

Yannis Charalabidis
Sotirios Koussouris *Editors*

Empowering Open and Collaborative Governance

Technologies and Methods
for Online Citizen Engagement
in Public Policy Making

 Springer

Empowering Open and Collaborative Governance

Yannis Charalabidis • Sotirios Koussouris
Editors

Empowering Open and Collaborative Governance

Technologies and Methods for
Online Citizen Engagement
in Public Policy Making

 Springer

Editors

Yannis Charalabidis
University of the Aegean
Information Systems Laboratory
Karlovassi, Samos
Greece

Sotirios Koussouris
National Technical University of Athens
Decision Support Systems
Laboratory
Athens
Greece

ACM Codes: J.1, K.4, H.4

ISBN 978-3-642-27218-9 e-ISBN 978-3-642-27219-6
DOI 10.1007/978-3-642-27219-6
Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2012933757

© Springer-Verlag Berlin Heidelberg 2012

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilm or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Foreword: The Research View

This book provides a comprehensive account of the use of digital media and supporting methods to facilitate participatory democracy, thereby forming a valuable reference for those engaged in researching eParticipation. Public legitimisation and acceptance of decisions is a key part of good governance and, as such, eParticipation research has the potential to foster open and transparent decision processes. Fundamentally, the research results are concerned with benefiting all stakeholders and bringing to bear relevant views and evidence to support workable policy development.

Typically, in the past, public engagement, and particularly consultation, has been conducted in an environment where the government published draft policies and provided citizens with an opportunity to submit comments, but not the opportunity to view or discuss each others' comments or to engage with the government and with one another in a public debate on the issues.

One of the starting points for practice-based research on eParticipation was the 2003 publication of the OECD. In this report I specifically looked at how information and communication technologies could be applied to enhance citizen participation in the policy process, considering how, and to what extent, new digital media could be used to facilitate the provision of information and to support the consultation and active participation of citizens to enable better policy-making. Back in 2003, I highlighted five main challenges for eParticipation: the challenge of scale and mass participation from technical and political perspectives; the need to use the technologies to encourage constructively deliberation by citizens on public issues; the need to ensure that governments could take a holistic view of the policy-making life cycle – here I advocated the use of knowledge management techniques; the need to develop methods to evaluate eParticipation processes and outcomes; and the need for governments to adapt structures and decision-making processes to ensure that the results of eParticipation are analysed, disseminated and used.

During the intervening years much progress – in both research and practice – has been made; however, major research challenges remain. The domain lacks an understanding of what actually works, when and why, and of the power relations at play within political participation. In collaboration with my colleague Stephen

Coleman, I recently undertook a study to identify current eParticipation research needs and to give some indication of future research directions. We identified six key concerns associated with the conduct of effective eParticipation research. The first addresses the need for more integrated, multidisciplinary research with effective and critical dialogue between researchers from different disciplines. The second relates to research design and highlights the methodological shortcomings of eParticipation research. The third focuses on socio-technical issues including issues such as the design of eParticipation tools and processes, and the representation and analysis of data. Fourth, institutional and political resistance to eParticipation applications is emphasised. The fifth issue concerns the major divides which characterise the problem of political disengagement from political institutions among citizens and barriers arising from demographic, social, economic and cognitive obstacles that limit access to online tools for participation. The sixth and last issue discusses the benefits and risks of eParticipation in the context of democratic theory, with particular emphases upon relationships between elected representatives, government executives, the ordinary civilian, and the potential transference of power.

eParticipation remains a challenging research domain. However, the collection of articles in this book comprehensively covers the subject of empowering open and collaborative governance and demonstrates the diversity of tools and methods when tackling the issues and concerns in research and practice. Many articles in the book address the above-mentioned issues and challenges systematically and comprehensively. This book provides an important contribution for researchers of all forms of digital governance.

I congratulate Prof. Dr. Charalabidis on proposing and then coordinating this collection of articles.

I wish the book great commercial and academic success.

