

Empowering Civic Participation in the Policy Making Process through Social Media

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Abstract

The Web as medium has a high significance in everyday life of the digital society. The circumstance of growing visibility of social media covers a high potential in the range of a more citizen centric and socially rooted policy making. These potentials call for novel tools with the capability to analyze society's input and predict the possible impact of policies. The paper describes a prototype tool set for policy makers that utilizes social media technologies and methods to empower public engagement, enable cross media platform publishing, feedback tracking / analysis and provide decision support.

Introduction

According to Dunleavy and Margetts [1], social and technological drivers generated by Web 2.0 applications and social media have already led to dramatic socio-cultural developments.

The most commonly discussed social developments include peer production [2], the "democratization of innovation" [3], "crowdsourcing" [4], "wikinomics" [5], "cognitive surplus" [6] and a range of network effects [7]. These developments put pressure on Government organizations to innovate in their dealings with citizens, introducing new competition for "modality" in social and informational networks [8] [9] and offering the potential for "co-production" and even "co-creation" of Government services. Such potential should be welcome to policy-makers looking for public service cuts and could lead to new interest in Digital Era Governance type models.

Furthermore, these social developments have brought with them new organizational forms, through the capacity of the Internet and its users to "organize without organizations" [10]. A widespread "deformalization" of organizations could generate a governmental response along Digital Era Governance lines. Quasi-organizations from Facebook groups and multi-authored blogs to discussion sites and peer-produced goods (like Wikipedia)

are all extremely difficult to categorize according to conventional organizational theory.

As a result, Government officials and policy makers are often unsettled or confused by the need to respond to these "informal" organizational developments.

The described prototype service as a whole constitutes a valid response to the vagueness that still surrounds such topics, providing governmental actors with ICT tools with the capability to analyze unstructured (and sometimes inadvertent) society's input and, from them, forecast the possible impact of policies in light of emerging "vox populi".

In such a scenario, a widespread need for more effective and efficient participatory tools has been further confirmed by the results of users' surveys and studies [11]. As a matter of fact, the availability of workable participatory tools represents a prerequisite for Good Governance. A practice that according to the United Nations should be characterized as being participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive thereby following the rule of law [12]. Along the same lines, the European Commission identified five path-breaking principles for Good Governance, namely openness, participation, responsiveness, effectiveness and coherence [13] [14]. Thus, the creation of innovative policy intelligence tools such as policy gadgets also intends to provide a contribution towards the diffusion of Good Governance practices across all levels of government in Europe.

The Concept of Policy Gadget

The subsequent elaboration aims at bringing together two well established domains, the mashup architectural approach of Web 2.0 for creating Web applications (gadgets) and the methodology of system dynamics in analyzing complex system behavior.

The objective was to design, develop and deploy a prototype service that will allow policy makers to graphically create policy messages (text, video, audio, surveys and polls, Web applications) that will be deployed in the environment of underlying knowledge in Web 2.0 media.

For this reason, the paper introduces the concept of Policy Gadget (Padget) – similarly to the approach of gadget applications in Web 2.0 – to represent a micro Web application that combines a policy message with underlying group knowledge in social media (in the form of content and user activities) and interacts with end users in popular locations (such as social networks, blogs, forums, news sites, etc) in order to get and convey their input to policy makers.

Related Work

The following discussion addresses general trends in ICT and Web 2.0 technologies with the focus on cross-media publishing in the policy and social media domain.

Social media dashboards are presented which allow organizations to launch marketing campaigns, identify and grow audience, and distribute targeted messages across multiple channels. From a developers point of view frameworks for cross-media distribution and common Web 2.0 technologies will be considered in the following subsections.

Policy Making and Modeling in Social Media

At present most communication between policy makers and citizens goes via blogs.

So, first politician who uses excessive this strategy was Barack Obama with his website my.barackobama.com. On this blog citizens could post their opinion. But there is no option to get a shortened overview about the general opinion of the crowd to a policy topic. A better overview about positive and negative comments to a debate gives the software Debategraph [15]. This software collects comments from a blog and shows with the usage of different colors whether a comment is positive or negative. So a decision maker could become an overview faster whether there are more positive or negative comments to a topic but that is still complex. Most of the Governance tools built their own community but measures show that these communities are less used than public ones. That's why this paper addresses various social media channels because the participation of citizens is much higher.

Cross Publishing, Tracking and Analysis of Content Streams in Social Media

In both open source and commercial market there is currently a broad range of cross-media publishing and content analysis tools for the social media domain.

