

## A DYNAMIC STUDY ON MUNICIPAL WEBSITE EXPECTED BENEFITS

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### **Abstract:**

The majority of the studies in the field of e-Government on public organizations' websites have analyzed their technical features and contents from a descriptive point of view. This research, however, aims to explore which benefits municipalities expect to receive when creating an official website. To do so, a quantitative survey was carried out where the Chief Information Officers of medium to large Spanish municipalities were asked to evaluate a list of expected benefits, in 2005 and again in 2012. Thus, this research explores how local councils perceive that a website will aid in their modernization strategies from an insider point of view; and, additionally, the dynamic nature of the survey helps to understand the evolution of these expectations in light of the environmental changes that have occurred during this time lapse. In general, potential organizational improvements, such as leveraging the development of the municipality, are less anticipated than outward oriented benefits. Our findings also indicate that Spanish municipalities more highly regard the potential benefits of their websites, although some particular perceptions have changed. The most valued advantage in 2005 was that of promoting the municipality, whereas in 2012 simply having online presence was perceived as the most important benefit. Municipal decision-makers may use these results to consider whether or not their websites' contents and features help to achieve these evolving expectations, and if these tools are aligned with their e-Government strategies.

*Keywords: website, municipalities, e-Government, longitudinal study, Spain*

## 1. INTRODUCTION

Public organizations are becoming aware of the need to embrace a citizen-centric model, where accessibility is enhanced through reliable and secure channels, as well as the need to develop their capability to achieve a better outcome employing as few resources as possible. These circumstances have made the Internet an attractive service delivery alternative (D'Agostino et al., 2011). However, without communication of such plans to their stakeholders, they will not sufficiently value the importance of e-Government, and therefore it will not be as successful as it could be. This is where the corporate municipal website plays a key role. A customer-oriented website will provide local councils with a number of organizational, strategic and operational benefits (Janssen et al., 2006). Designing and implementing an adequate website improves the internal organization of public information, especially in the eyes of the citizen, who does not have to be knowledgeable about the administrative process in order to interact with public administrations.

All over the world, countries are encouraging their local governmental bodies to make the provision of public services available via the Internet. For instance, the UK had the goal of achieving 100% electronic municipal service delivery capability by 2005 (Paris, 2006). Jordan has been deploying an e-Government strategy since 1995 with the objective of providing e-Government services and enhancing the productivity of public organizations (Elsheikh et al., 2008). In Spain, the Act for Citizens' Electronic Access to Public Services, also known as "Act 11/2007" encourages local administrations to provide electronic access to their services by 2010 (Ministerio de la Presidencia, 2010). Therefore, there is a compulsion for developing a website as an interface for stakeholders to interact with their local councils.

In spite of this, many municipalities do not feel prepared (nor will they feel prepared in the near future) to make the necessary internal changes that are involved, therefore many town halls will just invest in an external front-office with no electronic ties to their back-office. As Chun and Davies (2002) affirm, the internal (identity) and external (image) perspectives of an organization often produce varied results. Along these lines of thinking, Eyob (2004) and Norris, Fletcher and Holden (2001) have detected that the external dimension of web pages, that is, communication and advertising roles, are more important to local councils than modernization strategies or internal efficiency issues. Therefore, it seems crucial to understand what public administrations expect from their website and how aware they are of other e-Government related benefits, aside from the obvious online presence.

The majority of the research concerning public sector websites is done from an external point of view, attempting to provide an objective analysis of the accessibility, applications and features of these tools (Carrizales et al., 2006; Paris, 2006; Pina et al. 2007; D'Agostino et al., 2011). For instance, Gil-Garcia and Pardo (2006) used statistical techniques to collect data from government websites and they used the statistical results as input for two qualitative case studies. Also, Miranda et al. (2009) carried out a quantitative assessment in order to develop a website evaluation tool based on data from European websites. However, Harris and Ogbonna (2007) and Fan (2011) affirm that the insiders' point of view will bring about a deeper and richer understanding of the insights affecting website design, development and sophistication. Additionally, due to the fact that the Internet and other technologies are continuously evolving, the results of any given static study will not be valid for long periods of time (Potnis and Pardo, 2011; Bonson et al, 2012). This research aims to bridge these gaps through a quantitative longitudinal survey that has been carried out in two different years, 2005 and 2012, and that has assessed the perceptions of municipalities' Chief Information Officers (CIOs) with respect to the benefits that are expected to arise from launching their corporate website.

