



# Social Media in Policy Making: the EU Community project approach

Yannis Charalabidis\*, Euripidis Loukis\*\*, Yiannis Koulizakis\*\*\*

\* University of the Aegean, [yannisx@aegean.gr](mailto:yannisx@aegean.gr)

\*\* University of the Aegean, [eloukis@aegean.gr](mailto:eloukis@aegean.gr)

\*\*\* University of the Aegean, [yianniskoul@aegean.gr](mailto:yianniskoul@aegean.gr)

**Abstract:** Policy networks are highly important for the formulation and implementation of public policies, so it is quite valuable to exploit modern ICT in order to support them. This paper presents a novel method of supporting the large policy network of the European Union (EU), which consists of numerous actors geographically dispersed all over Europe, through advanced social media exploitation, in order to improve the quantity and quality of their interaction, and increase efficiency and effectiveness. Based on a series of workshops, in which a large number of individuals involved in EU policy network participated, initially its structure has been analyzed, and then the proposed method has been formulated. Furthermore, the architecture of the ICT infrastructure required for the application of this method has been designed. The main pillars of the proposed method (corresponding also to the main modules of its ICT infrastructure) are: profiling of important EU policy actors' and reputation management, relevant documents' storage and relevance rating, and finally advanced visualized presentation of them.

**Keywords:** Social media, Web 2.0, government, policy network, reputation management

**Acknowledgement:** Part of the work presented in the present paper has been funded by the European Union EU-Community FP7 research project

## 1. Introduction

Political sciences research has revealed the importance of policy networks, consisting of both governmental actors and non-government actors, in the modern governance system, for the formulation and implementation of public policies (Skogstad, 2005; Rhodes, 2006; Rhodes, 2007). Due to the increasing complexity of the social problems in the last decades, governments started realizing that they needed the knowledge, the resources and the cooperation of various non-government actors, in order to design and implement effective public policies; this gave rise to the development of policy networks, and the gradual increase of their importance. It is important to take into account on one hand the findings of the political sciences research on policy networks, and on the other hand the rapid technological advancements in the ICT domain, in order to use the latter for supporting the former.

Definitely one of the major advancements in the ICT domain has been the emergence and wide penetration of the Web 2.0 social media. Though initially they were exploited mainly by private sector firms, later government agencies started using them for enhancing communication and interaction with citizens, collecting opinions, knowledge and ideas from them, and promoting transparency (Bertot et al., 2012; Bonsón et al., 2012; Chun & Luna Reyes, 2012; Criado et al., 2013). The first government attempts to exploit social media were oriented towards the general public. Their evaluation (Ferro et al., 2013; Loukis et al., 2014; Xenakis et al., 2014) has shown that they can provide valuable insights into the perceptions of the general public concerning important social problems and government activity for addressing them; however, they have also concluded that very often these social media discussions lack quality and depth, and recommended that in order to address this weakness it is necessary to target specific communities having strong interest and good knowledge on the particular topic/policy under discussion.

The research presented in this paper contributes to filling the above research gaps, by developing a novel method of supporting the large policy network of the European Union (EU), which consists of numerous actors geographically dispersed all over Europe, through advanced social media exploitation, in order to improve the quantity and quality of their interaction, and increase efficiency and effectiveness. Parts of the opinions and positions of these actors are publicized through well known knowledgeable persons, recognized as thematic experts, through articles in newspapers and news websites, or postings in discussion fora, blogs or other social media. On these documents our method is focused on, and it will include automated retrieval of them from their initial sources, as well as retrieval of data about their expert authors, and also advanced processing of them; the latter is going to include relevance rating of these documents with respect to various thematic categories, and also credibility ranking of their authors. This will allow the EU Commission and the actors of their policy networks to access the most relevant documents on a topic they are interested in, and also the most credible experts on it, and through them to access knowledge, opinions and positions of other policy network actors. This novel approach can give rise to a new generation of social media exploitation in government, which is more focused on highly knowledgeable policy communities and networks, but can co-exist and be combined with the previous wide public oriented ones, being complementary to them. The research described in this paper has been conducted as part of EU-Community project (<http://project.eucommunity.eu/>), which is partially funded by EU.

The paper is organized in six sections. In the following section 2 the background of our study is presented, followed by our research methodology in section 3. In the next two sections the first results of our research are outlined: the identified structure of the EU policy community and the basic concepts of the proposed novel approach (in section 4), and the functional and technological architecture of the required supporting ICT platform (in section 5). The final section 6 summarizes the conclusions and proposes future research directions.

## **2. Background**

### **2.1. Policy Networks**

Extensive research has been conducted in the political sciences domain on policy networks, which has shown their importance in the modern governance system for the formulation and implementation of public policies (Skogstad, 2005; Rhodes, 2006; Rhodes, 2007). Policy networks

are defined as sets of formal and informal institutional linkages between various both governmental actors and non-government actors (such as representatives of industries, professions, labor unions, big businesses and other interest groups, and also knowledgeable experts), structured around shared interests in public policy-making and implementation. They first gained currency and importance in the 1970s and especially the 1980s, when governments expanded their involvement in the society and the economy, so policy making became much more complex and specialized than previously. In this context, governments realized that previous unilateral modes of governance are insufficient, and that they need the resources and cooperation of non-state actors (initially economic actors and later other social actors as well) in order to have predictability and stability in their policy-making environments, and to design and implement effective policies. This trend was strengthened later due to the further increase of the complexity of the big social problems that had to be addressed through public policies, the globalization of the economy, and the emergence of supranational governance institutions, such as the EU (Pfetsch, 1998; Ansell, 2000; Peterson, 2001). In policy networks the non-state actors provide to the state actors on one hand information, knowledge and expertise, and on the other hand support for the formulation and implementation of public policies, and legitimization of them; in return the former have the opportunity to influence public policies (e.g. legislation, allocation of government financial resources) towards directions that are beneficial to them.

