Policy Gadgets for Urban Governance in the Era of Social Computing: An Italian Pilot on Telemedicine

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ABSTRACT

The chapter introduces the concept of policy gadgets that may be expressed as the combined use of computer simulations and social media in policy making. Such a concept is exemplified by providing the description of an Italian campaign on telemedicine, launched by the regional government of Piedmont (IT) in the context of an international research project named PADGETS (www.padgets.eu). Also, some preliminary results are presented, which are very encouraging. The use of such instruments in urban and regional policy making may generate significant advantages in terms of conveying society's inputs to policy makers, by providing them with a set of concise, fresh and relevant data in a cost effective and easily understandable way.

Keywords: *Policy, Social Media, Telemedicine, Policy Making 2.0, Governance*

INTRODUCTION

The soaring complexity at a social, political and economic level that characterizes modern societies necessitates more sophisticated policy making processes. Governments are no longer in the position of having in-house sufficient resources, information or competencies to effectively respond to the complex needs and wants of an interconnected, fast-evolving and unpredictable global environment. It is thus of critical importance for policy makers to partner with society to quickly identify new emerging problems and find innovative solutions.

In such a context, the rise of social computing has recently attracted significant interest from both the academic and the professional world. Web 2.0 and social media, in fact, represent a potential cornerstone in the field of public sector innovation, leading to more responsive, informed, open, transparent and collaborative forms of governance. In particular, the increased capabilities of Internet users to "organize without organizations" (Shirky 2006), coupled with the birth of social networks, have spurred the birth of numerous virtual spaces where people express their political views, problems and needs. This provides an additional motivation for government agencies to organize their presence in the social media.

However, despite the rosy expectations and fervent impulses coming from the scientific community, government's consultations are struggling to take off due to the presence of notable difficulties in collecting, organizing and making sense of people's opinions. In spite of the unsatisfactory results of participatory initiatives launched over the first decade of the second millennium, one ray of hope comes from the observed trend towards "government 2.0", an emerging concept which denotes a situation where canonical governmental boundaries are blurred, leaving room for opportunities to harness "prosumption", i.e., a new model of information collaborative production, where formerly passive consumers participate in an active and ongoing way. In this new paradigm, new modes of collaboration and co-creation surface and, therefore, pluralistic and networked forms of government become the dominant organizational model for service delivery and policy making. This can be highly beneficial for urban and regional planning, taking into account its complexity, dynamism (rapid changes of context and needs) and multiple affected stakeholders.

The aim of this chapter is to present the concept of policy gadgets and their role in the process of government transformation with respect to policy making and planning towards the above directions. In particular, it is analyzed how such instruments can be used by government agencies to inform and improve the policy making cycle. In order to exemplify how policy gadgets may be adopted in real life the chapter provides a description of an Italian pilot implementation launched by the regional government of Piedmont (Italy). The campaign focuses on a program for a large scale introduction telemedicine solutions in the region of Piedmont for monitoring the health of some special patients' groups. It aims to convey information on it to interested and affected citizens of this region (e.g. patients and their families, doctors, etc.), and collect feedback from them, using social media. This campaign is conducted in the context of an international research project named PADGETS (its full title is 'Policy Gadgets Mashing Underlying Group Knowledge in Web 2.0 Media' – www.padgets.eu), partially financed as part of the ICT for governance and policy modeling objective of the seventh framework program of research of the European Commission.

Including these introductory comments, the remainder of the chapter is structured in four sections. Section two presents some background information. Section three starts with introducing the concept of policy gadgets and subsequently follows on by presenting and discussing the Italian pilot on telemedicine. Then it places the research work conducted within a number of long term socioeconomic trends and highlights some of the future challenges and research directions. Finally, section four contains some conclusive remarks about the potential of policy gadgets to transform policy making as we know it today.

BACKGROUND INFORMATION

ICT-enabled governance has been recently explored and defined by the European Commission's Institute for Prospective Technological Studies (IPTS), being defined as: 'the use of ICTs to comprehensively: (1) simplify and improve the internal administrative operations of government and their relations with other bodies involved in public management and service delivery; (2) facilitate public service interaction between government, citizens and other stakeholders (legislative bodies, private sector, civil society organizations, self-organised communities), thus enabling better citizen participation and overall monitoring and evaluation of decision-making processes and their implementation; and (3) ensure inclusiveness and equal opportunity for all (Misuraca *et al*. 2011) .

According to OECD (2001) the participative dimension plays a vital role in the perspective of good governance, since public participation demonstrates considerable potential to change the broader interactions between citizens and government, improving the overall quality of engagement and decision making whilst widening the involvement of all citizens (European Commission 2009).

Nevertheless, Rittel & Webber (1973) remind us that the design of public policy in most domains is a "wicked" problem. The search for algorithmic approaches (based on the use of mathematical optimization algorithms) is bound to fail due to the very nature of these phenomena: many stakeholders with dissimilar views of the problem, values, concerns and interests; this is rendered even more complex by the paucity of opportunities to learn by trial-and-error. Owing to such peculiarities of public policy making process, several circles of deliberation are necessary to occur: stakeholders interact, raise issues concerning the problem under discussion, propose solutions and argue about advantages and disadvantages of them, finally resulting in a better understanding of the problem (Charalabidis *et al.,* 2010).