Ann Macintosh
Professor of Digital Governance
University of Leeds, UK

Foreword: The Policy View

Online engagement of citizens is certainly not a new theme: it has been on the research and policy agenda for more than a decade under the different names of eDemocracy, eParticipation, Online Engagement, and Online Deliberation. For many years it has been clear that the Internet would radically change democracy, and that citizens would take a more proactive role in politics. Underlying the discussion was the hidden assumption that eDemocracy would basically correspond to increased opportunities for self-determination and decision-making by citizens.

Yet the impact has been far less dramatic than expected. Governments still struggle to engage truly in policy-making with citizens, and when they do so they often fail to generate the expected degree of engagement. eDemocracy and eParticipation projects have largely remained confined to the experimentation level and have been deployed in only very few cases.

At the same time, the Internet has clearly changed our democracies and helped even more the establishment of democracies elsewhere. The so-called Arab spring is a living testimony to that. This has all happened in an unpredicted and unpredictable way through large-scale self-organized and bottom-up organization in commercial platforms such as Social Networks. Very little of this was anticipated in scientific debate over eParticipation, which very much followed rather than led to this development. After 15 years of eParticipation we still cannot answer the very basic question of policy makers: how can I have a civilized and fruitful debate with millions of citizens? We are in dire need of a frank and comprehensive re-assessment of the scientific debate on eParticipation, which, at this stage, remains more an art than a science.

This book has therefore the great merit of responding to this call for a systematic and scientific reassessment of the field. It does not provide all the answers, but it sets an example for a more thorough and ambitious research path wherein all researchers and practitioners should engage.

Much has been said about the shortcomings of a techno-deterministic approach, but what matters is the use of technology, not the technology itself. The key determinants of eParticipation are social and psychological rather than technological. Yet in trying to avoid the limits of a *weltanschauung* shaped by technology, we

have somehow underestimated the importance of technological research and renounced the greater objective of a truly multidisciplinary approach which encompasses both technological and non-technological research.

This book therefore has the second merit of not shying away from getting our hands dirty with technology. It places different types of research alongside each other, and most importantly it strives to provide an integrated perspective of the two.

Finally, the scientific approach to eParticipation has not kept pace with new technological developments: for instance, the debate over deliberative democracy has focused too much on textual engagement and has overlooked the importance of visualization. This book refreshes the research field by embracing the latest technological developments, combining ambition and grand visions with insight and hands-on knowledge, not for providing all the answers but for asking more relevant questions. These are both my expectations and my wishes for this book.

David Osimo
Managing partner
Tech4i2 LtD, Belgium

Preface

The use of information and communication technologies for supporting public administrations, governments and decision makers has been recorded for more than 20 years and coined as eGovernment, as technology has become more and more necessary for conducting everyday operations. Even though governments are inflexible, slow moving organisations which experience difficulties and in some cases exhibit scepticism for adopting new concepts, they quickly realised the huge potential and relief offered by ICTs and gradually began to incorporate information systems for supporting their operations. This resulted in less bureaucracy and improved service delivery for their clients, the citizens.

At the same time, the information community started to notice a shift in production of services and goods. What was once delivered by individuals or by enterprise entities slowly also became available through groups of individuals which acted as communities. Open source and open innovation started to gain the necessary momentum and as they became the driving force behind most Web 2.0 developments, they gained an enormous audience and people became keener to import such philosophies into other domains.

However, eGovernment and open and collaborative innovation did not establish logical links from the start, as governments did not favour the idea of sharing their data and models with the general public, claiming that such activities pose more threats than benefits and questioning the impact of collaborative development of services and policies.

It took more than a decade to persuade governments to change their attitude towards open and collaborative governance – a decade which included a huge worldwide economic crisis, radical changes in the socioeconomic landscape imposed not only by wars but also by the rise and development of countries with huge manpower and natural resources, public unrest, very low turnover in democratic activities such as elections, and, in general, a growing lack of trust and belief in governments and their policies.

Terms such as eParticipation, eGovernance and eGovernment imply the use of information and communication technologies for expanding and deepening political participation by enabling citizens to connect with one another and with their

ected representatives, and by re-engaging and re-activating them in the decision-making process. Furthermore, they serve as technology-mediated interactions between society and administration, usually over some decision-making, legislation or deliberation process.

