.275	.358*	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A6 Correlation test for June 2012

June 2012	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.287	1			
Lists	.271	.828**	1		
Tweets	.124	.560**	.435*	1	
Likes	.126	.284	.288	.348	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A7 Correlation test for October 2012

October 2012	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.210	1			
Lists	.198	.856**	1		
Tweets	.091	.383*	.356*	1	
Likes	.414*	.266	.322	.018	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A8 Correlation test for March 2013

March 2013	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.127	1			
Lists	.132	.925**	1		
Tweets	.010	.319	.321	1	
Likes	.228	.306	.336	.009	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A9 Correlation test for June 2014

June 2014	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.254	1			
Lists	.116	.865**	1		
Tweets	.023	.257	.329	1	
Likes	−.120	−.178	−.117	−.299	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

Table 6.A10 Correlation test for August 2014

August 2014	Following	Followers	Lists	Tweets	Likes
Following	1				
Followers	.123	1			
Lists	.152	.949**	1		
Tweets	.083	.386*	.374*	1	
Likes	−.148	−.099	−.114	−.296	1

**Correlation is significant at 0.01 (bilateral)
*Correlation is significant at 0.05 (bilateral)

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