In order to reap benefits from this approach, new mechanisms are required to enable a public decision process that is more open, transparent and participative, in which citizens' contribution is a paramount ingredient of critical importance. Taking into account dimensions such as "to what level" or "how far" citizens are engaged, three stages could be distinguished according to Macintosh's framework (Macintosh, 2004):

1. E-enabling, which is about reaching a wider audience using appropriate technologies (its main focus being accessibility and understandability of information).

2. E-engaging, that is geared towards consulting a wider audience to enable deeper contributions and support deliberative debate on policy issues through top-down consultation.

3. E-empowering, which is aimed at supporting active participation and to facilitate the percolation of bottom-up ideas towards the political agenda.

Along the depicted trajectory, the rise of social computing has recently attracted significant interest: Web 2.0 *et similia*, in fact, may be considered a cornerstone in the field of public sector innovation, smoothing the way to a more responsive, informed, open, transparent and collaborative government. In particular, the increased capabilities of Internet users to create content, coupled with the birth of social networks have driven the development of more and more virtual spaces for the expression of political views, problems and needs, which may ideally move towards becoming a modern *agorae* (Boero *et al.* 2011).

Moving on to the role that social media can play in policy making, IPTS (2009) identified four key areas of potential impact: 1) enhance political participation while increasing transparency and accountability; 2) enable user-involvement and empowerment; 3) allow mass-collaboration in government and public service delivery reinforcing knowledge sharing and management and, finally, 4) contribute to support organizational, legal and regulatory changes.

According to many commentators (DiMaio, *et al* 2005), social computing-enabled governance mechanisms could enhance collaboration within local government agencies and interaction with stakeholders, transforming processes into more user-centric, cost-effective solutions and bringing public value to end users. The creation of more participative forms of governance represents a key pillar of the smart city initiative (European Commission 2011) with which the European Commission has challenged the most advanced European urban areas for the years to come.

SOCIAL MEDIA IN THE POLICY DOMAIN

Policy Gadgets: Value Proposition and Novelty

Similarly to the approach of gadget applications in Web 2.0, the concept of policy gadget (or, coining a *portmanteau*, "Padget") represents a resource (content or application) created by a policy maker, which is typically instantiated within one or more social media platforms. By enabling an interaction with end users, a Padget combines the policy message with underlying group knowledge having its *locus* in the social media milieu. In this way, Padgets aspire to play a pivotal role in conveying society's inputs to policy makers, providing them with a set of concise, fresh and relevant data on citizens opinions and suggestions in a cost-effective and easily understandable way.

Padgets could be compared to a "complex molecules" made up of four main components (Figure 1):

• A message, that regards a policy in any of its stages and forms, i.e., a draft legal document under formulation, a law in its final stage, an EU directive under implementation, a draft policy guideline, a political article or even a campaign video. The policy message is put together adopting a modular structure (using different content types) in order to account for the heterogeneity present among end users in terms of time availability, interest in details and preference for content consumption. Typically the policy message could be structured in three parts: a short and "catchy" policy statement, a brief policy description and a set of more extensive documentation that may be attached to the message in different guises (e.g., text, multimedia, external links).

• A set of interaction services, that allows users to have recourse to the policy gadget (find it, access its content, share it, comment the policy message, etc.). These interfaces may be provided by either the underlying social media platforms, in which the Padget campaign has been launched, or by the Padget itself, when it takes the form of a micro application.

• The social context, that is the framework describing social activities and contents related with the policy gadget in each individual social media platform, where the policy gadget is present. As a result, this component allows the policy gadget to be a "context-aware" volume of relevant user activities and user generated contents.