Currently, citizen participation and on-line engagement holds a crucial role, not only within the new European Commission Research Roadmap for ICT-Enabled Governance but also throughout the world. Moving towards open governance roadmaps as adopted worldwide, eParticipation and citizen engagement stand out as a new domain, important for both decision makers and citizens. Over the last decade there has been a variety of pilot projects powered by policy makers, researchers, ICT vendors and citizens who are all actively involved through various eParticipation platforms.

Such attempts promote ideas and solutions that could help minimise the democratic deficit and support the active re-engagement of citizens in the decision-making process, making it more transparent, more interactive, more comprehensive and more trustworthy.

The idea of this book was conceived back in 2008 as the editors working in various research teams, mostly in European projects in eGovernance and eParticipation, started to realise not only the unlimited opportunities and positive changes that ICT could bring to public policies and governance, but also the various obstacles, limitations and bottlenecks that need to be seriously considered if we really want to improve the way policies are designed and implemented. Their knowledge was empowered during their involvement in the MOMENTUM support action project which spent more than 3 years in monitoring, analysing and collaborating with more than 20 such pilot eParticipation projects covering 15 countries. Their knowledge was further improved during the development of the research roadmap regarding ICT for governance and policy modelling that was designed during the CROSSROAD project, which constituted a similar ‘think tank’ for policy making and ICT supported governance, gathering more than 300 researchers from 50 institutions.

Objective of the Book

This book aims to provide the latest research findings such as theoretical foundations, principles, methodologies, architectures, technical frameworks, cases and lessons learnt within the domain of open governance and on-line citizen engagement. This constitutes a new approach to addressing the issue of implementing open collaborative governance solutions and initiatives, providing both research and practical results. Unique characteristics that distinguish this book from existing titles are the systematic analysis of the domain, the all-around view of political, legal, technical and user-oriented aspects and the inclusion of reviews, case reports and evaluation of international initiatives.

We believe that the book has the power to contribute to the systematic analysis and publication of cutting-edge methods, tools and approaches for assisting the relevant stakeholders in their quest for a more efficient participative public policy

debate, allowing the utilisation of the capabilities provided by ICT. At the same time, since open and collaborative governance is a multi-disciplinary domain, new research challenges are bound to touch on the various research topics presented in this book such as Semantics, Social Media Platforms, Web Service Technologies, Social Sciences, Service Oriented Architectures and Model Driven approaches, etc.

These research findings are organised according to the following main areas:

- Public policy debate foundations: processes and methods for scoping, planning, evaluating and transforming citizen engagement
- Information and communication technologies for citizens' participation
- Future research directions of open, collaborative ICT-enabled governance

Target Audience

The audience of the book includes researchers and practitioners in the eGovernance domain, public administration officials, policy makers and decision drivers at local, national or international levels, engaged in both design and creation of policies and services, university students and professors of computer, social, political and management sciences, ICT industry staff engaged in eGovernance and policy modelling projects, and participants of related worldwide, EU FP7 research and CIP/PSP innovation projects.

Organisation of the Book

The book is composed of 14 chapters, structured in 3 parts as follows. Part I is entitled “Public Policy Debate Foundations”, and includes six chapters laying the foundations regarding processes and methods for scoping, planning, evaluating and transforming citizen engagement. Part II is “Information and Communication Technologies for Citizens' Participation” and includes five chapters with more practical approaches to designing and building collaborative governance infrastructures and citizens participation for businesses and administrations. Part III on “Future Research Directions of Open, Collaborative ICT-Enabled Governance” consists of three chapters and presents a review of the current domain, providing constructive critique on the developments of the past, and laying out perspectives regarding the future challenges and research direction.

Part I - Public Policy Debate Foundations: Processes and Methods for Scoping, Planning, Evaluating and Transforming Citizen Engagement

Six chapters are included that aim to touch the foundations of open and collaborative governance, often by providing insights from recent projects in this area. As such, the topics extend from ways to engage citizens in policy formation activities

to assessing the specific models and methodologies employed or designed for that purpose.