These tools are very successful and widely used for public relations, social media, and (viral) marketing as well as policy campaigns (in the successful campaign of Barack Obama), in particular in the U.S. market. The following subsections will present the most common used tools in this application area.

HootSuite

HootSuite [16] provides its users the facility to connect their social media platforms in one website and gives them so the opportunity to be up-to-date without logging in to all different platforms.

The supported platforms are Facebook, Twitter, LinkedIn, MySpace, WordPress, Foursquare and Ping.fm. Users are able to write status messages and publish them in multiple social media platforms.

TweetDeck

TweetDeck [17] is a Web application that is similar to HootSuite.

Twitter, Facebook, MySpace, LinkedIn, GoogleBuzz and Foursquare are supported. The features of TweetDeck are posting, re-posting of status messages as well as keep the user up-to-date concerning latest activities of friends in social media.

ThinkUp

ThinkUp [18] can be used to collect content from registered social media platforms.

It provides filter facilities so every comment to a status message can be displayed. Furthermore, ThinkUp supports state charts to get an overview about different metrics of monitored social media platforms like number of followers and likes/dislikes. Actually only Twitter and Facebook are supported.

Spredfast

Spredfast [19] is an application developed for enterprises to follow their brand on the Web and manage promotion campaigns for new products.

Spredfast provides content spreading and tracking across multiple social media platforms, scheduling of the content publishing process, role management and analytics.

Clarabridge

Clarabridge [20] is an application for text mining and text analysis.

The core concept is to collect opinions of customers and decide whether they like or dislike the brand. For the collection Clarabridge uses internal sources like e-mail exchanges and external sources like Twitter or Facebook. Clarabridge provides no cross-publishing features.

Gigya

Gigya [21] is a commercial Web service which provides common APIs for various social media platforms.

Gigya wraps APIs for these platforms in one common interface, which enables Web developers to integrate social features in an easy way on his own website. Gigya provides support for mobile platforms. Gigya's main social features are registration, sharing and enhancing user engagement. The framework allows users to publish their status messages to social media platforms. Powerful statistics, cross-platform analytics and traffic data are also provided by the Gigya framework.

Novelty in Relation to Current Practices in Public Sector

In the following subsection, the innovativeness of the introduced Padget concept in this paper is explained. In particular, its novelty is discussed against a number of practices having to do with the use of social computing and decision support systems in the public sector.

Use of Social Computing by Public Administration

The initiatives competing for the eGovernment Awards 2009 in the "Citizen Empowerment" category may be considered a good sample to understand where Europe stands in terms of online engagement. By looking at the list of finalists [22] there is little or no presence of structured social media usage. In addition the initiatives, despite declaring themselves "citizen/stakeholder-centric", are all based on the premise that citizens have to visit official governmental websites. The development of a real citizen-centric attitude – instead – requires policy makers to make the first step towards citizens rather than expecting them to move their content production activity onto the "official" spaces created for ad hoc participation [23]. For this reason the Padget concept, by relying on existing social media, represent a good opportunity to offer convenient and frictionless participation.

The main novelties introduced by the Padget concept may be summarized as follows: a relaxation of current constraints in terms of size, frequency and quality of participation, and an integrated management of multiple social media platform channels.

Use of Decision Support Systems in Public Administrations

"Decision support systems are gaining recognition in the public sector, which seeks solutions to various problems in a number of diverse areas. Lately, due to the redirection of politics towards public engagement and cooperation in decision making processes, the number of solutions in the

area of e-democracy has been increasing. Support systems and cooperation in decision making are, however, still used mainly in narrow professional circles and have not found their way to political decision makers or to the public" [24]. "The challenge of successful implementation of a decision support system in the public sector, with engagement over the whole spectrum of decision making, is still unmet" [25].

The development of the Padget concept represents a step towards the creation of decision support systems able to foster and account for society's inputs in a dynamic fashion. The main novelties introduced by the prototype service have to do with: the creation of an "open" decision support system bringing together simulation models and SMP & SNP, and a better exploitation of the data stemming from the interaction on social media. A brief explanation of such aspects is provided below.

Solution Approach and Methodology

Based on the underlying research findings the paper already introduced the term "Padget". The following subsections will elaborate scope and characteristics of the Padget concept.

In essence, a Padget may be defined as a resource (application or content) created by a policy stakeholder typically instantiating within a social media platform. The Padget provides interactivity with individuals acting in their own interest or in representation of interest groups and keeps track of content and user activities eventually associated with it.