• The decision services, which are offered by two complementary modules of the PADGETS central platform. Whilst the "PADGETS analytics" module processes numeric and textual data gathered through Padget campaigns in order to calculate useful metrics and extract opinions expressed about the policy message, the "PADGETS simulation model" analyzes and projects into the near future the diffusion process of the policy message in terms of awareness (i.e., passive reception of the policy message in social media), interest (i.e., spreading or commenting the Padget announcement in social media) and acceptance (i.e., expression of positive and negative judgments about the policy idea under examination).
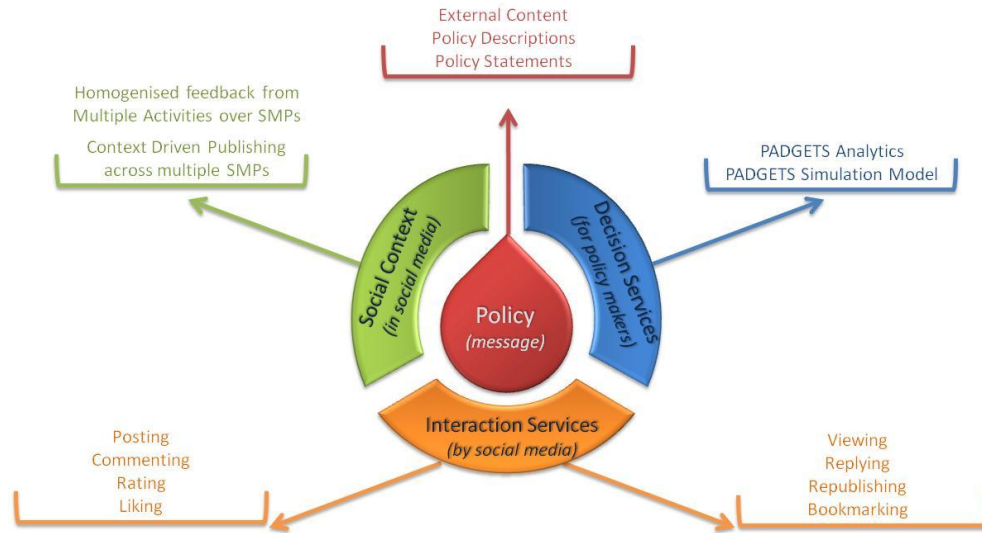
Figure 1 - Padget main components

The value generated by policy gadgets unfolds along a number of dimensions and may vary among the different phases of the policy making cycle. Nevertheless, in its essence it may be conceived as a reduction in the distance between policy making and society's needs, both in terms of time and tools required. In other words, the use of policy gadgets allows to better inform the policy decision process by providing a clear and dynamic picture of the disparate stakeholders' opinions and priorities.

Padgets are used in communication campaigns that may be launched by policy makers during one or more phases of the policy making cycle: agenda setting, policy analysis, policy formulation, policy implementation, and policy monitoring and evaluation (OECD 2003). The purpose, function and - as a consequence - the value proposition of each Padget campaign may vary according to the stage of the policy cycle in which it is launched, as pointed out by Table 1.

Stage in policy making cycle	Padget campaign value proposition
Agenda setting	Elicitation of needs and priorities
Analysis	Opinions gathering
Formulation	Acceptance estimation
Implementation	Assessment of awareness and interest
Evaluation	Evaluation of impact perception

Table 1 - Padget value propositions in the policy cycle

Policy Gadgets represent an innovation in the policy making landscape. The main novelties introduced by such a tool may be briefly summarized as follows.

1. A relaxation of current constraints in terms of size, frequency and quality of citizens' participation. All the different stakeholders are free to participate in any policy process they are interested in, at the time they prefer, with the effort in participation they are willing to spend, and above all using the tools with which they are already accustomed to (i.e. various social media they prefer). From the opposite perspective, policy makers can continuously access reports

pertaining to stakeholders' opinion, being allowed to quickly modify and adapt the policy issues under discussion if necessary.

2. An integrated management of multiple social media channels. The presence of a Web dashboard dedicated to the policy maker decreases the complexity and heterogeneity that comes naturally while managing different social media platforms, each of which exhibits peculiarities in terms of aims, interfaces, functionalities, target audience, content types and degree of content sharing.

3. The creation of an "open" decision support system. Opening up the decision support process means integrate it with activities carried out over social media platforms. This allows to establishing a direct link between the decision process and the external world as well as to reason on fresh and relevant information.

4. A better exploitation of data stemming from interaction with the public on social media. In this respect, the decision support component provides a number of promising functionalities that generate precious knowledge to be used in order to inform the decision making process. In particular, this component allows to generate snapshots on the levels of awareness, interest and acceptance of a given policy, highlight the presence of some of the possible biases present existing in such estimations (age, gender, etc.), create possible scenarios of how such levels of awareness, interest and acceptance may vary over time (e.g., in next 12 months) and, finally, single out relevant opinions emerging from the interaction of the end users with the policy message.

Although still in its infancy, such instruments represent a promising stepping stone for the creation of a new generation of policy making, which is characterized by faster and more frequent interaction between policy makers and society. As a matter of fact, policy gadgets may promote a cultural shift within government agencies, paving the way to the creation of an "extended government" model (Raguseo & Ferro 2011), wherein society plays a more proactively role in the policy lifecycle. Users' insightful contributions are processed through policy intelligence capabilities resident in the back-end, allowing public decision makers to anticipate and detect trends in public opinion, yielding augmented responsiveness, representativeness and efficiency to the public policy definition. Moreover, an intense use of social media coupled with further in-depth studies of network topologies may also contribute to a new approach that no longer considers individuals as isolated units of analysis, but leverages their social connections and the context in which they are immersed as a potentially useful policy tool.

Finally, peculiar traits of Policy Gadgets enable the creation of cross-sectional decision support tools easily and effectively implementable for any kind of public policy: this noticeable versatility makes them an interesting policy tool for full-fledged and frictionless participative actions also in the sphere of urban planning and governance. This can be very useful, taking into account the complexity, dynamism and multiple affected stakeholders that characterize urban planning and governance.

