Web 2.0 for Local Policy and Decision Making Support

Research & Development Results from the ICT Project UniteEurope

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Abstract: The paper discusses opportunities and challenges of social media and social media analytics for the purpose of policy and decision making. The EU-FP7 ICT project UniteEurope is presented as an innovative on-going research and development project that combines the expertise and perspectives of technical practitioners, researchers and policy makers for elaborating a scientifically based social media analytics tool.

1 Introduction

The vast and continuously increasing amount of user-generated data in social media – published opinions, statements, and conversations – over the past years has quickly been detected as highly valuable and useful for various purposes, mainly in the fields of marketing, consumer research, or corporate branding. Besides the commercial scope, social media became more and more relevant for other stakeholders and organisations such as public administrations and political parties who use social networks as a means of communication with citizens, information services, etc. [JBS12][1].

In this paper we will present an innovative approach that combines social science research and technical development for policy making and decision support in the public sector based on public user-generated content in social media. After a short introduction on the potentials and challenges of analysing social media content for the purpose of policy making (section 2), we will present the approach and intermediary results of the UniteEurope project (section 3),continue with perspectives and remaining challenges for the future of social media analytics (SMA) for the public sector (section 4) and conclude with the potential impacts (section 5).

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[1] Other fields of application are public security or crisis and emergency analysis and management which have been the subject of several research projects in recent years (e.g. DHC11, Ni12, JO12, Opti-Alert (http://www.opti-alert.eu/) and many others).

2 Social media analytics for public administrations

Social media have become an integral part in many aspects of everyday life: social networks like Facebook or blogging tools like Twitter changed our communication patterns not only as private individuals but as citizens who are able to share their opinions with a broad online public. A growing amount of literature has been published in the past years on the democratic and participative potential of social media by allowing citizens to easily and quickly produce, publish and share content [Ma12], [Xe12], [BE08].

> *"Social media is collaborative and participatory by its very nature as it is defined by social interaction. It provides the ability for users to connect with each [other] and form communities to socialize, share information, or to achieve a common goal or interest. Social media can be empowering to its users as it gives them a platform to speak. It allows anyone with access to the Internet the ability to inexpensively publish or broadcast information, effectively democratizing media. In terms of time, social media technologies allow users to immediately publish information in near-real time"* [BJG10 in: Ma12: 149].

The emergence of online media and social online communities also affects public institutions in many different ways: It has an influence on the (communication) relations between governments and civil society, for example when citizens gather in social networks to share their resentment of policies or the political system as a whole and might start to organise protests (e.g. Arab Spring, Occupy movements) [HH13]; governments themselves use social media as a means of public relations, providing services or communicating information to citizens and increasingly as *source* of information on general trends in public opinion [JBS12], [OE01], [MLC11], [UN12]. The latter is a new field of application which until recently has been used mainly by private companies for commercial purposes like social media marketing or branding [We12]. Social media monitoring and social media analytics allow making use of publicly shared user-generated content in social media (i.e. for example comments, blogs, postings in social networks or communities) in an automated and systematic way.

The potentials of using social media (data) for commercial purposes has been researched and practised for several years and there is already *"a considerable body of knowledge on how social media can be used effectively by enterprises for supporting and strengthening various functions, such as marketing, customer relationships, new product development, etc."* [CLK12: 78]. In contrast, the benefits of social media and the application of social media analytics for governmental organisations has not been observed comparably [CLK12]. The UN E-Government Survey 2012 states that while governments still prefer traditional methods for obtaining citizens' opinions and feedback to public issues and policies, there is a trend of governments using social network tools for feedback and engaging citizens [UN12: 46].

There is already a wide range of software tools on the market that collect, filter, analyse and visualise public data from social media[2]. Most of them are developed for companies and offer classical media monitoring, sentiment analyses or market research [We12]. However, users' requirements and needs in terms of usability, reliability and interpretability are quite different for public administrations and the purpose of decision and policy making support than for commercial users who aim at analysing a company's or a product's popularity among consumers. Most commercial tools offer primarily quantitative analysis and compilation of postings on the basis of brand/company name mentions (frequencies of names/keywords, number of "Likes" on Facebook etc., cf. Centre for the Analysis of Social Media[3]). But public policy makers in governmental institutions – in contrast – demand for instruments with a scientifically and ethically sound basis, high quality data analyses and intuitive yet sophisticated parameters and visualisations to serve them as a solid basis for decisions on policies and measures (ibid.). From our previous research undertaken in the UniteEurope project as well as best practices from similar projects, we learned that governmental stakeholders which are in general more hesitant towards social media than other actors (e.g. civil society, [Gö12]) are only considering tools that are (1) easy-to-use, (2) safe them time and costs (e.g. in comparison to traditional survey methods), (3) avoid information overflow by high-quality filter/analysis options and (4) provide them with data that is otherwise not (easily) available (e.g. due to bias of "social desirability"). Consequently, development and customisation efforts for tools that aim at supporting policy and decision making in the public sector are significantly higher and different than in the commercial area.

