

# Emerging Trends in Local Governments Web Strategies

## *Citizen Web Empowerment Assessment in Italy*

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**Abstract:** The “Internet revolution” has deeply impacted relations on every context of exchange of goods and services. Nowadays, citizens are aware of this historic change that is taking place and they are the bearers of a new demand in terms of: access to official, customized and “on demand” information and services, new opportunities for direct and informal relationships with politicians and civil servants, acquiring a proactive role within the network. This paper assesses the web strategies of Italian municipalities to measure their “citizen empowerment” effectiveness. The study was performed by adopting a revised version of the Citizens Web Empowerment Index (CWEI) designed to benchmark administrations’ official web portals. The analysis was made on the web portals of the 104 Italian cities with over 60,000 inhabitants in 2012 and 2013. Results show that there is still a general lack of strategy to strengthen citizens’ level of empowerment and participation through official web portals.

## 1 INTRODUCTION

How to assess and benchmark the web strategies of municipalities in term of their “citizen empowerment” effectiveness? How to measure the improvement of the “empowerment effectiveness” in Italian municipalities?

Citizen empowerment, markedly tied in with the spread of the Internet and technological resources as part of our daily lives (in which the Internet is now ‘embedded’), represents one of the major challenges that public systems face today.

Our proposed definition of “citizen empowerment” is the following: *citizens are today the bearers of new demands, which can be summarized as follows:*

- a) *access to official, customized and “on demand” information and services;*
- b) *new opportunities for direct and informal relationships with politicians and civil servants;*
- c) *willingness to be “active players” within the network, also by sharing their own problems and complaints with others and seeking information on experiences of others with the same problems; Web 2.0 logic (O’Reilly, 2005) has considerably amplified this latter development.* (Bellio and

Buccoliero, 2013)

As web sites and portals are the strategic tool needed to meet this growing empowerment demand, their design has moved from a technology-centric vision to a content-centric one and, more recently, to a citizen-centric approach (King and Cotterill, 2007).

The impact of ICT on urban environments governance and planning is typically linked with challenging problems. A successful city must balance social, economic and environmental needs but it should also put the needs of its citizens at the forefront of all its planning activities. A “smartcity” makes conscious efforts to adopt innovative ICT-based solutions to improve conditions of living and working and to support a more inclusive, and sustainable urban environment. The strategy is built on the principles to use technologies to improve the City and to empower its citizens by making them active players in the decision making process. In the Web 2.0 age, Internet represents the key tool of this strategy (Bellio and Buccoliero, 2013).

This paper describes a methodological framework for the assessment of citizen empowerment provided by municipalities’ web sites and analyses the trend of citizen web empowerment in a sample of Italian municipalities in the years 2012 and 2013. In section 2, a review of relevant

literature is shown. In section 3, the research framework and results are presented. In section 4, some managerial implications of the study and future research developments are discussed.

## 2 BACKGROUND AND RELATED WORKS

According with Richards (Richards, 2010), Web communication platforms, such as blogs, wikis, and social networks have allowed average users to change from passive receivers of information to active producers of information (Budin, 2005). These tools and the ways that they have empowered individuals to take control of their Internet experiences have been categorized as Web 2.0 technology (Pachler and Daly, 2009).

Tim O'Reilly has first attempted to provide a clear definition of web 2.0: "*Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as a platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: "Build applications that harness network affects to get better the more people use them"*" (O'Reilly, 2007).

The identified key points are:

1. User participation. The web should be the medium that enables its users to participate and share information. The services offered are developed under the open-source paradigm, where users' interaction is a source of development and growth for the site.
2. Transformation of data ('remixability'). 'Remixability' stems from the desire of users and developers to be able to use and share information and then process and change it by developing new concepts and ideas.
3. Design centered on the user's needs

It is increasingly important to understand not only how Web 2.0 tools work, but also how the sharing and distribution of information through these tools can promote civic engagement (Budin, 2005).

It has been a long time since public administrations have begun to investigate the potential of Web 2.0 to improve service delivery, democratic responsiveness and citizen participation (Fountain, 2001). According with European Commission (Ala-Mutka et al., 2009): "*public sector institutions are beginning to recognise the need to shift to services that are closer to people's everyday lives, to use innovative tools to reach citizens and to better engage employees and to share information*

*and knowledge within and between organisations (Berce et al., 2006). Also, public institutions are increasingly making use of collective intelligence and user-generated content to encourage real-time interaction and facilitate participation (Dutton and Peltu, 2007) Social Computing-enabled governance mechanisms could enhance collaboration within government agencies and interaction with stakeholders, transforming processes into more user-centric, cost-effective solutions and bringing public value to end-users (DiMaio et al., 2005); (Osimo, 2008).*

A recent study (Assar and Boughzala, 2013) emphasizes that the current objective is to provide online services customized to match users' profiles and requirements, and to personalize the relationships users have with public institutions. The emergence of Web 2.0 and rise of social networks have revealed new perspectives that challenge public institutions. These institutions are particularly attentive to the possibilities of taking advantage of these tools in the context of e-government.