The objective of this paper is threefold. First, it reveals the expectations for developing web presence in Spanish local governments. Second, these expectations are given a value and ranked by level of importance by the municipalities' expert employees. Finally, the dynamic nature of the research provides a basis of comparison for analyzing whether or not these approaches have been altered during the time gap that occurred between 2005 and 2012.

The structure of this paper is as follows. After the introduction, the literature on website analysis, public administrations and e-Government strategies will be reviewed. This will be followed by an explanation of the research methodology, where the justification will be provided for the use of a longitudinal survey administered to the CIOs in the town halls of the largest Spanish municipalities. Then a summary of the main results will be presented. Finally, this paper concludes with some

suggestions that aim to achieve better understanding of the local governments' motives for designing and implementing an effective and satisfactory corporate website, as well as help public decision-makers to obtain maximum revenue from their technological investments.

## 2. LITERATURE RESEARCH

E-Government is defined as the “use of information and communication technologies to support government operations, engage citizens and provide government services” (Cook et al., p.3, 2002), as well as deploying a number of dynamic capabilities that will support such innovations (Potnis and Pardo, 2011). Websites, while being the most basic and observable expression of e-Government, are the most significant innovation tools for public sector organizations, since they are the principal instrument employed to provide electronic relationships between their stakeholders (Criado-Grande and Ramilo-Araujo, 2003). They are also acknowledged as essential tools for the detection of strategic benchmarks, thus making it possible to obtain direct information that describes their strategic values (Llopis et al., 2009), and they are recognized as the ultimate channel for implantation and support of the e-Government policies, in addition to serving as the most basic instrument to develop a minimum level of maturity, according to some authors (Eyob, 2004; Layne and Lee, 2001). Besides, corporate websites can also be used as a platform for other web 2.0 technologies that will encourage public engagement and accountability (Bonson et al., 2012).

The public value of a corporate website on local administrations can be seen from two points of view:

1. *External or front-office benefits: using the website to offer public information to stakeholders and to promote the council to citizens and tourists.*

The corporate website is primarily meant to make information available at a relatively low cost, making it a handy broadcasting channel that is available 24/7. However, it also fulfills the need to create a presence on the Internet (Miranda et al., 2009). Hart and Teeter (2000), and ICMA (2002) confirm that many local governments feel that being online is a goal in itself, due to the fact that it emphasizes an image of modernization and citizen orientation. Norris et al. (2001), Eyob (2004) and Premkumar et al. (2006) concur that the external public value is preferred over internal concerns when setting up an official website.

Noveck (2009) states that the key to improving public sector transparency is making the right information available, which is more important than relying on the advice of “experts” for the development of good governance practices. The configuration of a static and informative web page allows the city councils to show a list of the public services provided and their corresponding responsible person, thus creating a one-direction communication channel that complements the traditional ways to contact public administration (Paris, 2006; Premkumar et al., 2006). Additionally, local websites are often the first resource that tourists and visitors consult when trying to obtain information about the city. This calls for a self-explanatory, user-friendly interface design (Pieterse et al, 2005).

2. *Internal or back-office benefits: modernizing and improving public service provision and delivery, which implies the formulation of e-government strategies and leveraging municipal development.*

Fully deployed e-Government applications will generate gains in productivity thanks to a smaller stream of paperwork. Breaking the proverbial bureaucratic black box should rationalize internal processes, standardize new procedures, and provide the council's administration with enhanced transparency (Tolbert and Mossberger, 2006). This will provoke maximum cost savings and improve the effectiveness and efficiency of the provision of public services. These benefits should be extended to business that may be either the recipient of these services or suppliers of external services/products to the local government (Elsheikh et al., 2008).

Additionally, local administrations may deploy some leverage in the development of their municipalities by transforming themselves into learning organizations that: a) have productive relationships with other governmental bodies and private entities, b) share knowledge and information with their stakeholders and employees through a two-way communication channel, and c) are committed to their citizens to work jointly towards a more adequate list of services (Feller et al., 2011) The kind of

services offered in a corporate web page should be those that are in highest demanded by citizens, although there are no systematic studies on citizens' specific needs for internet-based communications (Bonson et al., 2012). However, this approach implies market research, which is an activity that councils do not usually engage in, unless it has political significance (Fan, 2011).

Longitudinal studies on local corporate websites are usually based on the premises established by Layne and Lee's (2001) maturity model (Premkumar et al., 2006; Pina et al., 2007; Elsheikh et al., 2008). According to this theory, a static, informational website must be developed first, and afterwards municipalities will reap the benefits of efficiency and productivity. However, this hierarchical approach has some limitations, as D'Agostino et al. (2011) have pointed out, in terms of having to decide whether internal administration issues are more or less relevant than communication and informational goals. Calista and Melitsky (2011) affirm that research on best practices has shown the inconsistency of this model. It is therefore expected that a number of municipalities will try to achieve both types of public value (internal and external) at the same time, and that this tendency will grow over time.