3 The UniteEurope project

UniteEurope is an ICT project (2011-2014) co-funded by the European Commission under the Seventh Framework Program[4]. Consisting of IT experts, social scientists as well as NGOs and municipalities (i.e. the future end-users) the consortium develops a social media analytics (SMA) and decision support tool for European cities and NGOs that enables them to improve their integration policies and measures. The main target groups are integration or diversity departments in European municipalities as well as local NGOs in the field of migrant integration.

3.1 Concept and objectives

The currently developed SMA tool collects user-generated content that has been published in social media like Facebook, Twitter, online newspapers, blogs, communities etc. through APIs, feeds and other standardised interfaces. Based on a Hadoop software framework, publicly available postings, comments and articles are collected, processed and indexed and furthermore analysed in order to make the huge amount of data usable

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[2] Such as Opinion Tracker, Simplify360, Radian6, BrandsEye, Brandwatch Tool and many others (cf. Goldbach Interactive Social Media Monitoring Tool Report 2012: http://www.goldbachinteractive.com/aktuell/fachartikel/social-media-monitoring-tool-report-2012)
[3] http://www.demos.co.uk/projects/casm/
[4] http://www.uniteeurope.org, Objective ICT-2011.5.6. ICT solutions for governance and policy modelling

for policy makers. The tool is elaborated as a software-as-a-service solution, allowing end users to access UniteEurope independently of location and device [GGP13], [WL13]. Citizens' opinions, as expressed and shared with online users and among communities, are valuable for public administrators and organisations [UN12] in the field of migrant integration because they allow insights into general trends, sentiments, important topics and new issues, i.e. the general discourse on migrant integration in online communities. Making these sources usable as a means of information and feedback to policies, measures or campaigns while at the same time safeguarding citizens' privacy and data protection [GKG13], [GGP13] are the aims and challenges of UniteEurope (see section 4).

The basic concept of the software solution developed in the project as visualised in figure 1 aims at providing the tool's end users (i.e. public administrators and policy makers in the realm of migrant integration) with bottom-up, real-time information about citizens' opinions and sentiments.
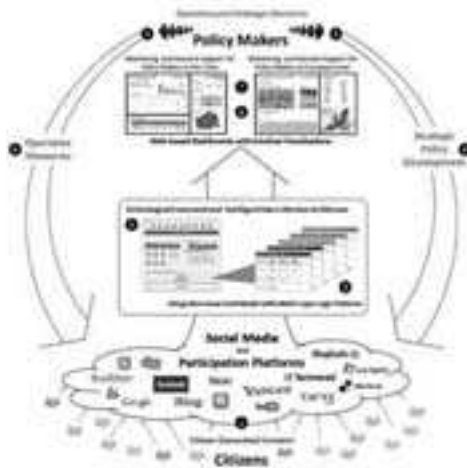

Figure 1: Concept of the UniteEurope tool

From a wide range of local and global social and online media sources user-generated content is gathered and stored and in a next step analysed according to the needs and interests of policy makers. The process of analysis which is necessary to provide users with more than unstructured mass data builds on a specifically elaborated grid model with multilayer patterns [GGP13].

3.2 Data filtering and analysis

The grid model is based on in-depth analyses of workflows and policy issues in three European municipalities[5]. While end users define themselves from which media sources they want to retrieve information, the selection of integration-relevant postings builds on

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[5] represented in the UniteEurope consortium by the cities of Rotterdam and Malmö and the associated city of Berlin

multi-lingual keyword lists which have been elaborated by integration scholars[6]. The collected data is categorised and analysed according to a taxonomy of integration issues (e.g. socio-economic, socio-cultural, legal-political and spatial dimension, with more detailed integration areas such as education, inter-cultural contact etc.), thereby providing end users with a thematic map of social media comments [Sc12].This data will be presented to administrations and policy makers in an intuitive and easy-to-use manner with visualisations, graphs and different features. Analysing the dynamic development of trends in expressed opinions and frequently debatted issues, sharing information and experiences with other European municipalities and NGOs in the field of migrant integration, alert functions etc. are only a few of the tool's supporting measures which are supposed to serve as an additional source of information, feedback and for agenda setting. The flexible and scalable combination of tool modules provides end users with time and cost efficient information and real-time analysis of citizens' online debates on migrant integration issues, thereby offering otherwise not (easily) obtainable data in an automated and specifically tailored manner according to their needs and requirements.