In Chap. 1 Karlsson analyses a major issue that is faced in the concept of open and collaborative activities, which is simply recruiting participants for such activities in order to empower representative democracy systems and not letting such activities become prey to manipulating groups with specific interest or risking ending up with an unconcerned audience. For this reason Karlsson provides a review of recruitment strategies used in local eConsultations and analyses the case study of the European Citizens Consultations (ECC) before concluding with the development of a set of questions that aim to assist with the design of future attempts.

Chapter 2 by Edelman, Höchtl and Sachs takes public administrations as a research environment and discusses the advancements that collaboration for open innovation can provide to such organisations, starting from the point that the ubiquitous presence of ICT, citizens' digital literacy, and their potential willingness to participate on-line can efficiently enable collaborative production. As the authors explain, enhancing the inclusion factor in decision-making does not imply a change in the structures of the democratic processes, but it can certainly improve the decision-making process which leads to efficient and effective results.

Chapter 3 by Ergazakis, Askounis, Kokkinakos and Tsitsanis presents the concept of ePetitions and their impact in policy making. Starting from that point, the authors review existing, generic eParticipation evaluation approaches, as well as existing tools and models for technology adoption that are relevant to their theme. They go on to propose their own methodology to tackle ePetitioning systems, also providing a set of future research challenges for improving the technology adoption of such systems.

Chapter 4 takes as a starting point the effect of the Internet on political and social change, as recorded in the last few years where various initiatives such as the 'Arab Spring' or the Icelandic and Spanish citizens' movements were born and grew in the Internet community. De Marco, Antino and Robles Morales take a closer look at the new type of political participation and try to analyse this new phenomenon in order to understand its limits and potential by designing a statistical tool that can measure the impact and influence of such movements.

In Chap. 5, Panagiotopoulos and Elliman focus on ePetitioning initiatives that have emerged in Europe in the last few years, with a closer look at the UK experience at national and local levels. Through their investigation, the authors provide an analysis suggesting that those initiatives can offer great benefits to authorities and be effectively complemented by other forms of deeper engagement, and that it is very important for political organisations to keep an eye on the general public's perception of such exercises and be prepared to support participants in different ways and on a regular basis.

Chapter 6, the last chapter of this part, discusses the lack of proper evaluation mechanisms in various eParticipation initiatives and the absences of a widely accepted methodology for this purpose which often leads to loss of investments, as the developed systems do not operate as they should. In this context, after

reviewing the major evaluation frameworks and methodologies for this domain, Loukis proposes a synthetic methodology that retains and merges the better parts of what already exists, while demonstrating a lighter version of this methodology to support cases of rapid development and minimum effort.

Part II - Information and Communication Technologies for Citizens' Participation

Part II of the book focuses on key technological components, infrastructures, frameworks, methodologies and ready-made solutions for eParticipation. It covers both back and front office issues, from conception to implementation, application and assessment, as they have primarily been set out during some of the biggest research projects of the last few years.

Tiscornia and Fernández-Barrera declare in Chap. 7 that the major prerequisite for active participation of citizens in the decision-making process is having a full knowledge of the transnational and national regulatory and institutional context, as there are still many barriers that prevent citizens gaining a true understanding of the effects brought about by normative changes and regulatory innovations. The authors focus on the role that ICT, and more specifically semantic technologies, can play in providing powerful tools for bridging the gap between the formal and the conceptual aspects of legal knowledge, by guaranteeing to citizens not only formal access to the sources of the law but also substantial knowledge of its content.

Chapter 8 by Scherer, Wimmer and Schepers investigates the various challenges present in the distant decision-making models that accompany the concept of eParticipation and propose a regional participation model to engage citizens in distant decision-making. Their model is accompanied by a framework consisting of a procedure to implement this approach, a set of extensive marketing methods, an eParticipation platform and a serious game, which together can provide the model with the necessary sustainability and effectiveness.

In Chap. 9, Trampuš, Sen, Stojanović and Grobelnik tackle the information overload issue encountered in almost every popular discussion forum, which makes it very difficult for participants to identify and retrieve important information at the right time. The authors provide a novel visual approach to data interpretation in on-line discussion forums in the form of a tool that enables any discussion forum visitor to visualise its contents easily and thus gain an overview of its structure and discussion trends, leading to better participation of citizens in political life.