From this literature research, two hypotheses are drawn:

H1: Municipalities design their corporate websites with an external orientation more often than with an internal orientation.

H2: Municipalities will evolve over time, creating a more efficiency-oriented website, without neglecting its external orientation.

### 3. RESEARCH INSTRUMENT AND METHODOLOGY

This research is part of a larger survey directed at the CIOs of Spanish municipalities that had a corporate website plus a population over 5,000 inhabitants. Based on the assumption that the largest town halls have larger budgets for investing in a website, the largest municipalities in Spain were targeted as recipients of this survey (Miranda et al., 2009). Spain is the European leader in terms of public administration web accessibility (United Nations, 2012), and has received an award from United Nations since over 90% of the procedures and services provided by the State can be electronically accessed by the citizen. In 2011, the average availability of e-service provision in Spanish municipalities was 69% (Fundación Orange, 2012), which is a clear improvement from the year 2004 (Fundación Orange, 2005), when the same services did not quite reach 30%. The percentage of municipalities offering e-services has increased from 2005 until now, especially higher level services, which were almost non-existent in 2005 (Fundación Orange, 2012)<sup>1</sup>.

Self-coding questionnaires were distributed via email. Based on the fact that the answer is provided from the perspective of a single person, and not from that of the whole organization, the results can be considered as biased. However, the response rate is high and the seniority of the respondents may vouch for their organizational knowledge (Lowndes, Pratchett and Stoker, 2001). Furthermore, CIOs have an overall vision of the informational structures of the municipality (Ward, 2006; Norris, Fletcher and Holden, 2001), which is why they were deemed good candidates to answer the questionnaire.

The final selection of expected benefits was made as a result of a Delphi study carried out among five Spanish experts in the field, who were presented with an extensive list of motives for the adoption of a municipal website, which were extracted from the literature review (de Juana, 2007). These experts concurred in choosing the nine motives listed in table 1 as the most outstanding and reasonable ones. The responses were recorded on a five-point Likert scale anchored by 1 (none at all) to 5 (very strong). The final data was collected in 2005 from 165 municipalities (response rate 17%, SEM 7.78%) and again in 2012 from 88 councils out of those 165 (response rate 54%, SEM 55%), in order to ensure consistency in respondents (Casadesus and Karapetrovic, 2005). SPSS 19.0 was used for statistical calculations.

A principal components factor analysis was deployed to ensure construct validity. Table 1 shows the factor loadings of each variable in the two one-dimensional factors (external orientation and internal orientation) that are consistently drawn from the analysis, and illustrate the possibility for a municipality to pursue an image and/or organizational orientation for their website, as seen in the literature. Both

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<sup>1</sup>For a detailed historical overview of e-Government in Spain, see Muñoz-Cañavate, A. and Hipola, P. (2011). Electronic administration in Spain: From its beginnings to the present, *Government Information Quarterly* 28, 74-80.

factors were validated in 2005 and again in 2012 with Cronbach's alpha test for reliability and criterion-related validity measures. Although the minimum advisable level is 0.7, the literature shows that there might be significant differences in this coefficient when using a two-category scale versus those that involve more than two categories (Peterson, 1994), simply due to the fact that Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items. Considering this, a Cronbach's alpha of 0.53 is considered acceptable.

**Table 1:** PCFA of website expected benefits

	2005		2012	
	Internal orientation	External orientation	Internal orientation	External orientation
Promoting the municipality and its resources		0.747		0.909
Developing Web presence		0.877		0.649
Modernizing local administration	0.776		0.834	
Increasing public services quality	0.869		0.827	
Improving internal efficiency	0.893		0.854	
Reducing municipal costs	0.811		0.898	
Facilitating relationships with local businesses	0.851		0.838	
Helping municipal development	0.709		0.697	
Creating a new communication channel	0.606		0.778	
Extraction sums of squared loadings	4.738	1.325	5.363	1.077
Total variance explained	52.65%	14.73%	54.06%	17.48%
Cronbach's $\alpha$ test	0.91	0.57	0.93	0.53
KMO test		0.869		0.888

Source: own.

This analysis was also used as the basis for a cluster analysis, which helped us define groups of municipalities according to their internal or external orientations; this will be discussed in the next section.