3.3 Social media analytics and e-participation

In the last decade the European Commission has identified the potential impacts of ICT and Web 2.0 for governments [Os08] and has called for and funded several projects that develop ICT solutions for governance, policy modelling and policy support [Xe12]. In contrast to projects like NOMAD[7], PADGETS[8], UbiPOL[9], ImmigrationPolicy2.0[10], Puzzled by Policy[11] and others, UniteEurope has an explicit focus on the perspective of governments. While most initiatives aim at enhancing the participation and engagement of citizens in order to improve the policy and decision making process, *"UniteEurope is not decidedly an (e-)participatory tool"* [GGP13: 6] although it seizes user-generated content as feedback and information source.

> *"It has to be stated that the objective of the UniteEurope project and its SMA tool is to give public administrations and policy makers a new source of information from the grassroots level. (…) Although citizens do not directly and intentionally participate in this process (…) it is assumed that the information provided for administrations by the SMA tool will contribute to more bottom-up and responsive integration measures"* (ibid.).

4 Challenges of SMA usage for public purposes

Whilst the potentials of SMA-usage by governments are seem convincing, it has become apparent thatapplying them in fields concerning the general public and often serving

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[6] Currently, the semantic tags are available in English, Swedish, Dutch, and German as well as the cities' main migrant languages Turkish, Polish, Bosnian, Serbian and Croatian.
[7] http://www.nomad-project.eu/
[8] http://www.padgets.eu/
[9] http://www.ubipol.eu/
[10] http://www.immigrationpolicy2.eu/
[11] http://www.puzzledbypolicy.eu/

public authorities is more delicate for several reasons. Many challenges arising from social media as information source for purposes of public weal, such as those of an ethical, but also of a legal and cultural nature, have been extensively revealed in the frame of the UniteEurope project and can, in large parts, also be considered valid for public social media usage in other contexts [GKG13].

4.1 Legal aspects

When talking about SMA from a legal point of view, it is data protection and privacy issues that need to be considered in the first place [JO12]. SMA tools that are meant to collect information for public purposes are normally limited to publicly accessible social media contents only. From a data protection perspective, this limitation already reduces impacts on privacy issues, but by far not entirely. This is due to the fact that the author of a posting is not necessarily the only "data subject[12]" of that very posting. This author can publish "sensitive data[13]" of another "data subject" which, in turn, would be collected and processed by the SMA tool [Kr12]. Krieger et al. [Kr12: 14ff] suggest a range of safeguarding measures in order to remain in compliance with data protection regulations such as the prudent selection of media sources, anonymisation of authors' names and acronyms, registering with the Data Protection Commission in charge, awareness raising with end users, continuous legal advisory, to name but a few.

4.2 Ethical aspects

Complying with legal standards can only be considered a minimum requirement when ethical aspects come into play. Krieger et al. [Kr12: 31ff] deal with misuse in a broad sense and point out that also data protection issues must be reflected from an ethical point of view, mainly concerning the question of "informed consent". Furthermore, they point at questions such as "who is represented on the web", "who is active in social media" and "whose voices are being 'heard'". Same goes for the follow-up question of how to weigh results (quantitative vs. qualitative approach). Whilst a SMA tool would be useless without at least some quantitative presentation or ranking of results, one must be aware that frequencies have a limited information value as they tend to represent extremist views which are to be found more often or more insistingly in social media than moderate or minority views (ibid: 34ff). Thus, qualitative explanations and additional content information will always be needed in order to give a hint on how the results can be interpreted.

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[12] "The natural or legal person (…) whose data is processed" (Austrian Data Protection Act)
[13] "Data relating to natural persons concerning their racial or ethnic origin, political opinion, trade-union membership, religious or philosophical beliefs, and data concerning health or sex life." (Austrian Data Protection Act)

5 Summary and conclusions

This paper discussed potentials and various aspects of social media analytics for policy making and decision support in public administrations. As an example how the technocology of SMA can be tailored for the specific needs and requirements of stakeholders in the field of migrant integration in European cities, we presented the EU-FP7 project UniteEurope. The innovative and holistic approach of this ICT project aims at combining social scientists, IT experts and public stakeholder in order to cover the related aspects and challenges that come along with the new instrument of SMA. Therefore, we conducted an in-depth and on-going analysis of legal, ethical and cultural aspects of this new field of research and application. The overall goal is to elaborate an instrument for local (an pan-European) governments and civil society organisations that supports their policy and decision making processes by providing them with bottom-up information on citizens' opinions and sentiments on integration issues, thereby giving them the ability to identify new issues, trends and problems at an early stage, develop new initiatives, or track feedback to policies, measures and campaigns. Through the inclusion of citizens' opinions a contribution to "*better and more socially-rooted and balanced public policies*" [CLK12: 80] is expected as one of the main impacts of R&D in the realm of SMA for policy making in general and the UniteEurope project in particular. The thematic specialisation of the presented project on migrant integration at the local level, the profound social-scientific foundation, the thourough analysis of legal, ethical and cultural aspects and the technical innovations are only some of the projects novelties and distinctive features.

Acknowledgement

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