Throughout the quest for more participative decision-making, young people play a very important role, not just because they are more familiar with ICTs but mainly because they belong to the generations that should continue these efforts, as it is their lives that will be impacted the most by improved policies. In Chap. 10, Taylor-Smith, Kimpeler and Pruulmann-Vengerfeldt describe an eParticipation engagement model tailored to the needs of the young, and able to cope with complex topics, such as distributed discussions. Their chapter gives an overview of the

theoretical basis, process and impacts of such a model and provides recommendations for future development and use.

In Chap. 11, Wimmer, Furdik, Bicking, Mach, Sabol and Butka identify the needs of both decision makers and citizens to engage collaboratively in a trustworthy, transparent and information rich environment. They introduce a comprehensive and innovative approach to collaborative policy development including collaborative scenario building techniques and formal policy modelling supported by an integrated ICT toolbox. This enables stakeholders to take part in designing, simulating and assessing various policy scenarios, introducing conceptual modelling, improving the understanding of policies, and supporting semi-automatic transformation of text statements into formal statements and agent descriptions.

Part III - Future Research Directions of Open, Collaborative ICT-Enabled Governance

Part III focuses on analysing the current developments of the domain from a higher point of view. This helps the authors to draw a complete picture of the current landscape of the domain and to understand the needs that derive from this domain, both as amendments and corrections of existing approaches and as future demands from the society and the research community. In this context, the chapters of this section provide a holistic view of the progress made so far in open and collaborative governance and lay down the most important future research challenges.

In Chap. 12 Neubauer, Vuga and Ilc examine the pervasive notion that the use of new ICTs (which are perceived as inherently democratic) will automatically empower citizens in their relations with the state, claiming that the majority of socio-political issues can be addressed solely through citizens' technological empowerment. First the authors focus on the general characteristics of this universal solution framework. After identifying the conditions of possibility of the framework as of neoliberal and technophilic rationality, they critically evaluate (with example of recent events in North Africa and the Middle East) the role of ICTs in empowering citizens and generating socio-political change. They then discuss the steps needed for reconceptualising the relationship between use of ICTs and empowered forms of citizenship.

Of course, as a newly established domain, open and collaborative governance has witnessed a number of attempts that did not deliver the expected results, pointing out several valuable lessons and issues that should be further investigated and researched in order to avoid future mistakes. Chapter 13 by Prieto-Martín, de Marcos and Martínez discusses, from a holistic perspective, the challenges related to the development of eParticipation in Europe. They assess the field's practical and theoretical achievements and limitations, and corroborate the fact that eParticipation has not progressed during the last decade as expected. The authors, after diagnosing the problems with the domain, come up with a set of recommendations that should help enhancing the effectiveness of future European eParticipation actions.

The final chapter of the book, Chap. 14 by Charalabidis, Koussouris, Lampathaki and Misuraca is devoted to the findings of the latest research roadmap for eGovernance which has been designed in a collaborative and participative manner, collecting the opinions and thoughts of a vast number of experts in this area from the scientific, industrial and policy making communities. The authors present the major results of this collaborative exercise, identifying the major research questions that arise regarding new ICT-enabled governance models and methods of monitoring, interaction, collaboration for policy making together with the appropriateness of existing or emerging policy modelling mechanisms that aim to re-engage citizens effectively in the decision-making process.

Conclusion

Today, as this book is made available to readers, the world is trying to recover from the huge financial crisis that has struck the EU and the US, and public unrest is more obvious than ever. Governments strive to persuade their people that they are working in the right direction and that they should be trusted in the decision-making process regarding the future policies.

Open and collaborative governance and the underlying ICT tools constitute a major asset for governments and decision makers and they can help transparency and trust to become once again a vital part in the democratic process. For this reason, researchers, practitioners, decision makers and citizens should collaborate to pass through the crisis together, equipped with the necessary models and methods laying down constructive, fair and forward-looking policies.

We hope that the methods, approaches, practices and solutions presented in this book will serve as a useful companion in this quest.