The Italian Pilot

In this section a description of a real life pilot implementation of the above concepts is described, which illustrates how Padgets can be applied to policy making. In particular, the pilot promoted by the regional government of Piedmont – full partner of the PADGETS project – will be presented.

Description of the Telemedicine Project

Over the last ten years Piedmont's regional government has spent, on average, 80% of its total budget for providing health services to its citizens. The increasing budget reductions currently experienced at local and at national level require regional governments to face a major challenge: significantly lower health

related expenditures without deteriorating quality of service. The challenge is even more compelling if we take a long term perspective: population's average age is steadily rising and all demographic projections at our disposal show a long lasting trend of growth in health services demand.

In such a context, regional policy makers pay much attention to e-health initiatives, which seem to promise financial savings along with quality improvements in service provision. In 2008, the Piedmont Region launched a pioneering and piloting telemedicine small scale project in one of the least populated and mountainous of its provinces: Verbano-Cusio-Ossola (VCO). This telemedicine project was supported by the Local Health Authority (LHA) of VCO that serves a population of about 172,000 people, where more than 23% of people are over 65 years old.

Project's Aim

The project aimed at testing an innovative model of medical service delivery highly relying on information and communication technologies for ~~granting~~ enabling stronger communication and interaction between hospitals and the territory. ~~More I~~ In particular, the project intended to:

- Improve continuity of care and safety of patients in non-acute conditions.
- Increase quality of emergency services and outpatient care.

From an operational standpoint, the project objectives were: limiting the use of specialist outpatient services, reducing calls to emergency services and bring down the number of repeated visits to hospitals.

Target Audience and Enabling Technologies

The VCO LHA designed an innovative telemedicine service for four different categories of patients affected by heart failure disease, diabetes, chronic pulmonary occlusive disease (COPD) and cancer.

Each category of target patient followed a personalized protocol defined by the VCO LHA specialists according to the disease conditions: patients were equipped with devices able to track, store and send appropriate data to a server in a secure repository; for each disease, the medical staff of VCO LHA defined the type, the number and the frequency of the measurements to be carried out. The project enrolled about 300 patients in three years.

The technology adopted for the pilot relied on an innovative Web-based application integrated with the information system of the local health unit (LHU), a kit of medical devices for remote home care and a module for IP video communication.

Lessons Learnt

From a patient's perspective, telemedicine allowed to achieve enhanced monitoring of the disease together with improved quality of life, delivering care in his/her home, thus increasing the person's ability towards self-care.

From a technological perspective, ICT technologies played a key role in the prevention of patients' isolation, connecting them with the network of LHA specialists, general practitioners and all the other professionals involved in the health system (e.g., nursing staff, volunteers, family members).

From an organizational perspective, standard processes coupled with personalized care paths for each patient (according to his/her diseases) noticeably contributed to maintain well-being, deliver effective care to those with chronic conditions and support the most vulnerable members of society.

To summarise, the VCO telemedicine pilot may be rated among one of the most challenging experiences in the field carried out in Italy, representing a virtuous example of partnerships between administrations, private sector entities and non-profit sector. The assessment of the provision model adopted is crucial for further diffusion of telemedicine initiatives in the rest of Piedmont's regional territory.

The PADGETS Campaign

The Rational

The replication of good practices in public policies answers the need of learning-by-doing and of finding effective solutions to complex problems, avoiding expensive and often impossible social experimentations. Furthermore, the exploitation of good practices reduces the cost and the risk of failure of public policies. However, the replication of good practices often finds several obstacles on its path, capable of jeopardizing their successful implementation. In general, replicating good practices raises issues of transferability, scalability and relevance.

The social media campaign promoted by the regional government was aimed at exploring the possibility to implement the VCO telemedicine initiative at a large scale in the entire Piedmont region, in a context different from the initial one, transferring the experience of a limited area to the whole region. In particular, its objective was to convey information on this extension of the telemedicine initiative in the whole Piedmont region to interested and affected citizens (e.g. patients and their families, doctors, etc.), and then collect feedback from them, using social media.