There are important differences among policy networks functioning in various countries and sectors with respect to the number and type of participants, the balance of power among them, the distribution of important resources, the density of interaction among participants, the degree of homogeneity in value and beliefs and the functions performed, which impact significantly participants' behavior and policy outcome (Atkinson & Coleman, 1989; Van Waarden, 1992; Marsh & Smith, 2000). This has led to the development of several policy network typologies. In some of them government agencies are dominant (state directed networks), in some others societal actors have more power (clientele pluralist networks), while there are more 'balanced' ones as well, in which there is balance of power between state and economic actors (corporatist networks). Another important characteristic of policy networks is the density of interactions among participants: according to networks that are stable over time and are characterized by dense interactions among network members can foster the development of shared values and beliefs concerning desirable policy objectives and instruments, and also cooperation rules.

Furthermore, policy networks are important mechanisms and facilitators of policy changes in cases of important changes in the external context (e.g. economic, ideological, knowledge, institutional changes) (Atkinson & Coleman, 1992; Marsh & Smith, 2000; Howlett, 2002). Contextual changes are usually sensed by one or more network's actors, who inject new ideas to the network, which are then transmitted to the other actors; furthermore, very often external context changes lead to changes in policy network's composition, entry of new actors, and also changes in the levels of influence of the existing actors.

## **2.2. Social Media in Government**

It is gradually recognized that social media have a good potential to drive important and highly beneficial innovations in government agencies, both in the ways they interact with the public outside their boundaries, and in their internal operations and decision making (Criado et al., 2013).

They can lead to the creation of new models and paradigms in the public sector (Chun & Luna Reyes, 2012):

1. social media-based citizen engagement models,
2. social media-based data generation and sharing models, and
3. social-media based collaborative government models.

Social media provide to government agencies big opportunities for increasing citizens' participation and engagement in public policy making, promoting transparency and accountability and 'crowdsourcing' solutions and innovations (Tapscott, 2009; Bertot et al., 2012; Bonsón et al., 2012; Chun & Luna Reyes, 2012; Criado et al., 2013; Loukis et al., 2014).

Though the history of social media exploitation in government is not long, there has been a rapid evolution in the relevant practices, so that we can distinguish some discrete 'generations' in them. The first generation of social media exploitation in government was based on the manual operation of accounts in some social media, posting relevant content to them (e.g. concerning current and future policies and activities) manually and then reading citizens' interactions with it in order to draw conclusions from them.

It was quickly realized that this approach was inefficient, and this gave rise to the development of a second generation of social media exploitation in government, which is characterized by higher level of automation of the above tasks, taking advantage of the extensive and continuously evolving API that social media increasingly provide (Charalabidis and Loukis, 2012; Fero et al., 2013). In particular, the main characteristics of this second generation are the automated posting of policy related content in multiple accounts of the government agency in various social media, and then the automated retrieval of various types of citizens' interactions with this content (such as number of views, likes and retransmissions, comments, etc.); finally sophisticated processing of these interactions is conducted in order to support drawing conclusions from them.

Furthermore, a third generation of social media exploitation by government is under development, in which government agencies go beyond their social media accounts (Wandhöfer et al., 2012; Bekkers et al., 2013; Charalabidis et al., 2014). In particular, they retrieve the extensive public policy related content created by citizens freely (without any government initiation, stimulation or moderation) in numerous social media sources (e.g. political blogs and microblogs, news sites, etc.), in a fully automated manner (using their API). Then they proceed to advanced linguistic processing of this content, in order to extract needs, issues, opinions, proposals and arguments raised by citizens on a particular domain of government activity or policy of interest.

The above three generations of social media exploitation by government share a common characteristic: they were oriented towards the general public. The first evaluations of them have shown that they can provide useful information concerning the perceptions of the general public concerning advantages and disadvantages of existing government policies, and also important issues and problems, and also some 'high-level' solution directions proposed by citizens. This information is definitely useful for the design of public policies taking into account the perceptions and opinions of the general public. However very often it is at a too high level and lacks depth, quality and elaboration (Ferro et al., 2013; Loukis et al., 2014; Xenakis et al., 2014). Therefore it is recommended that in order to address this weakness it is necessary to target specific communities that have strong interest and good knowledge on the particular topic/policy under discussion. Furthermore, both government agencies' staff and politicians' assistants who participated in the above evaluations mentioned that for all the policy related opinions and proposals posted in social media important for them is not only the content but also the author as well: more important for

them are opinions and proposals coming from widely recognized experts (e.g. university professors, researchers, even specialized journalists) or representatives of some social groups (e.g. elected officials industry federations or labor unions).