Samos & Athens
Greece

Yannis Charalabidis
Sotirios Koussouris

Contents

Part I Public Policy Debate Foundations: Processes and Methods for Scoping, Planning, Evaluating and Transforming Citizen Engagement

1 Democratic Legitimacy and Recruitment Strategies in eParticipation Projects 3
Martin Karlsson

2 Collaboration for Open Innovation Processes in Public Administrations 21
Noella Edelmann, Johann Höchtl, and Michael Sachs

3 An Integrated Methodology for the Evaluation of ePetitions 39
Kostas Ergazakis, Dimitrios Askounis, Panagiotis Kokkinakos, and Anastasios Tsitsanis

4 Assessing a Measurement Model for Digital Political Participation: A Multidisciplinary Point of View 61
Stefano De Marco, Mirko Antino, and José Manuel Robles Morales

5 Online Engagement from the Grassroots: Reflecting on over a Decade of ePetitioning Experience in Europe and the UK 79
Panagiotis Panagiotopoulos and Tony Elliman

6 Evaluating eParticipation Projects and Lessons Learnt 95
Euripidis Loukis

Part II Information and Communication Technologies for Citizens' Participation

7 Knowing the Law as a Prerequisite to Participative eGovernment: The Role of Semantic Technologies 119
Daniela Tiscornia and Meritxell Fernández-Barrera

8	Regional Participation Model to Engage Citizens in Distant Decision-Making	139
	Sabrina Scherer, Maria A. Wimmer, and Johanna Schepers	
9	Visualisation of Online Discussion Forums	157
	Mitja Trampuš, Sinan Sen, Nenad Stojanović, and Marko Grobelnik	
10	Distributed Discussion: An Integrated eParticipation Model for Engaging Young People in Technology Policy	181
	Ella Taylor-Smith, Simone Kimpeler, and Pille Pruulmann-Vengerfeldt	
11	Open Collaboration in Policy Development: Concept and Architecture to Integrate Scenario Development and Formal Policy Modelling	199
	Maria A. Wimmer, Karol Furdik, Melanie Bicking, Marian Mach, Tomas Sabol, and Peter Butka	
Part III Future Research Directions of Open, Collaborative ICT-enabled Governance		
12	ICT as the Facilitator of Postmodern and Empowered Forms of Citizenship: Myth or Reality?	223
	Tit Neubauer, Tina Vuga, and Blaž Ilc	
13	A Critical Analysis of EU-Funded eParticipation	241
	Pedro Prieto-Martín, Luis de Marcos, and Jose Javier Martínez	
14	ICT for Governance and Policy Modelling: Visionary Directions and Research Paths	263
	Yannis Charalabidis, Sotiris Koussouris, Fenareti Lampathaki, and Gianluca Misuraca	
	Authors' Details	283
	Index	295

Part I

Public Policy Debate Foundations: Processes and Methods for Scoping, Planning, Evaluating and Transforming Citizen Engagement

Democratic Legitimacy and Recruitment Strategies in eParticipation Projects

1

Martin Karlsson

Abstract

This chapter approaches the complex relationship between eParticipation processes and democratic legitimacy by analysing several strategies for recruiting participants, a specific issue in the design of eParticipation processes with far-reaching implications. The central argument of this chapter is that the possibility of strengthening systems of representative democracy through eParticipation initiatives depends on the strategies used to recruit participants into those initiatives. First, a review of the theoretical discussion around strategies for the recruitment of participants and their normative implications for democratic legitimacy is presented. Thereafter, a broad empirical overview of eParticipation projects is carried out, surveying the diffusion of different recruitment strategies in local eConsultations. This is followed by a case study of the European Citizens' Consultations (ECC). In the chapter's concluding discussion, lessons are drawn from the ECC case, and a set of questions are formulated that should be considered in the design of eParticipation projects related to the normative implications of different recruitment strategies.