Given these trends, business models and governance modes must necessarily adapt and sometimes be rethought. Public organizations are not immune to these developments, and the *e-government 2.0* concept refers to specific applications of social media in the sphere of public services (Baumgarten and Chui, 2009).

The annual meeting of the Gov2.0 Summit has brought together figures from the U.S. administration and some researchers to discuss experiments, problems and questions concerning e-government 2.0 implementation since 2009. Few recent academic publications tackle explicitly e-government 2.0 and the problems it raises: in Niehaves' paper (Niehaves, 2009), specific applications of the concept in the process management field; in Nam's study (Nam, 2011), the adoption of e-government 2.0 by citizens; or in Scholl's paper (Scholl and Luna-Reyes, 2011) factors that promote openness, collaboration and citizen participation.

Several papers have been published on web site quality evaluation methodology (Aladwani and Palvia, 2002); (Cox and Dale, 2002); (Van Iwaarden and Van derWiele, 2002); (Kim et al., 2003); (Van Iwaarden et al., 2004); (Bilsel et al., 2006). Many of these publications offer frameworks containing groups of quality dimensions that are similar to the SERVQUAL (Service Quality) model proposed by Parasuraman (Parasuraman et al., 1988). Also some publications have proposes evaluation methodologies for specific web sites such as e-

government web sites (Kaylor, Deshazo et al. 2001; Smith 2001) hotel web sites (Chung and Law, 2003), online library web sites (Chao, 2002) (Novljan and Maja, 2004), and health care web sites (Bilsel et al., 2006); (Buccoliero et al., 2010); (Bedell et al., 2004). Recently, Kuo (Kuo, 2004) has presented a new point of view by integrating quality function deployment aspects into web site quality assessment methodology.

In a number of publications, quantitative methods for Web site quality evaluation are used. Statistical methods are the most widely used assessment tool (Cox and Dale, 2002); (Jeong et al., 2003); (Kim et al., 2003); (Kim and Stoel, 2004).

### 3 THE RESEARCH

#### 3.1 Citizen Web Empowerment Index

In this study, we combine both service and web site quality assessment methodologies by adopting an index named “Citizen Web Empowerment Index” (CWEI) (Buccoliero and Bellio, 2010); (Bellio and Buccoliero, 2013), whose components are listed in Table 1

Table 1: CWEI components (adapted by Buccoliero, Bellio, 2010) and (Bellio and Buccoliero, 2013).

	Sub-indicator	Assessed variables
CWEI	e-Information	Government structure; Segmentation or life event; Contact details; Policies, procedures; Budget; Council minutes; Newsletter and/or web magazine.
	Web tools & strategies	Blog and Forum; Chat; Social networks; Mobile services; Web TV; Open data strategy; Web strategy evaluation EGRI (UN, 2008).
	e-Consultation	On-line polls, surveys; On-line complaints; Reputation systems; Mayor’s direct on-line relation with citizens.
	e-Decision making process	· Evidence that the opinion of citizens is considered; Evidence of other complaints.

Our study attempts to extend previous empirical research to understand and to measure the degree of citizen web empowerment in local Italian governments’ portals by developing and index for benchmarking citizens’ empowerment through web portals (CWEI).

The baseline research hypothesis is that the information and services provided by local governments via the web are capable of enhancing citizen empowerment regarding two key dimensions: information held by citizens and control of the information with respect to his/her needs.

The various typologies of web information which allow evaluation of the level of e-participation were used to develop an indicator by means of which ratings could be given for the websites of all the cities considered. This indicator, CWEI, is given by the aggregation of four components, each of which is calculated on the basis of the presence of certain elements characterizing the structure of the website considered (During the stage of quantitative determination, the value 1 was ascribed to the presence of the service or of the information considered, value 0 to absence). The maximum theoretical value is 100 while each sub-indicator has a different theoretical value:

$$CWEI = e\text{-information} + \text{web tools \& strategies} + e\text{-consultation} + e\text{-decision making process}$$

During spring 2012 and spring 2013, the indicator was used to assess the websites of local Italian governments with populations over 60,000 inhabitants (104 cities assessed even if from 2012 to 2013 the number decreased to 102); the aim was to arrive at certain assessments of the current state of maturity of their web strategy in relation to potential for an increase in citizens’ empowerment.