### **3. Research methodology**

In order to gain a better understanding of the structure of the policy network of EU, formulate the proposed method of supporting it through social media exploitation, and collect users' requirements from its ICT infrastructure, thirteen workshops were organized as part of the preparation and the implementation of the abovementioned EU-Community project. The EurActiv.Com (a leading EU policy online media network ([www.euractiv.com](http://www.euractiv.com)), which participates as partner in this project) and the FondationEurActivPolitech (a public service foundation having as main mission 'to bring together individuals and organizations seeking to shape European Union policies, also partner of this project' ([www.euractiv.com/fondation](http://www.euractiv.com/fondation))) were the organizers of these workshops. The participants were various representatives of important EU policy stakeholders (such as industry federations), members of the advisory boards of EurActiv.Com and FondationEurActivPolitech, thematic experts in several EU policies (such as the renewable energy policies), policy analysts, registered users of EurActiv.Com portals; also permanent staff of various hierarchical levels from the European Commission, including the Director-General of European Commission DG Connect.

The first five workshops aimed mainly to gain a better understanding of the structure of EU policy network, and also to formulate and elaborate the proposed method. The next five workshops had as main objective to elicit and collect users' requirements from a ICT infrastructure supporting the exchange of knowledge, opinions and positions among the actors of EU policy network. The final three workshops aimed to validate and elaborate the findings of the previous ones; also their participants filled a questionnaire concerning the EU policy related tasks they needed support for. The large experience of EurActiv.Com and FondationEurActivPolitech in EU public policies formulation through extensive consultation with stakeholders (who very often publish stakeholders' position documents on various EU thematic policies in the portals of EurActiv.Com) was very useful for the successful execution of the above tasks.

### **4. The proposed method**

The first finding of our analysis was that the EU, due to the big number of its involvement and intervention domains, the complexity and at the same time the importance of its policies, which concern its 27 member states (being quite heterogeneous in terms of economic development, political traditions, culture, etc.), has a large policy network. It consists mainly of three groups: decision makers (high level employees of the European Commission, the European Parliament, the Council, and other EU institutions), influencers (representatives of EU industry federations, non-governmental organizations (NGOs), multinational corporations and many 'think tanks') and policy analysts (journalists of many international media organizations that are specialized and highly knowledgeable in EU policies and operation, and high level employees of specialized Brussels-based consultancy firms having expertise in the EU policy processes). Part of the information, opinions and positions exchange among them takes place through articles in

newspapers and news websites, or postings in discussion fora, blogs or other social media, authored by well known highly knowledgeable persons who 'represent' (officially or unofficially) network actors, while a more confidential part is exchanged through face-to-face meetings, or personal e-mail exchange. The proposed method aims to support the former part of information, opinions and positions exchange among the large EU policy network through advanced exploitation of ICT; however, in order to avoid 'information overload' problems we adopt a 'selective' approach (with respect to the material presented by the supporting ICT infrastructure).

In particular, based on the conclusions of the evaluations of existing approaches to social media exploitation in government (see section 2.2), the previous research on policy networks (see section 2.1), and also the above analysis of the needs of the EU policy stakeholders (identified using the methodology described in the previous section), we developed a novel method of social media exploitation by government agencies for supporting their policy networks. It focuses on supporting the above extensive policy community of the EU, however it has a wider applicability for any type of government agency. The above needs' analysis revealed that EU policy stakeholders need to be better informed on the most knowledgeable and credible people, and also the most relevant documents on a specific policy related topic they are interested in; also, they need to associate the latter with the various stages of the EU policy processes. Therefore the main characteristics of the proposed method are:

1. it provides support not only to the EU decision makers on policy formulation and implementation issues, but also to the other groups of the EU policy network as well, such as the various types of influencers and policy analysts, enabling the efficient exchange of information, knowledge and expertise, and also of opinions, positions and proposals, in order to improve their capacity to participate in and contribute to the EU policy processes,
2. it adopts a 'selective' approach, focusing on the most knowledgeable and credible people on each topic we are interested in, by using advanced reputation management methods (Li et al., 2009) (see following section 5 for more details),
3. and also focusing on the most relevant documents (such as web pages, blog posts, social media content, online comments, word/pdf documents, collected from various external sources) on each topic we are interested in, using documents' curation/relevance assessment methods (see following section 5 for more details).

An overview of the proposed method is shown below in Figure 1<sup>1</sup>. We remark that it consists of three main processes: the first two of them crawl at regular time intervals the most relevant external sources of EU policies knowledgeable and credible people, and also of relevant documents of various types, update the corresponding databases of our ICT infrastructure, and also assess their reputation/credibility of the former and the relevance of the latter. These databases are used by the third process, which processes users' queries (e.g. concerning the most reputable/credible people or the most relevant documents on a specific topic) and presents the results, making use of visualization techniques (Keim et al., 2010).