1.1 Introduction

The trend of eParticipation projects in democratic governance, evident in recent years, has created a puzzling phenomenon for democratic theorists, public administration and politicians alike. On the one hand, new forms of citizen engagement foster opportunities for interaction between citizens and governments that can induce new knowledge in policymaking processes and foster increased political trust as well as public engagement (Fung 2006; Wang and Wart 2007). On the other

M. Karlsson (✉)

Örebro University, HumUs, Fakultetsgatan 1, 70182 Örebro, Sweden

e-mail: Martin.karlsson@oru.se

hand, new forms of citizen participation between elections, such as eParticipation projects, may carry risks for decreased political equality in representative systems of democracy (Essaiasson 2010; McLaverty 2002). Democratic theorists raise the suspicion that these forms of participation contribute to a democracy where fewer voices are heard more strongly (Sunstein 2003), where the public administration is given a stronger influence over policy (Åström et al. 2010) and where political assemblies are made less accountable for democratic public decision-making (Teorell 2008).

The growing research field of eParticipation has contributed many insightful analyses for understanding the strengths and weaknesses of citizen participation processes in order to increase democratic legitimacy. Contemporary research on eParticipation has shown a great interest in design choices in participatory processes and put forward the theory that the legitimacy of eParticipation is intertwined with the design of the process (Wright and Street 2007). These studies have primarily concentrated on the questions of ‘how’ rather than ‘who’, related to the design of participatory processes. While moderation techniques (Wright 2009; Davies and Gangadharan 2009, part V), design of technological platforms for participation (Davies and Gangadharan 2009, part IV), and techniques for processing and summarising information from eParticipation (Velikanov 2010; Pingree 2009) have all been relatively well studied, questions of recruitment and selection are seldom the focus of eParticipation research. Despite this, the questions of who participates in eParticipation projects and on what grounds determine much of the legitimacy for eParticipation projects in a wider democratic system. Fung (2006, p 67) elaborates on this issue, as he argues that the possibility for public participation strengthening the capability of democratic governance “[...] depends in large measure on who participates: Are they appropriately representative of the relevant population or the general public? Are important interests or perspectives excluded? Do they possess the information and competence to make good judgments and decisions? Are participants responsive and accountable to those who do not participate?”.

The democratic legitimacy of eParticipation processes is relying on a participant recruitment process that overcomes the inherent inequalities of new information and communication technologies known as the ‘digital divide’. A fully legitimate participation process can be guaranteed only if eParticipation processes are able to include inexperienced or even ‘technophobic’ citizens in addition to the technologically knowledgeable. This chapter approaches the complex relationship between eParticipation processes and democratic legitimacy by analysing strategies for recruitment of participants, a specific issue in the design of eParticipation processes that has far-reaching implications. The central argument of this chapter is that the possibility of strengthening systems of representative democracy through eParticipation initiatives depends on the strategies used to recruit participants into those initiatives.

The remainder of this chapter will be disposed as follows. First, a review of the theoretical discussion around strategies for the recruitment of participants and their normative implications for democratic legitimacy is presented. Thereafter, a broad

empirical overview of eParticipation projects is carried out, surveying the diffusion of different recruitment strategies in local eConsultations. This is followed by a case study of the European Citizens' Consultations (ECC).

1.2 Recruitment Strategies and Their Normative Implications

Several central democratic values are related to the choice of participants in political processes, such as inclusion (Fung 2010), equality (Parkinson 2003, p. 188), representation (Brown 2006), representativeness (Fishkin and Luskin 2005; Parkinson 2003) and accountability (Teorell 2008; Brown 2006, p. 211). In this section, we will describe three common recruitment strategies and discuss their strengths and weaknesses in relation to earlier studies and democratic theory. Reviewing earlier research on participatory processes, it is evident that different recruitment strategies available for the design of eParticipation processes have different strengths and weaknesses in relation to these values.