From the **policy maker's perspective** a Padget can take the shape of a micro application that he/she can setup easily and without explicit technical knowledge in a Web environment (the Padgets dashboard). A Padget allows him to concentrate in it a policy message, through various content types, and disseminate it uniformly across his social media channels, thus avoiding a considerable degree of fragmentation. In addition, a Padget allows him/her to keep track of and analyze users' reactions and feedbacks to his/her policy message.

From the **end-user perspective**, a Padget is represented as connected content (title, post, links, images, video) generated by another user (the Padget initiator) and expressing a certain policy. End-users can access these information easily within their social media platform of choice (i.e. in Facebook, Twitter, Youtube, blogs) and react to it using the standard activities provided by the corresponding platform. Therefore they can chose to express their opinion or perform several other allowed activities (for example sharing, endorsing, commenting, and disapproving) seamlessly without having to access any external environment or tool. Additionally, end-users can

also come across a Padget over a Web application environment, i.e. website widgets, native applications for iGoogle or a mobile application for iPhone or Android phones. In this case a Padget is a Web micro application that conveys to them the policy message of the policy maker and provides them with specific functionalities for reacting to it (i.e. questionnaire, poll functionalities).

Requirements Analysis Process

One of the critical success factors in the development of a high quality software application is the deep understanding of the users' real requirements, as opposed to their perceived requirements. For carrying out the process of requirements identification and analysis a variety of tools were used in a complementary way. Following tools are used in parallel in the Padgets context: scenarios/use cases/personas, user surveys (online questionnaire), focus groups (End-users' organizations and technical experts) and interviews (representatives from seven selected European public bodies). These different tools and methods have been used with the aim to collect all the relevant data provided by Padgets end-user.

Conceptual Approach

A Padget is composed of four main components:

(i) a **message** that is 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, draft policy guideline, a political article or even a campaign video. The policy message is put together with 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 forms (text or multimedia).

(ii) a set of **interaction services** that allows users to interact with the policy gadget (find it, access its content, comment its content, share it etc.). These interfaces may be provided by either the underlying social media platforms in which the Padget Campaigns launched or by the Padget itself when it takes the form of a micro application (i.e. in the case of the iGoogle gadget).

(iii) the **social context** that is the framework describing the social activity and content relating with the policy gadget in each individual social media platform where the policy gadget is present. This component allows the policy gadget to be a "context-aware" volume of relevant user activities and user generated content that exists in the underlying social media and platforms with which the Padget Campaign will come across at some point in its life-

cycle. These data represent the user interaction with the policy message that the Padget carries, for example the number of comments made by the users, the content of the comments themselves, the number of favorable endorsements, etc.

(iv) the **decision services**, which are offered by the two modules. The Padgets analytics, processing textual and demographic data gathered through Padget Campaigns to extract the opinions expressed about the policy message. The Padgets simulation model, analyzing and projecting into the future the diffusion process of the policy message in terms of awareness, interest and acceptance. The decision services component is responsible for the generation of the information outputs to be presented to the Padget initiator (usually a policy maker).

Finally, policy gadgets are created, distributed, monitored and withdrawn through a prototype service that, from now on, will be referred to as the Padgets platform.

Technical Approach

Padgets platform uses publicly available APIs for interconnecting, publishing and retrieving content from underlying social media platforms.

The collected information and user activities that policy gadgets invoke in the media platforms will be categorized using semantic tags as to their relation to the policies (e.g. "For"/ "against"/ "neutral" – "relevant to user"/ "irrelevant" – "high priority"/ "low"/ "medium" etc) – in order to help the policy maker form an opinion about what the users think about relevant issues and policies. Users have various options via social media platform capabilities to interact with policy makers:

- by accessing a policy message and related content
- by giving their opinion to the proposed subject
- by retransmitting a policy message
- by engaging their online environment to the policy making process.

These user feedback streams are aggregated, processed and analyzed in a 3-step approach by **raw analytics** (social media metrics provided by underlying social media platform APIs) **data mining services** (sentiment analysis and opinion mining) and **decision support services**.

The main strength of the Padget concept is the advantage of engaging users within their preferred and familiar social media environments. The policy message and the means of user response will be implemented through the existing multimedia and interface functionality (images, text, videos, interactive applications, games, maps, etc) of each social media platform.

Design and Implementation

The Padgets platform is an aggregation of different components responsible for different tasks of the discussed Padget concept, as described in the previous chapter. In explain Padgets consists of the following software components:

Dashboard: Dashboard is the Web interface of the platform, based on JQuery UI and NockOutJS, where a policy initiator can setup and manage a policy campaign. Evaluation of feedback streams like comments, surveys and polls are supported by monitor and report capabilities.