---

<sup>1</sup>EU COMMUNITY Description of work (2014). <http://project.eucommunity.eu>

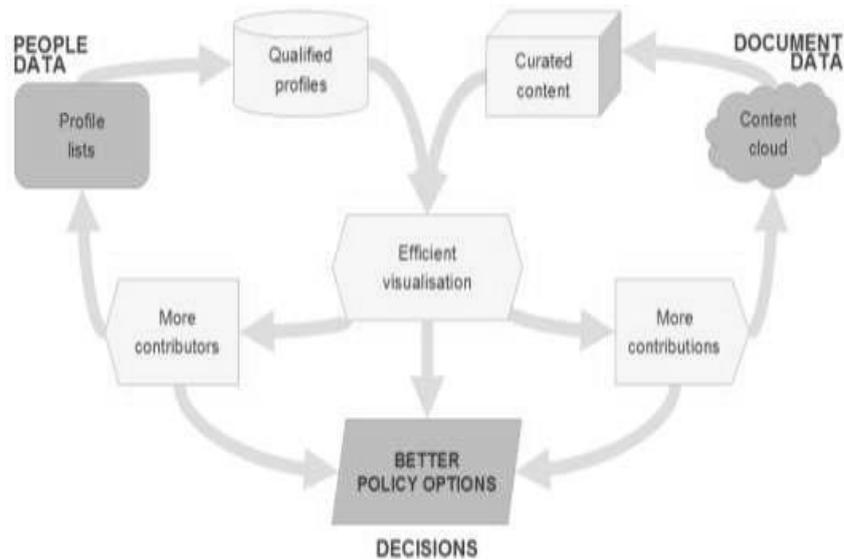


Figure 1: Overview of the proposed method of social media exploitation by government agencies for supporting their policy networks

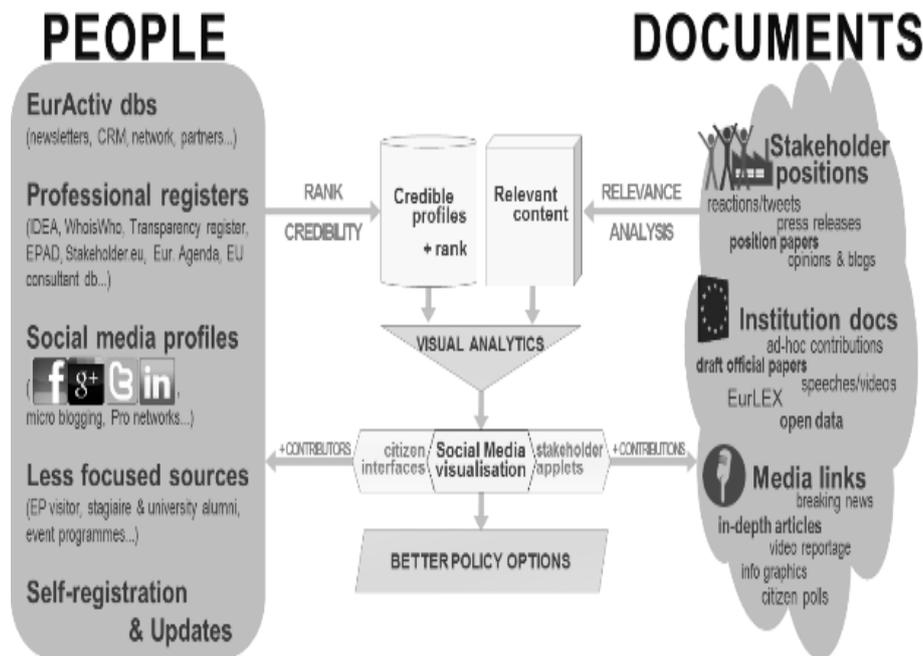
## 5. ICT platform architecture

An ICT platform has been designed in order to serve as a technological infrastructure for the application of the above method, and its functional architecture is shown in Figure 2. It consists of three main modules, named as EurActory, CurActory and PolicyLine, which correspond to the abovementioned three main processes.

The first 'EurActory' module crawls at regular time intervals various external sources of profiles of people with high levels of knowledge, expertise and credibility in one or more EU policies, such as the databases of EurActiv.Com, various professional registers, social media profiles, etc., and updates the corresponding EurActory database of knowledgeable and credible people on EU policies; also, the capability of self-registration of people who believe that they have good knowledge of one or more EU policies is provided as well. Furthermore this component will perform credibility ranking of these people, based on the following criteria <sup>2</sup> (each of them having a specific weight):

- Self-evaluation: direct user input.
- Peers rating: based on a survey sent to most influential users.
- Participation as speaker in important events on EU policies: through events' programs uploading, and speakers' names recognized and credited
- Organisation reputation: google ranking of he/she is affiliated with
- Position ranking (e.g. see EC Org Charts IDEA): based on scale of hierarchy
- Document assessment: results of authored documents' assessment by their readers
- Proximity trust: level of connection in social media
- Past reputation levels: taking into account reputation in previous months (its stability means credibility).