Analysis and rating of sites was based on two fundamental criteria:

- the immediacy with which information or services can be obtained while navigating the site, without impediments and time-consuming procedures coming into play when attempting to access information or services;
- systematic (as opposed to sporadic) presence of the information or services required from the site.

*CWEI, as pointed out in table 1, is a multidimensional indicator because it is composed of a series of sub-indicators the objective of which is the measurement of various aspects of citizen participation via the web.*

*The first sub-indicator has been termed e-information. It relates to the presence on the*

website of some general information regarding the city and its policies.

Assessment was conducted on a number of these characteristics: the presence of a city politician list, considering if there are only name and surnames or a wider range of details in order to contact the municipality officials. Clear presentation of the city government organizational structure was also assessed since it is considered as an important way of orientation among the total number of services provided. The on-line availability of policies, procedures and legislation also helps. The last element considered in this sub indicator is the on-line presence of the budget and the way it is addressed.

The second component of the indicator consists of **Web tools & strategies**. It refers to the existence of social networking applications made for a high level of citizen participation - empowerment. However not only was the presence of the main instruments assessed (e.g. forums, blogs, newsletters, Facebook, Twitter, Flickr, YouTube), also specific services provided through mobile were included. The presence of "open data" and "GIS" strategy was also considered as an interesting element that makes a difference to citizens.

To construct sub-indicator **E-consultation**, various elements relative to the way of exchanging information with citizens were considered as reputation systems, online polls or e-surveys, and on-line complaints. Also the direct relation between citizens and the mayor was evaluated by searching for the presence of direct on-line involvement of citizens.

The fourth component of the indicator is termed **E-decision making process**. This sub-indicator assesses evidence that the municipality considers the opinion of citizens in decision making processes and provides evidence as to what decisions have been taken starting from the consultation process (e.g. publication of on-line polls, e-surveys results and subsequent actions taken). (Bellio and Buccoliero, 2013)

### 3.2 CWEI Assessment 2012-2013

The evaluation task was randomly assigned to two coders (the authors). The intercoder reliability of each CWEI sub-indicator was tested on a 20-site subset using Krippendorff's alpha coefficient (Hayes and Krippendorff, 2007).

Overall, use of the CWEI rating system was found to be highly reliable in the two annual evaluations (Table 2).

Table 2: Intercoder reliability (Krippendorff's alpha values for the sub-indicators, yearly subset n=20).

CWEI Sub-indicator	$\alpha$ 2012	$\alpha$ 2013
CWEI E-information	0.9714	0.9797
CWEI WEB Tools and strategies	0.9552	0.9765
CWEI E-consultation	0.9509	0.9412
CWEI E-decision making process	0.9009	0.9319

When looking at the CWEI values, we observe that none of the surveyed websites has reached a score close to the maximum theoretical value of 100; in fact the average CWEI value was 37.30 in 2012 and 40.24 in 2013. A moderate increase was registered during the last year but the value is still low, this testifies that it is hard to find local governments which have developed web-based strategies oriented toward information and user participation

Considering the average CWEI values per sub-indicators (Table 3), a little increase among the two years of analysis can be noticed, but the score order remains unvaried. The higher value is E-information; this does not surprise since it is the only component of the index which stands in the middle between a traditional website structure and a participatory one. On the contrary, the lowest level is registered by E-decision making process sub-indicator. This demonstrates that the awareness of local governments on the potentials of the web is only partial; in fact the tools for citizen participation in many cases exist (for example forms that allow problems to be reported very easily on-line, polls to evaluate initiatives, etc.), but what is missing is something that makes citizens aware that they have been taken into account, something that gives evidence on how a citizen's opinion was used in the decision making process, something that develops e-participation to empower citizens.

Table 3: Average CWEI values by sub-indicators.

Average CWEI sub-indicator values	2012	2013
CWEI E-information	64.42/100	68.21/100
CWEI WEB Tools and strategies	29.29/100	32.53/100
CWEI E-consultation	22.12/100	23.08/100
CWEI E-decision making process	7.21/100	8.89/100

Figure 1 shows the map of Italy and contains the average CWEI values per geographic area (Nielsen Areas).