In other words, the Regional government is interested in identifying and shedding some light on ~~a number~~ of issues that have to do with the extension of such a good practice from a single province with specific characteristics to the rest of the region. In particular, the regional government expected through this campaign to gain a better understanding about the levels of final users' interest in and acceptance of these telemedicine services and the technology mediated model proposed for their provision. Also, the participation of employees from the national health system allows investigating the presence of possible internal hurdles due to organizational resistance to change as well as the presence of potential issues or improvements to consider. In particular, the data generated from the interaction between social media users and the relevant content propagated through social networks can be used as an input by the decision support component of the PADGETS platform in order to compute a series of indicators concerning this telemedicine policy (i.e., awareness, interest, acceptance) (Boero *et al.* 2011) as well as to detect issues and problems raised by the citizens through advanced text mining of their textual comments. Figure 2 provides a synoptic pictorial representation of the whole process that was followed in this social media campaign.
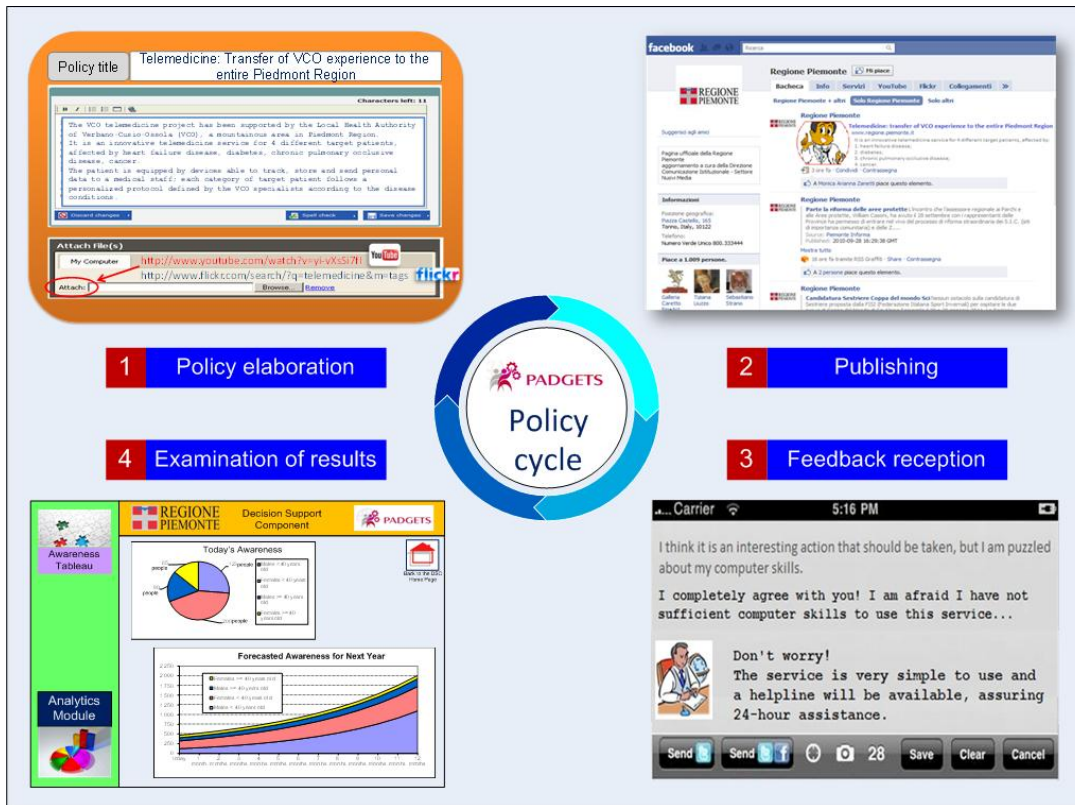
Figure 2 - Overview of the social media campaign

Stakeholders

Given the complexity of the debated theme, the campaign has involved a plurality of stakeholders both within and outside government's boundaries. The main stakeholders' groups are depicted in the Figure 3.
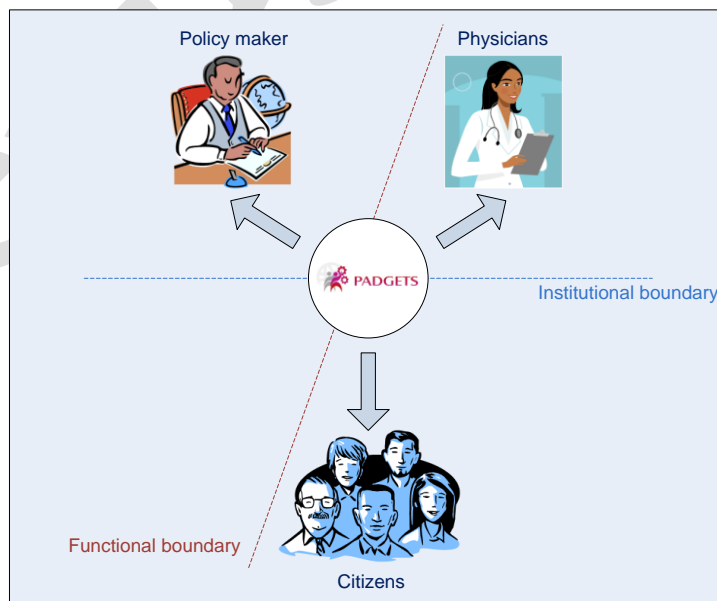