<sup>2</sup>EU COMMUNITY Description of work (2014). <http://project.eucommunity.eu>



**Figure 2: ICT Platform functional architecture**

The second 'CurActory' module crawls at regular time intervals various external sources of documents related to EU policies, such as websites of EU institutions (e.g. European Commission), relevant media (such as EurActiv, European Voice, EU Observer) and various EU policy stakeholders' websites, and also social media accounts where relevant positions and opinions are published, and updates the corresponding CurActory documents database. Also, the capability of manually adding a document relevant to an EU policy/subpolicy is provided as well. These documents (with the widest meaning of this term including web pages, blog posts, social media content, online comments, word/pdf documents, etc.) are first related to the most relevant policy topic and subtopics (one document may match more than one subtopic), and then linked to one or more authors in the EurActory people database. Next, for each document its relevance is rated with respect to the above policy topic/subtopic (as one document may match more than one subtopic, it may as well get more than one rating, depending on the subtopic it is considered for). The criteria for this relevance assessment are:

- Author: his/her credibility ranking for the specific topic/subtopic.
  - Social Media: is it engaging on social media?
  - Quality: is it accurate? Or even valuable?
  - Relevance: is it relevant to the topic? Or even timely?
  - -Endorsement: do you agree on the issues? Or even the solutions proposed?
- (the last three criteria are rated by the readers, in a rating pop up window).

The third 'PolicyLine' module uses the databases of the other two components in order to enable a user to enter a specific policy related topic/subtopic and search for:

1. people with high levels of knowledge and credibility on it - the result will be the top ones in credibility ranking - or
2. for relevant documents - the result will be the documents with the highest relevance assessment in a PolicyLine visualization form, which is shown in Figure 3, and includes four columns:

1. In the right column it is shown in which of the stages of the EU policy process (public debate, policy debate, draft, debate, decision, implementation, review) the particular topic/subtopic is.
2. In the central column (second from the left) there are links to various categories of official relevant documents from EU Institutions (e.g. white papers, green papers, Commission drafts, amendments, etc.)
3. In the left column left there are links to various stakeholder positions documents (e.g. from industry federations, NGOs, etc) related to the relevant official documents)
4. In the second column from the right there are links to relevant media analysis documents from EurActiv and other media, which are related to the relevant official documents.

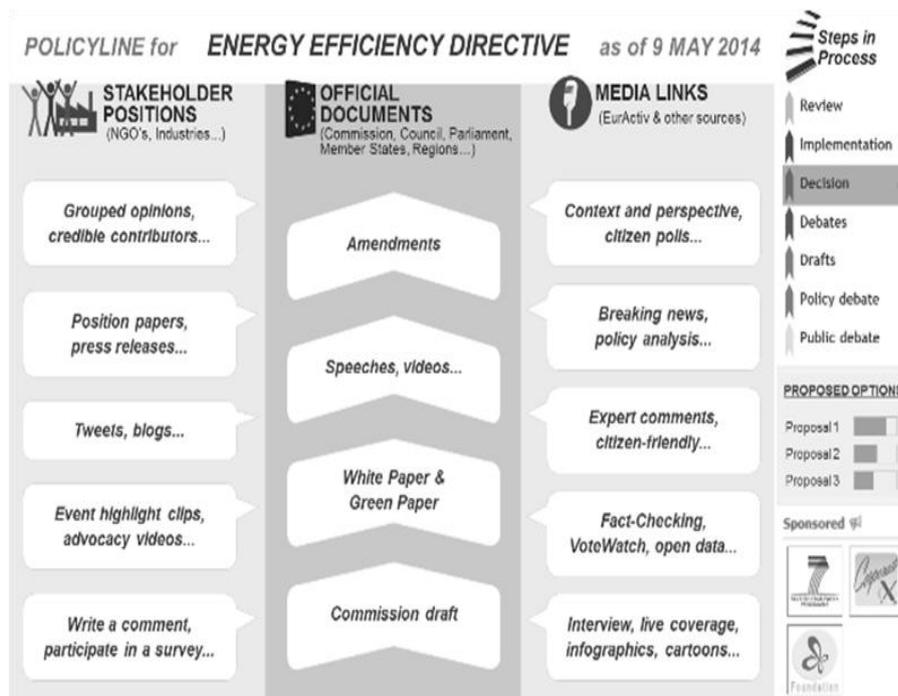


Figure 3: PolicyLine Visualization of documents relevant to a specific topic/subtopic

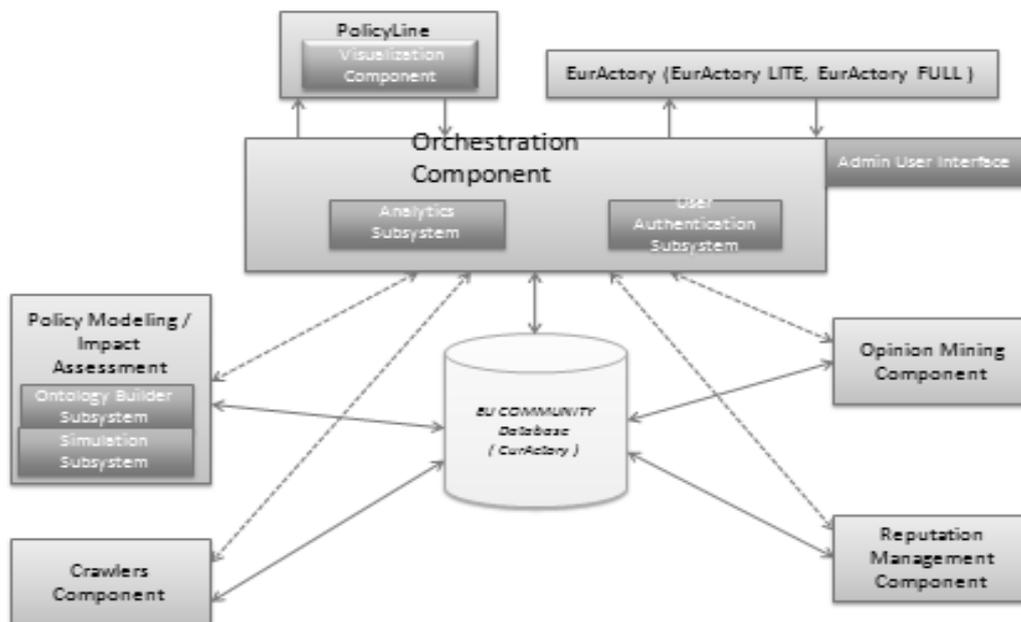
Based on the above functional architecture of the ICT infrastructure of the proposed method, we proceeded to the design of its technological architecture, which is shown in Figure 4. It includes the following components<sup>3</sup>:

- EurActory: it will include a profile directory of leading experts on EU policies including decision-makers, influencers and analysts.
- Reputation Management Component: it will calculate and maintain the credibility scores of the above individuals.
- Crawlers' Component: it will crawl both targeted sources (Europa Who-Is-Who directory, the Europa EU Green Papers directory, blogs and news sites with a special interest in EU policy matters etc.) as well as social media (Twitter and LinkedIn) in order to gather and make available to the platform information about people and documents related with the policy-making processes in the EU.
- Opinion Mining Component: it will not just perform a simple analysis to characterize a

<sup>3</sup>EU COMMUNITY Deliverable 6.1 (2014), "Platform Architecture Design". <http://project.eucommunity.eu>

document as “positive” or “negative”; additionally it will perform feature based opinion mining and emotional opinion mining in order to determine emotional states like “angry” “sad” and “happy”. It will also include a “troll” detection filter which will reveal user who repeatedly propagates an opinion.

- Policy Modelling/Impact Assessment Component: it will allow the creation and storage in the common database of a topic ontology (set of terms) for a topic under discussion in the EU community platform. The component will also allow the creation of models to simulate, assess and forecast the impact of alternative policy options, based on the public/expert opinion.
- Visualization Component: it will provide an intuitive access to the data crawled, processed, and analyzed by the other technical components. It will consist of three submodules. One for visual analysis of data related to EurActory (persons), one for data related to CurActory (documents), and one integrated component connecting aspects from both data sets.
- Policyline: it will be a web application featuring visualisation per policy topic of key documents from influencers, decision makers and analysts plus status of the policy process and gathered opinions emerging. It is an integrated tool combining outputs from the Visualization, Policy Modelling and Opinion Mining components.
- Orchestration Component: it will perform the communications between all the components and the database, being based on a services oriented architecture (SOA).



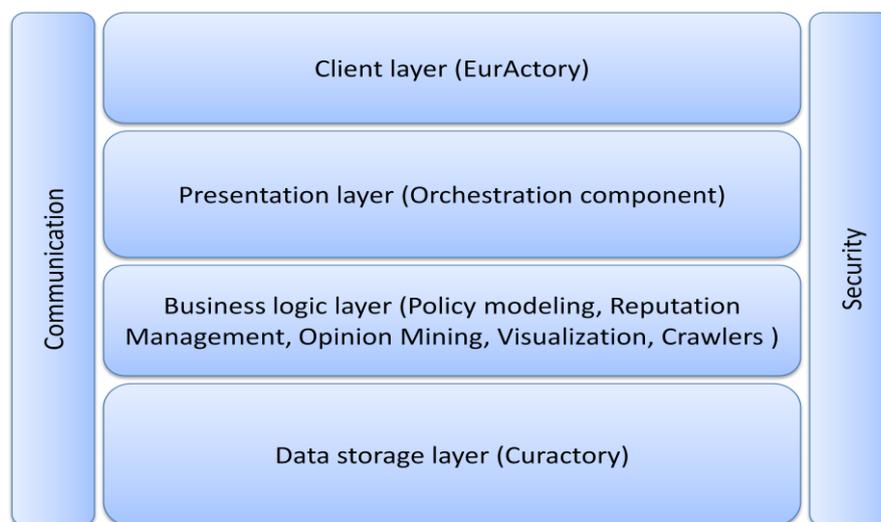
**Figure 4: ICT Platform technological architecture**

The above components will be organized in a multiple layers <sup>4</sup> (Figure 5), which will allow the separation of the user level (client layer), the level of presentation (presentation logic layer), the

<sup>4</sup>EU COMMUNITY Deliverable 6.1 (2014), "Platform Architecture Design". <http://project.eucommunity.eu>

level business logic (business logic layer) and the level of data storage (data storage layer). In particular:

1. The user level (client layer) will be responsible for the communication with the users. The data are being processed by the presentation layer, and displayed in the user interface. The user level consists of different communication channels for different devices. EurActory is part of the client layer.
2. The presentation layer processes users' data and is responsible for the communication of the user interface with the actual application. The presentation layer also contains all communication patterns and triggers the individual components of the lower layer.
3. The level of business logic (business logic layer) performs application logic regardless of presentation and process data coming from the lower level of data storage. All of the individual components mentioned above (with the only exception of the EurActory) belong to this layer.
4. The level of data storage (CurActory) is responsible for the storage of data. The interoperability interface (backend) is responsible for interfacing and data exchange with functional systems, other databases and applications.