The highest value has been registered in the North-East of the Country (Area 2: 46.62/100 in 2012 and 50.00/100 in 2013), North-West and the

Centre have a similar value both in 2012 and 2013 (Area 1: 37.25/100 in 2012 and 40.99/100 in 2013, Area 3: 36.32/100 in 2012 and 39.20/100 in 2013), while a lower value is obtained by the South of Italy (Area 4: 32.84/100 in 2012 and 35.17/100 in 2013). For all the four geographical areas an increase is shown between the two years of analysis.

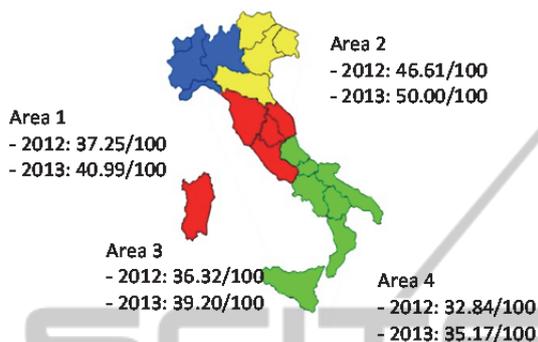


Figure 1: Average CWEI values per geographic area (Nielsen areas).

When looking at the “top scores” per sub-indicator, we find a number of interesting and significant “best practices” even if just in very few cases the maximum value per sub-indicator is obtained as shown in Table 4. By comparing numbers in 2012 and 2013 it can be seen that the number of cities increased only for sub-indicator E-information.

The fact that only this sub-indicator was fully accomplished by new cities shows, once again, that the web strategies perceived by administrations are still oriented at providing the most traditional form of information to citizens, those which guarantee little interaction and participation.

Table 4: Number of cities that have obtained the maximum value per sub-indicator.

	Cities with maximum value			
	N 2012	% 2012	N 2013	% 2013
e-Information	8/104	7.69%	10/104	9.62
WEB tools and strategies	0/104	0	0/104	0
e-Consultation	1/104	0.96%	1/104	0.96%
e-Decision making process	3/104	2.88%	3/104	2.88%

With regard to **e-information** the component site structure was examined. Ratings show that sites enabling the life events model for navigation (i.e. navigation starting out from events which may characterize the life of citizens, such as “studying”, “giving birth” “using public transport” or “life as a senior citizen”), or which provide clear segmentation

of citizens by cluster (the elderly, women, children, foreigners, etc.) have increased between 2012 and 2013 probably because it has been understood that menus constructed according to these approaches aid consultation by citizens who can now receive immediate answers targeted for their specific needs.

The research reveals that in 2013 about the 35% of the sample has information provision based on visitor-type clusters and 41% has chosen the life event logic. Both approaches are adopted only in 22 cases over the 104 cities of the sample.

The highest score in **WEB Tools and Strategies** sub-indicator was obtained both in 2012 and 2013 by the city of Turin where not only mobile services are offered, but there is an intense use of blogs and forums, social networks, videos and Web TV channels, plus there are some public GIS applications which not only allow interactive consultation of different cartographies but also help to personalize and share maps of the city.

The research also shows that there is an increase in the presence of some specific information as for example the list of politicians and their personal pages or on-line details about the budget. This trend is due to the Italian legislation’s recent requirements.

Analysis of Web tools and strategies reveal that the use of social networks by local governments has increased between 2012 and 2013 (29.81% in 2012 and 41,35% in 2013 among the sample). The most used social networks are Facebook, YouTube and Twitter as shown in Table 5, but also my Space, Flickr, G+ and Skype were considered.

Table 5: Number of cities using each social network (SN) and percentage among the sample.

	Cities using each SN			
	N 2012	% 2012	N 2013	% 2013
Facebook	26/104	25.00	38/104	36.54
You Tube	21/104	20.19	29/104	27.88
Twitter	16/104	15.38	29/104	27.88
G+	5/104	4.81	7/104	6.73
Flickr	5/104	4.81	5/104	4.81
My Space	4/104	3.85	4/104	3.85
Skype	1/104	0.96	1/104	0.96

In 2013 only 11 local governments out of 104 offer mobile services. As in 2012, the most significant examples are given by services for tourists which are often combined with QR codes which allow cultural and historical information to be read.

The use of open data was also explored, numbers confirm that only a few cities are considering this strategy but findings show that there was a significant increase in 2013 compared to the

previous year: a set of 10 cities has now introduced open data as for example Florence, Palermo, Rome, Venice, while others are starting to consider it.

Turning to **e-consultation**, the involvement of the mayor in on-line relations with citizens was assessed but it was hard to find tools for a true interaction.

Only in few cases special forms are used or the mayor's presence on Facebook or Twitter is shown.