Figure 3 - Stakeholders overview

The term policy maker, although frequently used, does not reflect the high organizational complexity present within government (which includes many different departments involved, with different roles, competences and mentalities). In addition, the cross-sectional nature of ICT-enabled projects makes them even more complicated to manage, since they often involve a multiplicity of departments with different competences and roles. As it is possible to notice from Figure 4, the management of the social media campaign on telemedicine has required the active participation of a plurality of actors within the regional government and not just a single policy maker.
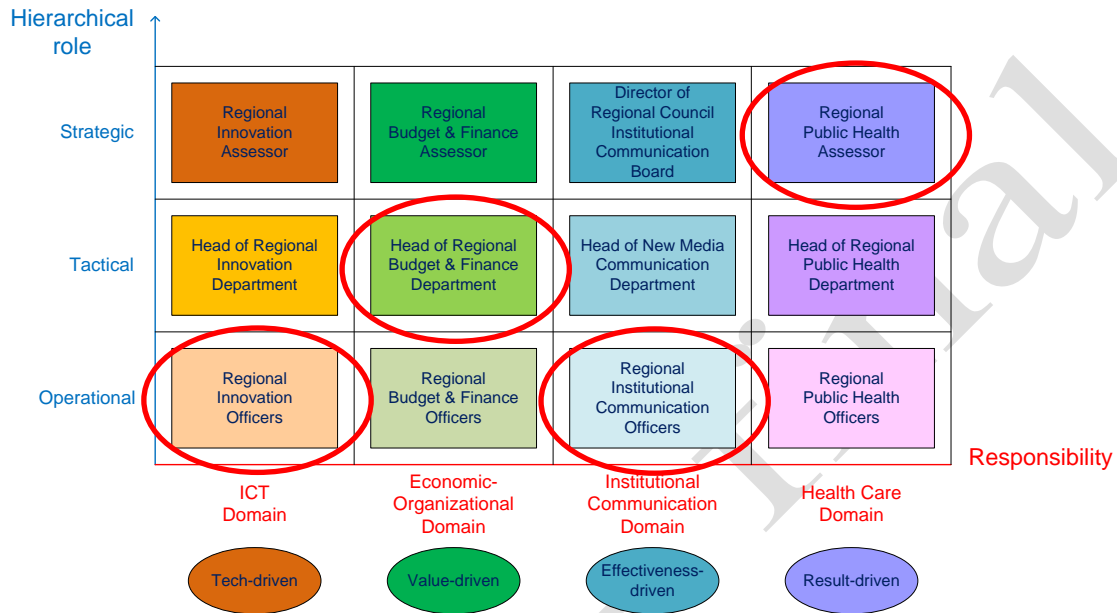

Figure 4 - Policy maker: exemplification of stakeholder categories

Remaining within the boundaries of the regional government, an important class of stakeholders, whose input has been highly relevant to the social media campaign, is that of the National Health System employees working on providing public services to patients, a broad spectrum of health care professionals involved in lifelong learning programs and associations and charities involved in patients' assistance (Figure 5).

Figure 5 - National Health System employees: exemplification of stakeholder categories

Citizens, for their part, present heterogeneous behaviours in terms of the effort in participation they are willing to spend. In fact, the campaign has aimed at reaching at all Piedmont's citizens (about 4.5 millions), but due to the nature of the policy message to be launched during the campaign and to the different diffusion rates of social media in the population, it is expected that some specific categories of citizens will be more prone to participate to the pilot: these categories are presumably citizens with chronic diseases (e.g., heart failure, diabetes, chronic pulmonary occlusive disease - COPD, and cancer) and their families (Figure 6).
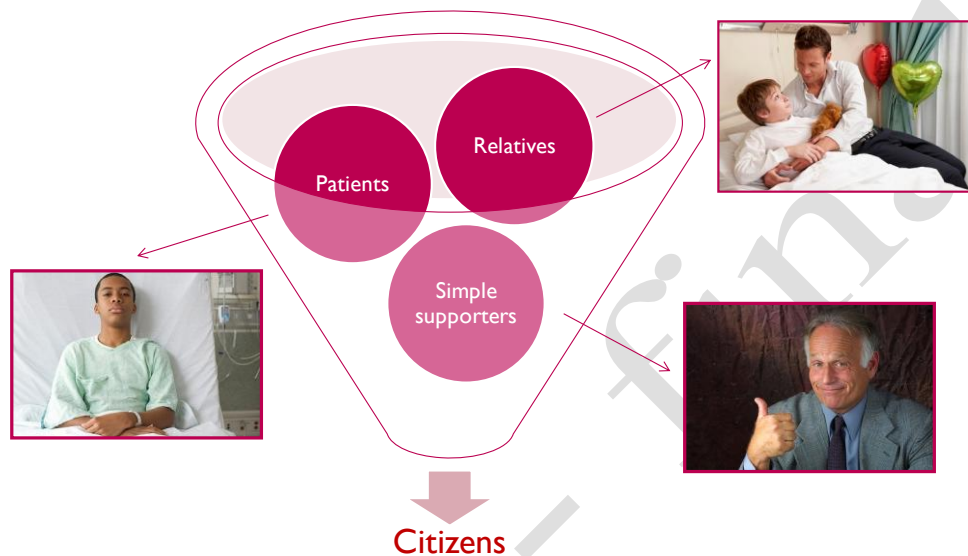

Figure 6 - Citizens: exemplification of stakeholder categories

Social Media Communities

Multimedia contents used in the campaign were produced in order to effectively communicate results obtained in VCO area thanks to telemedicine. They are based upon the knowledge gained through the VCO telemedicine pilot.