**Figure 5: Multiple layers' organization of the ICT Platform**

The separation of business logic and data storage layers leads to systems independent of the type and manufacturer of the database. The separation of the levels of presentation and business logic provides an optimal technical solution to multiple presentation modes, such as different types of browser or on mobile devices, such as tablets. This separation also allows the application to be upgraded and reuse parts at low cost. Also, this separation enables us to distribute application load (load balancing) to different servers, where one server may be responsible for the presentation of the application and the others for the business logic. Finally, different users may generate different presentations of the same application, so it is necessary to separate the client layer from the presentation layer (e.g. EurActory LITE and EurActory FULL are examples of different presentations of the same application).

## 6. Conclusions

In the previous sections of this paper, interdisciplinary research that has been conducted in order to develop a novel method of social media exploitation in government has been presented, which is oriented towards supporting policy networks. Its theoretical foundation is the extensive research conducted in the political sciences domain concerning policy networks, their importance for modern policy making, and their operation. Based on the conclusions of evaluations of the previous generations of social media exploitation in government, on the analysis of the needs of the EU policy stakeholders, and on the above theoretical foundation, a novel method of social media exploitation for supporting the extensive policy community of the EU has been developed, which however has a much wider applicability for any type of government agency. Also, the functional and technological architecture of the required ICT platform for the application of this method has been designed. The proposed method can lead to a new generation of social media exploitation in government, which is more focused on highly knowledgeable policy communities and networks.

This new generation of social media generation in government (focusing on policy networks) does not aim to replace the previous generations (focusing on the general public), but to co-exist with them and complement them. This is absolutely necessary since for the design and implementation of effective and balanced public policies it is necessary to take into account both the general public and the policy network (if the latter have too strong influence, and the former much weaker influence, then public policies will not be balanced).

Further research is in progress as part of the abovementioned EU-Community project, which is going to evaluate the proposed approach in three pilot applications, which will concern important EU policies:

- Renewable energy (this policy aims to develop sustainable greener alternatives to fossil fuels).
- Innovation strategy (it aims to recover from the crisis through youth- and innovation-oriented growth policies).
- Future of Europe (prepare steps and Treaty options to enable multiple-tiered EU).

These will allow us to assess the value of this approach to the various EU policy stakeholders and policy networks along various dimensions (based on previous research on policy networks – see section 2.1):

- to what extent it assists the EU institutions in collecting high quality opinions, proposals and knowledge from their policy networks ?
- to what extent the EU policy stakeholders are assisted in collecting opinions, proposals and knowledge on topics they are interested in, and also in promoting their own ?
- and in general to what extent it supports policy networks ?
- to what extent it is useful for sensing changes in their external context, and for designing and implementing the required policy changes ?
- does it increase the quantity and quality of interactions among their actors ?
- does it improve their adaptability to context changes (i.e. facilitates changes in their composition as a response to changes in their external context) ?
- does it improve the efficiency and effectiveness of EU policy processes?