#### 4. DISCUSSION OF RESULTS

Table 2 shows the perceptions of the local CIOs in 2005 and 2012. It can be seen that not only the ranking has changed, but also the relative values of certain items have varied dramatically. Notwithstanding these changes in ranking, the t-test for difference of means affirms that there are no significant differences in the value of the expected benefit of each item when comparing both surveys. Therefore, local council websites still aim for the same benefits, and even though expectations have changed, these changes have not been drastic. It is also worth mentioning that CIOs expressed higher mean values in 2012, probably because they had 7 years of experience with this tool and therefore had deeper knowledge of the benefits that it might bring about. In conclusion, Spanish municipalities are still working towards achieving the same goals, but with higher expectations.

**Table 2:** Perceived expected benefits of a local website in 2005 and 2012

Expected benefits (Ranking 2012)	Item value 2012 (SD)	Item value 2005 (SD)	Ranking 2005	Change	Difference of means (t)
1- Developing Web presence	4.52 (0.8)	4.23 (0.92)	3	6,86%	Not sign.
2- Modernizing local administration	4.43 (0.92)	4.22 (0.85)	4	4,98%	Not sign.
3- Creating a new communication channel	4.42 (0.98)	4.27 (0.92)	2	3,51%	Not sign.
4- Promoting the municipality and its resources	4.42 (0.8)	4.34 (0.82)	1	1,84%	Not sign.
5- Increasing public services quality	4.3 (1.1)	4.09 (1.01)	5	5,13%	Not sign.
6- Reducing municipal costs	3.99 (1.19)	3.32 (1.3)	8	20,18%	Not sign.
7- Improving internal efficiency	3.92 (1.14)	3.64 (1.25)	6	7,69%	Not sign.
8- Facilitating relationships with businesses	3.84 (1.17)	3.31 (1.17)	9	16,01%	Not sign.
9- Leveraging municipality's development	3.74 (1.19)	3.56 (1.11)	7	5,06%	Not sign.

Source: own.

Starting with the year 2012, the first positions correspond to one of the elements that comprise the external motivation factor: *Developing Web presence*, while the top position in 2005 was for *Promoting the municipality and its resources*. This leads us to think that the corporate website has always been a mere mechanism for external stakeholders' use and consideration, especially after the passing of Act 11/2007, which has provided these tools with legal backing. This concurs with the findings of Norris et al. (2001) and Eyob (2004) who detected that the external dimension of web pages, that is, online presence and advertising roles, are more important to local councils than modernization strategies or internal efficiency issues. H1 is therefore confirmed.

The same items came in last place in both surveys, although in different arrangements, and these items are related to improvements in internal efficiency. Still, some of these items show a great increase in their expected benefit value, namely *Reducing costs* (20%) and *Facilitating relationships with businesses* (16%). Even though the difference is not sufficient to be considered significant, as per the difference of means test, it is substantial enough to consider that these benefits are acknowledged as more important in the eyes of the council.

In the previous section it could be seen that a factor analysis was applied to the independent variables in table 1. Its results show that two factors account for 68% (2005) and 71% (2012) of the total variance in the nine variables. The value of the KMO tests confirms that the factor analysis is acceptable. Table 1 shows the factor loadings of each variable for the two factors obtained each year: one in which the expected benefits are more image-oriented (Promotion of the municipality and Website presence) and another factor with an organizational orientation (improving internal efficiency, reducing costs, creating new communication channels, leveraging municipal development, modernization and quality of public services).

Using these factors in a two-step cluster analysis (Ward method, Varimax rotation), we can see in table 3 that in 2005 three different groups of municipalities could be clearly defined, as the ANOVA test confirms. The first group is that of "front-office strategy," since the municipalities involved gave greater importance to external orientation benefits, as opposed to internal ones. This group is the least numerous of the three, accounting for only 25% of the municipalities, which is a bit unexpected when considering the importance that the literature has given to this orientation. The second group, the largest one, with 44% of the councils, has been labelled as "Combined Strategy" because they highly value both external and internal benefits, recognizing the full extent of e-Government with respect to their municipalities. Finally, a third group of local councils (30.6%) offer a slightly higher value for the website's internal benefits, and therefore has been named "back-office strategy," although the scoring for both factors is low.

In 2012, however, the cluster analysis results in only two groups. It seems that the group of “back-office” municipalities has disappeared and has merged into the group that pursues a combined strategy, which now presents higher mean values for each factor, and contains almost 74% of the respondents. The other 26% appear to follow a “front-office” strategy; a core group of municipalities whose primary objective is to provide information through their corporate website. The higher values of “F” imply that the difference between both factors is greater in 2012 than in 2005. This mirrors the work of D’Agostino et al. (2011), who state that this evolution does not have to be linear, but rather it must move towards a more external view of e-Government while simultaneously working towards the achievement of internal benefits at a slower pace.