Although Piedmont Region officers have used several social media in the pilot campaign, the one chosen to be central in this campaign has been Facebook. This is due both to its peculiar interaction patterns as well as to the noteworthy penetration rate of it in the Piedmont's population. Beside Facebook, the campaign has made use of Twitter and YouTube. Flickr and LinkedIn, for their part, assumed an ancillary role, i.e., precious for potential virtuous synergies and viral diffusion, but not vital in order to allow and track active social engagement actions.

A glimpse of Piedmont Region's presence in the social media realm at the beginning of the campaign is visualized in Figure 7.
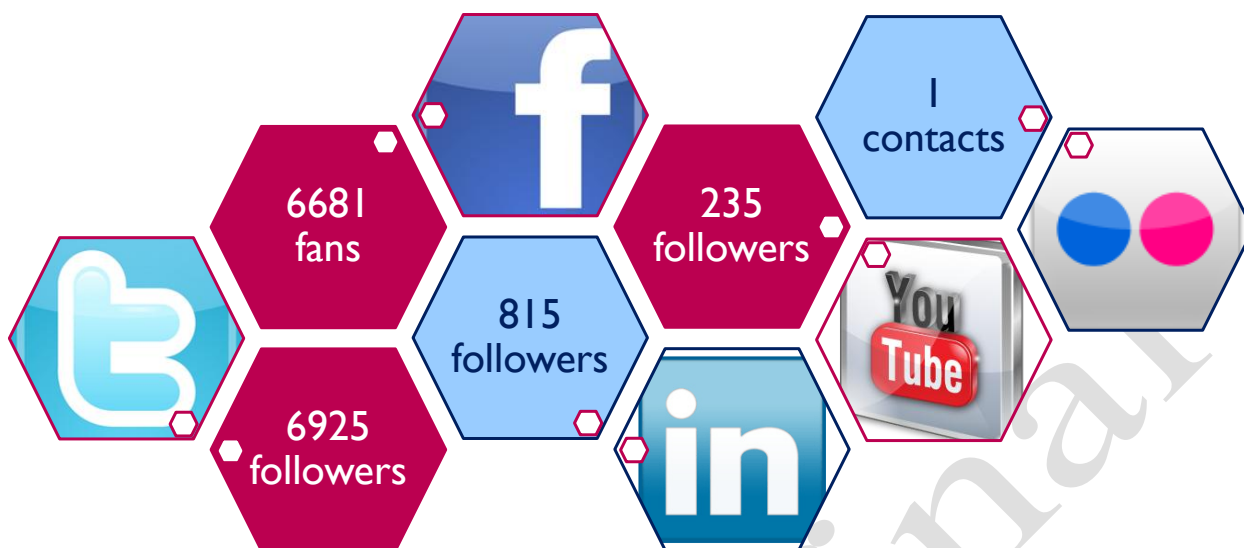
Figure 7 - Piedmont Region social media presence

Preliminary Results

The results produced by the telemedicine campaign are very encouraging. Although the analysis of the abundance of information produced by the campaign is still underway, in this section we provide some preliminary evidence of the value that may be generated by embracing the use of social media for policy making purposes.

In terms of reach, the policy messages have generated over 28,000 impressions across the three main platforms used (i.e., Facebook, Twitter and YouTube). The information for the Twitter platform has been estimated using click-throughs on bitly.com links and YouTube referrals; as a consequence, the figure represents a significant underestimation of the actual performance expressed on the specific platform. Translating impressions into unique user accounts, the data offered by the platforms' analytics show that over 11,000 accounts have been reached. It is important to stress that during the campaign the message performance of the Facebook regional government account has been multiplied by three times in terms of reach (people reached) and by twenty times in terms of engagement (number of active interactions stimulated, e.g.: shares, likes, comments, etc.).

Going beyond numbers, we are convinced that the most value has been generated in qualitative terms. As a matter of fact, the inputs received from the different stakeholder groups allowed to bring to light a number of perspectives, hopes and concerns about the implementation of telemedicine solution in the regional territory. As a result, such stimuli represent a vital input to assess and effectively manage the implementation stage of the telemedicine policy. In particular, the policy message has been received very positively by the population, who places significant expectations in terms of increase of service quality, reduction of costs for both patients (mainly in terms of time) and the regional welfare systems. At the same time, a number of concerns have been expressed (mainly by doctors) about the risk of applying a "technocratic approach" that does not take into account the human aspects of the doctor-patient relationship. On this respect, some suggestions have been put forward about conceiving telemedicine as a complementary and not substitute solution to traditional practices.