3rd Party Tools: Policy initiators may also have access on a campaign via mobile device and iGadget.

Social Media Connector: Social Media Connector is the gateway between application server and social media platforms. The connector utilizes and abstract API to exchange data between social media platform APIs for publishing and tracking of policy messages as well as extracting raw social media data. Social media platform APIs are mapped to generic features and categories of the abstract API.

Application Server: Application server is responsible to manage the communication both with social media and with all different components. It is “heart” of the platform where data are stored and information is rooted on the proper channels. It is connected to every other component inside the system. Applications server provides RESTful interfaces for other components especially the social media metrics API for raw social media data and computed results of data mining engine and decision support engine.

Publishing and Tracking System: XMPP server is responsible to deliver notifications on the clients for any new social activity coming from social media. It has a client-plugin on the application server and another one the dashboard in order to manage real-time communication. Based on XMPP server the application server provides features for cross-publishing of policy messages across social media platforms. Policy messages in form of a Twitter message, Facebook status update or Blog post are published to various social media channels. The application server tracks simultaneously end-user feedback for instance a comment to a Facebook status update.

Data Mining Engine: RapidMiner has been used to extract data from raw social data (e.g comments, likes, views etc.). It has a bidirectional connection with the Application Server and delivers data also to the decision support engine for further processing.

Decision Support Engine: Decision Support Engine runs simulations based on data both coming from social media and the data mining engine. Via the application server it has an interface on the client to manage simulations. Results of decision support engine are clustered data sets for awareness, interest and acceptance

of citizens and their performed interactions with policy messages.

Visualization Engine: Visualization engine is responsible to export campaign data on the Web interface. Google Chart Tools have been used to give a “Google Analytics”-like feeling of mass data visualization. This component communicates through the application server with the Clients, to support the decisions made on a campaign. Visualization Engine provides social media platform driven metrics, awareness, interest and acceptance of target groups, trend topics and opinions.

In the Figure 1 below all the different parts of the platform are visible with all the connections among them.

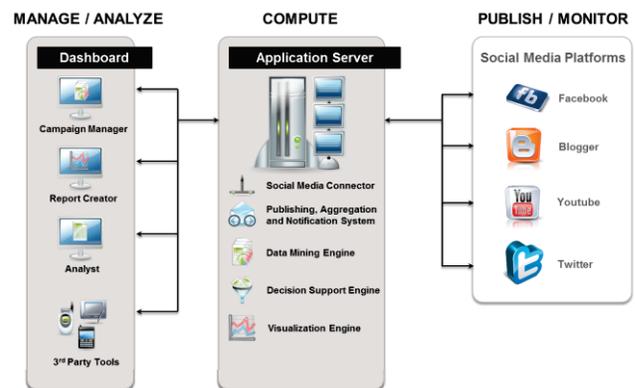


Figure 1: Padgets Platform Architecture

To sum up Padgets platform components follow the concept of policy life cycle. Creation of policy campaign, cross-publishing of policy message, monitoring of end-user feedback, computation of raw social media data and final the presentation of reports and analyses. This set of features empowers policy initiators to run all-embracing policy campaigns across social media platforms.

Conclusion and Future Work

The purpose of this paper was to delve into the qualities of the Policy Gadget concept, from its various angles, and present the design parameters of the Padgets platform. We presented a concrete definition for what a “padget” (policy gadget) is, covering the different perspectives of citizens and policy makers. We outlined the decision support component of Padgets platform. The Padgets Decision Support Engine is a combination of social media data analysis and a predictive engine that will simulate future variations in public opinion. We covered technologies relative to social media, which provide the Padgets platform with the capability to publish content (objects) and connect published messages to end users’ feedback and activities.

In conclusion, the present paper gives a complete description of Padgets' conceptual principles and functionalities. The Padgets concept combines policy gadgets with the concept of an open and interoperable system, which manages content and activities on multiple Social Platforms under a unified layer.

Central issue in the future work aims piloting (Greek, Italian and Slovenian Pilots are planned for 2012) the Padgets platform in real life conditions and assessing the added value of policy gadgets and decision support models in the policy making process. Pilot activities include community building to ensure the engagement of the relevant stakeholders in the pilot countries: Greece, Italy and Slovenia. The pilots will address political topics by general European interest: immigration issues, Anti-Counterfeiting Trade Agreement (ACTA) and eHealth services.

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