**Table 3:** Cluster groups according to website orientation

2005 Factors	Front-office strategy	Combined strategy	Back-office strategy	F (sign)
Number	40	71	49	
Internal orientation	2.904	4.475	3.464	103.536 (0.000)
External orientation	4.65	4.662	3.449	113.072 (0.000)
2012 Factors	Front-office strategy	Combined strategy	Back-office strategy	F (sign)
Number	23	65	-	
Internal orientation	2.8075	4.5407	-	173.407 (0.000)
External orientation	3.7609	4.7077	-	168.583 (0.000)

Source: own.

Another test for difference of means was carried out by using the mean value for each factor (ANOVA, validated by the U-Mann Whitney test). We can see in table 4 that we cannot affirm that there are no significant differences between the year 2005 and 2012 with respect to the internal factor; but the external factor’s results show that it is statistically possible ( $p < 0.1$ ) to reject the hypothesis of equality of means, thus establishing a significant difference between the year 2005 and 2012. Therefore, H2 is partially confirmed: there has been a significant evolution towards the achievement of the benefits of an externally-oriented website.

**Table 4:** Cluster groups according to website orientation

External factor	Sum of Squares	df	Mean Square	F	Sign.	U test	Sign.
Between years (Combined)	2.057	1	2.057	3.234	0.074	2809	0.096
Within years	102.391	161	0.636				
Total	104.448	162					
Internal factor	Sum of Squares	df	Mean Square	F	Sig.	U test	Sign.
Between years (Combined)	0.235	1	0.235	0.379	0.539	3878	0.631
Within years	98.705	159	0.621				
Total	98.940	160					

Source: own.

## 5. CONCLUSIONS AND LIMITATIONS

Expected benefits from a corporate website are difficult to measure, but the attempt to identify and assess them is deemed necessary due to their practical use for public managers and politicians in their e-Government decision-making processes. Therefore, the contribution of this paper is not only the enumeration of a list of expected benefits, but also to express how relevant they are according to local CIOs.

This research shows that reasons of organizational nature are the ones that are least valued, at least from a managerial point of view. The longitudinal analysis with primary data over a time span of 7 years has allowed us to identify that cutting down costs, improving the relationships between administration and local businesses, or improving internal process management are not among the CIO’s main expected benefits neither in the year 2005 nor in 2012. What municipalities most highly

value about their website are image, or front-office, benefits: promoting their website in 2005, and having online presence in 2012. The result is not unexpected, considering that these municipalities already had a website up and running in 2005, and they are therefore not directly affected by the 11/2007 Act. All in all, there is a clearer definition of the expected benefits of the corporate website derived from the highest value given to every item in 2012.

Additionally, the cluster analysis reveals that municipalities tend to combine both aspects of the website, this being a tendency that has been exacerbated over the last 7 years. Those local governments that in 2005 had considered internal benefits as more relevant than external ones, have shifted their expectations towards a more front-office strategy, perhaps because they consider that e-Government efficiency and better provision of public services surpass the role of the corporate website, relegating this tool mainly for image and communication purposes.

Finally, a number of recommendations for local administrations' website design and development strategy can be derived from this research:

- Even though society in general has plunged into the digital economy, local councils seem to be stuck in the external side of the Internet. Long-term effects will only be achieved if the resources employed in setting up the website are considered to be an investment, instead of an expense. Modern municipalities should not simply comply with the current law.
- E-government effects take time, but time is a scarce resource. Technology and social demands change faster than municipalities can adapt to these new requisites, which might deter local councils. Even so, being somewhat behind is better than being stuck in the XX century.
- Citizens should be consulted on the number and kind of online services they need from their local councils. Other web 2.0 tools may help in obtaining this information, as well as creating important communication and interaction channels within the community. Only this way a local government might be able to achieve transparency and public trust.
- Traditional, non-technological means of communication should not be disregarded. The complexity of managing different channels simultaneously is a challenge that municipalities have to face, instead of procrastinating by concentrating on an external orientation of their websites.

Among the limitations of this paper, we are aware of a potential sampling bias due to the fact that the study was not based on a truly random sampling, but rather it was a sample from a number of pre-selected subjects; these surveyed subjects were also online before state law required it. These two limitations could be overcome by the launching of a larger survey that encompasses the rest of Spanish municipalities. Besides that, the measurements used here were perceptual rather than objective. Finally, a second stage of this research could allow us to draw a profile of the municipalities in each cluster, in terms of objective measures such as population or website features.

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