FUTURE RESEARCH DIRECTIONS

The society and the economy in which we live and operate are becoming more and more interconnected, unstable, complex and unpredictable than they have ever been (Mureddu *et al*. 2012). As pointed out by Taleb (2008), we live in the age of "Extremistan", a world of "tipping points" (Schelling 1969), "cascades" and "power laws" (Barabasi 2003), where extreme events are "the new normal" (Hinssen 2010). The policy issues that characterize our age can be addressed only through the collaboration of all the groups of society, including the private sector and individual citizens (Goldsmith & Eggers 2004). Nevertheless, the tools necessary to enable such collaboration are still largely unavailable. The concept of policy gadgets and the PADGETS platform represent a first attempt to provide an instrument to foster a higher level of "societal collaboration". Such an attempt may be placed within a long term trajectory in the way public policy making is going to evolve thanks to the concurrent presence of a number of socioeconomic and technological trends, such as: the widespread diffusion of Internet usage among all strata of population, a significant increase in the availability of data, a reduction in communication (and participation) costs and, finally, the rise of a social dimension in technology usage. The grand challenge for researchers, policy makers and technology vendors in the years to come will have to do with the creations of solutions and procedures capable of turning diffused competencies, contextual information and civic passion into an effective tool for increasing the ability of public policies to respond to the needs and wants of stakeholders living in urban and rural areas. Addressing such a challenge will necessitate a multidisciplinary endeavor that will require inputs from many different scientific communities, each of which offers its valuable perspective and contribution towards the construction of a data-powered collaborative form of governance. In such a scenario, big urban areas represent the perfect living labs for the development of preliminary test beds, since they are characterized by good technological infrastructures and human capital ~~infrastructures~~, and at the same time have such high complexity problems and needs, and many different stakeholder groups, and also they often host government agencies belonging to different administrative levels.

CONCLUSIONS

This chapter proposes the concept of policy gadget (Padget) as an innovative tool for leveraging the group knowledge produced over social media platforms within policy making.

The pilot described in this document represents an important first step towards the establishment of a new style of policy making leveraging on the opportunities offered by ICT in terms of knowledge creation as well as communities' management.

The use of ICT tools for decision support in policy making has traditionally been a "closed door" activity, usually carried out with static external inputs in the form of codified or unstructured data coming from different sources (e.g. statistical offices). Such an approach often suffers from a number of important limitations: the lack of a direct connection with the external reality on which the policy decision has to impact, an inherent delay present in the policy response due to the lead time to collect and process the relevant data necessary for the analysis. To exemplify with a metaphor, such process could be compared to driving a car by only looking at the rear view mirror (an indirect and delayed input) rather than through the windscreen. The innovation brought by Web 2.0 consists in offering the opportunity to open up the policy making process by integrating it with the activity carried out over social media platforms. This allows to establish a direct link between the decision process and the external world as well as to reason

on fresh and relevant information (going back to the metaphor, driving while looking through the windscreen and, in the near future, with the possibility to use additional on-board instrumentation).

The preliminary results of the telemedicine campaign reported in this article show the presence of significant potential in adopting social media for the implementation of a more participative style of policy making by local administrations in all sub-fields of urban governance. In particular, the application of a cross-platform approach seems to strengthen the reach and the engagement result of the messages posted by public administrations over social media platform. These results are expected to improve with time as society acknowledges the change in the style of communication adopted by government agencies and as the usage of such social media diffuses across urban and rural areas as well as generations of users. The approach presented in this chapter is directly transferrable to urban and regional governance, taking into account its complexity, dynamism (rapid changes of context and needs) and multiple affected stakeholders.

Concluding, a number of open issues are worth mentioning as they may represent useful food for thought for possible future research. The implementation of a meaningful cross-platform tracking still poses some challenges having to do with identity management. Furthermore, an arduous task consists in the creation and testing of an appropriate language and style of communication that government agencies have to adopt in the interaction with society. Lastly, the integration of society's voice into traditional policy making processes still presents some obstacles having to do with striking the right balance between independent and informed decision making and coherence with society's will.

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KEY TERMS & DEFINITIONS

Governance: the use of institutions, structures of authority and even collaboration to allocate resources and coordinate or control activity in society or the economy.

PADGETS: an EU - FP7 STREP project developing novel social media applications for policy making (its full title is 'Policy Gadgets Mashing Underlying Group Knowledge in Web 2.0 Media' – www.padgets.eu).

Padget: a resource (application or content), typically instantiating within a social media platform, created by a policy stakeholder, providing interactivity with citizens and other societal actors.

Padget campaign: a Padget campaign is a set of activities covering creation, distribution (in several social media), interaction, monitoring and termination of one or more Padgets for a specific goal.

Telemedicine: the use of telecommunication and information technologies in order to provide clinical health care at a distance. It helps eliminate distance barriers and can improve access to medical services that would often not be consistently available in distant rural communities. It is also used to save lives in critical care and emergency situations.

Social media: platforms used to turn communication into interactive dialogue between organizations, communities, and individuals. Andreas Kaplan and Michael Haenlein define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content".

Smart city: a city is smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.