A wider presence of internet polls, surveys, complaint platforms and reputation systems is registered, even if in many cases they are still just electronic forms to fill in which do not allow a complete participatory behaviour.

The only city which has obtained the maximum score in this sub-indicator was in 2012 and still is in 2013 Rimini. Its website offers reputation systems not only to evaluate the general agreement on the website but also on specific areas, as for example police services. In addition there are direct online ways to put citizens in contact with the administration and also ways to report the needs of a specific area, such as maintenance, repairs and removal of litter in certain districts and public parks.

In terms of **e-decision making process** there is still much work to do across the country.

It's possible to see that except for a few cases there is no evidence on how decisions are taken. Often there are tools which allow a participatory atmosphere but rarely results are shown. On the whole sample only in 3 cases both evidence that citizens' opinion has been considered and evidences about other's compliant are shown. When considering some best practices, we can think at Venice or Udine, two cities which websites offers a range of services built to allow citizens to "speak" by reporting something, interacting with others and seeing what the administration does or says.

With this regard it can be said that not much has changed between year 2012 and year 2013 in the Italian context.

In addition, correlation analyses (Pearson correlation coefficient) between elements were evaluated using the statistical package SPSS to determine if there is a link between the city population and the scores of each sub-indicator (Table 6). Results show that in 2012 there was not significant correlation between the number of inhabitants and the level of the CWEI nor between the number of inhabitants and the sub-indicators. Instead in 2013 some significant correlations (two tailed) are found between the population and the CWEI score and also between the number of inhabitants and CWEI 2 - Web Tools and Strategies

and CWEI 3 - e-Consultation.

These results show that in 2012 on-line investments in citizen empowerment didn't depend on the dimension of the city while in 2013 the opposite trend was found. Probably the 2013 result could be explained by some elements of CWEI 2 and CWEI 3 which were observed in an increased number of cities and which require some big financial and organizational investment. For example the development and adoption of online complaint platforms or the adoption of open data strategies which have increased during the last year.

Table 6: Correlation between population and CWEI.

		POPULATION	
		2012	2013
CWEI_TOT	Pearson's correlation	,086	,212*
	Sig. (2-code)	,388	,031
	N	104	104
CWEI_1	Pearson's correlation	-,016	,093
	Sig. (2-code)	,873	,350
	N	104	104
CWEI_2	Pearson's correlation	,100	,217*
	Sig. (2-code)	,310	,027
	N	104	104
CWEI_3	Pearson's correlation	,162	,223*
	Sig. (2-code)	,100	,023
	N	104	104
CWEI_4	Pearson's correlation	-,009	,013
	Sig. (2-code)	,931	,899
	N	104	104

## 4 CONCLUSIONS

A number of preliminary conclusions may be reached on the basis of the analysis of the CWEI.

The very low CWEI scores obtained by the Cities of the sample (average CWEI value is 37.30 over 100 in 2012, 40.24 over 100 in 2013) testifies there is still a substantial immaturity of web strategies, which appear modulated on structures and organizational responsibilities rather than on the needs and on the demand of citizens' empowerment; no substantial improvement has been detected in the two-years period considered.

There is still a low but increasing penetration of Web 2.0 tools and strategies (average sub-indicator

“Web tools and strategies” value is 29.29 over 100 in 2012, 32.53 over 100 in 2013). This moves an emphasis from the individual for whom information equates to power to a more collaborative, collective “group cooperation culture” that is hard to be understood and accepted by most public employees.

Surprisingly, also a limited diffusion of mobile applications was registered. This finding moves in the same direction of Web 2.0 tools adoption since also mobiles, especially smartphones, if properly used, can turn citizens into active players in the relationship with the Administration, involving them in service co-creation, evaluation and use.

Although there is theoretical and practical recognition that citizens must be more involved in public decisions, many administrators are, at best, ambivalent about public involvement or, at worst, they find it problematic. Administrators need help in addressing problems but find that the help they seek from citizens often creates new sets of problems. As a result, although many public administrators view close relationships with citizens as both necessary and desirable, most of them do not actively seek public involvement. If they do seek it, they do not use public input in making administrative decisions.

Overcoming the highly significant limits shown above may turn out to be a prerequisite for concrete development of the provision of services for empowered citizens.

The CWEI index (if further evaluated) could be used also at international level to benchmark and monitor the web strategies of smartcities across countries. Furthermore the CWEI index could support a citizen-centered web design of information and services. This could help a faster development of official web solutions aimed to citizen empowerment, developing trust and partnership relationships, which are essential to deliver quality and value for money.

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