## 7. References and Quotations in the Text

### References

- Ansell, C. (2000). The Networked Polity: Regional Development in Western Europe. *Governance*, 13, 3, 303-333.
- Atkinson, M. and Coleman, W. (1989). Strong States and Weak States: Sectoral Policy Networks in Advanced Capitalist Economies. *British Journal of Political Science*, 19, 47-67.
- Atkinson, M. and Coleman, W. (1992). Policy Networks, Policy Communities and the Problems of Governance, *Governance*, 5, 2, 154-180.
- Bekkers, V., Edwards, A. and de Kool, D. (2013). Social media monitoring: Responsive governance in the shadow of surveillance? *Government Information Quarterly*, 30, 4, 335-342.
- Bertot, J. C., Jaeger, P. T. and Grimes J. M. (2012). Promoting transparency and accountability through ICTs, social media, and collaborative e-government. *Transforming Government: People, Process and Policy*, 6(1), 78 - 91.
- Bonsón, E., Torres, L., Royo, S. and Flores, F. (2012). Local e-government 2.0: Social media and corporate transparency in municipalities. *Government Information Quarterly*, 29, 123-132.
- Charalabidis, Y. and Loukis, E. (2012). Participative Public Policy Making Through Multiple Social Media Platforms Utilization. *International Journal of Electronic Government Research*, 8, 3, 78-97.
- Charalabidis, Y., Loukis, E., Androutsopoulou, A., Karkaletsis, V., Triantafillou, A. (2014). Passive Crowdsourcing in Government Using Social Media. *Transforming Government: People, Process and Policy*, 8, 2.
- Chun, S. A. and Luna Reyes, L. F. (2012). Editorial - Social media in government Coleman, W. and Skogstad, G. (Eds.) (1990). *Policy Communities and Public Policy in Canada*. Copp Clark Pitman, Toronto, Canada.
- Criado, J. I., Sandoval-Almazan, R., Gil-Garcia, J. R. (2013). Government innovation through social media. *Government Information Quarterly*, 30, 319-326.
- Ferro, E., Loukis, E., Charalabidis, Y., Osella, M. (2013). Policy Making 2.0: From Theory to Practice. *Government Information Quarterly*, 30, 4, 359-368.
- Howlett, M. (2002). Do Networks Matter? Linking Policy Network Structure to Policy Outcome: Evidence from Four Canadian Policy Sectors 1990-2000. *Canadian Journal of Political Science*, 35, 2, 235-267.
- Keim, D. A., Kohlhammer, J., Ellis, G. P., Mansmann, F. (2010). *Mastering The Information Age - Solving Problems with Visual Analytics*. Eurographics, Germany.
- Li, H., Benyoucef, M., Bochmann, G.V. (2009). Towards a global online reputation. In the Proceedings of the International Conference on Management of Emergent Digital EcoSystems.
- Loukis, E., Charalabidis, Y., Androutsopoulou, A. (2014). An Analysis of Multiple Social Media Consultations in the European Parliament from a Public Policy Perspective. *European Conference on Information Systems (ECIS) 2014*, Tel Aviv, Israel.
- Marsh, D. and Smith, M. (2000). Understanding Policy Networks: towards a Dialectical Approach. *Political Studies*, 48, 4-21.
- Peterson, J. (2001). The choice for EU theorists: Establishing a common framework for analysis, *European Journal of Political Research*, 39, 289-318.
- Pfetsch, F. R. (1998). Negotiating the European Union: A Negotiation-Network Approach. *International Negotiation*, 3, 293-317.
- Rhodes, R. A. W. (2006). Policy Network Analysis. In M. Moran, M. Rein and R. E. Goodin (Eds.) *The Oxford Handbook of Public Policy*. Oxford: Oxford University Press), pp. 423-445.
- Rhodes, R. A. W. (2007). Understanding Governance: Ten Years On. *Organization Studies*, 28, 8, 1243-1264.
- Skogstad, G. (2005). Policy Networks and Policy Communities: Conceptual Evolution and Governing Realities. Workshop on "Canada's Contribution to Comparative Theorizing" Annual Meeting of the

Canadian Political Science Association, University of Western Ontario, London, Ontario.

Tapscott, D. (2009). Government 2.0: Rethinking Government and Democracy for the Digital Age. In J. Gøtze and C. B. Pedersen (Eds.), *State of the eUnion - Government 2.0 and Onwards*. Copenhagen: AuthorHouse.

Van Waarden, F. (1992). Dimensions and types of policy networks. *European Journal of Political Research*, 21, 29-52.

Xenakis, A., Androutsopoulou, A., Koutras, C., Charalabidis, Y., Loukis, E. (2014). Description of the NOMAD Evaluation Methodology – Deliverable 7.3.

Wandhöfer, T., Taylor, S., Alani, H., Joshi, S., Sizov, S., Walland, P., Thamm, M., Bleier, A. and Mutschke, P. (2012). Engaging Politicians with Citizens on Social Networking Sites: The WeGov Toolbox. *International Journal of Electronic Government Research*, 8, 3, 22-43.

## About the Author/s

### Yannis Charalabidis

Yannis Charalabidis is Assistant Professor at the Department of Information and Communication Systems Engineering, University of Aegean, in the area of eGovernment Information Systems, while also heading eGovernment&eBusiness Research in the Decision Support Systems Laboratory of National Technical University of Athens (NTUA), coordinating policy making, research and pilot application projects for governments and enterprises worldwide. A computer engineer with a PhD in complex information systems, he has been employed for 8 years as an executive director in Singular IT Group, leading software development and company expansion in Eastern Europe. He writes and teaches on eGovernment Information Systems, Interoperability and Standardization, eParticipation and Government Transformation in NTUA and the University of Aegean. He has published more the 100 papers in international journal and conferences. He is Best Paper Award winner of the EGOV 2008 Conference, Best eGovernment Paper Nominee in the 42nd HICSS Conference and 1st Prize Nominee in the 2009 European eGovernment Awards.

### Euripidis Loukis

Euripidis Loukis is Associate Professor of Information Systems and Decision Support Systems at the Department of Information and Communication Systems Engineering, University of the Aegean. Formerly he has been Information Systems Advisor at the Ministry to the Presidency of the Government of Greece, Technical Director of the Program of Modernization of Greek Public Administration of the Second Community Support Framework and National Representative of Greece in the programs 'Telematics' and 'IDA' (Interchange of Data between Administrations) of the European Union. He is the author of numerous scientific articles in international journals and conferences; one of them has been honoured with the International Award of the American Society of Mechanical Engineers - Controls and Diagnostics Committee, while another one with the best paper award of the European - Mediterranean Conference on Information Systems. His current research interests include e-government, e-participation, information systems value/impacts and internal/external determinants, business process adaptation and medical decision support systems.

### Yiannis Koulizakis

Yiannis Koulizakis is a PhD Candidate and Research Assistant at the Department of Information and Communication Systems Engineering, University of the Aegean, Greece. He holds a BSE in Information and Communication Systems Engineering and a Master of Science in "Technologies and Management of Information and Communication Systems" from the University of the Aegean. His research interests lie in the area of Enterprise Systems, Cloud Computing and Big Data.