1.2.1 Open Self-Selection

An open self-selection process of recruitment is the most straightforward and, as we will see further on, the most widely used recruitment strategy in eParticipation projects. Participation is made available to all citizens of the wider public, and no selection of participants is made by the organisers. This process creates possibilities for all interested citizens to participate, and hence holds strong opportunities for political inclusion (Fung 2006; Fiorina 1999), and creates possibilities for political equality through equal opportunity. As the thresholds for participation are low, however, such a strategy is connected with risks of 'cheap-talk effects'. Studies have found that when all citizens are welcomed to participate, there is a high risk of a uniformed and aggressive debate (Velikanov 2010). More importantly, open self-selection creates the risk of inequality through domination by specific interests. In participatory processes that fail to attract large numbers of participants, specific interest groups can come to dominate relatively easily through successful mobilisation. This problem is especially true for eParticipation projects as the Internet creates good opportunities for mobilisation within networks and groups that are organised online (Karlsson 2010, 2012; Persson 2007). Additionally, self-selection in eParticipation projects risks establishing an asymmetrical power distribution between groups that have sufficient access to and knowledge of information technology and those that do not (Mossberger et al. 2003). All in all, open self-selection is a form of participant selection that offers latent opportunities for inclusion and equality but, when practised, has proven able to foster domination as well as inequality.

1.2.2 Selective Recruitment

Strategic methods of recruitment, either selective (aiming to include affected interests and relevant perspectives) or randomised (aimed at reaching proportionality among the participants in relation to the wider public), have both strengths and weaknesses as well. Selective recruitment limits inclusion but holds possibilities for representation of the most relevant perspectives. This strategy equips organisers with the possibility to recruit those participants they most like to include, for instance, those most affected by a specific policy decision or those most engaged in and knowledgeable on a specific topic, while excluding those whose preferences and knowledge they are least interested in. This recruitment strategy is connected to difficult priorities of relevance and affectedness among interests (Fung 2010). Determining who is affected and what perspectives are relevant is in itself a highly politicised process that could evoke controversy among different interests. There is a risk that participatory processes introduced by a political institution or political majorities are influenced by the initiator's own ideological frames, rendering the selection process biased and its legitimacy questionable through exclusion of critical perspectives. Additionally, these strategies imply that participants act as representatives of and are accountable to a specific interest. The legitimacy of their mandate within a group or population sharing that interest, as well as their level of adherence to that common interest, is both imperative for the legitimacy of the entire participatory procedure and exceedingly difficult to ensure (Parkinson 2003). This circumstance complicates processes of selective recruitment.

1.2.3 Randomised Recruitment

Randomised forms of participant selection have been widely embraced for their potential to ensure representativeness of a participatory body in relation to a wider public (Fishkin and Luskin 2005) and to overcome problems of domination and a lack of proportionality. But randomised selection itself contains a number of difficulties and requires a choice between two methods that both are problematic. A choice has to be made between a strict randomised selection (a so-called random probability sample) and a randomised sample adjusted by stratified selection through specific quotas. The first option aims to make the body of participants resemble the wider population to the greatest extent possible in a statistical sense (Fishkin and Luskin 2005). In randomised selection, affected and relevant interests may consequently be excluded or given a minor presence in a body of participants due to a low proportion of society in their numeral strength. Parkinson (2003) gives an example of this problem with the inclusion of indigenous Australians in representative participatory institutions. In relation to proportionality, indigenous Australians, a group that by several standards could be viewed as holding a relevant perspective and an affected interest in relation to several issues, should not be granted representation in a group of representatives for the Australian public that is smaller than 50 people (Parkinson 2003, p 189). Hence, randomised recruitment

Table 1.1 Characteristics, strengths and weaknesses of different recruitment strategies for eParticipation projects

Strategy	Process	Strengths	Weaknesses
Open self-selection	Participation is made publicly available for anyone within the demos of the process	Gather the most engaged and affected. Expand possibilities for participation to the whole demos	Creates a possible arena for mobilisation around special interests misrepresenting public opinion
Selective	Recruitment is facilitated within specific groups of citizens and other actors important for the specific issue	Gather relevant perspectives and knowledge regarding the issue processed	Possibilities of a biased selection that excludes critical perspectives
Randomised	In order to produce a representative mini-public of the demos, statistical stratification and randomisation are used in recruitment	Create political equality through representativeness	Possibilities of biased selection criteria and exclusion of relevant but quantitatively small interest groups

demands large groups of participants in order to be able to create a representative sample of the public in relation to as many parameters as possible.

The second option is to base the randomised sample on a selection of quotas (e.g. gender, age, cultural background, socio-economic characteristics, geographical origin and ideological convictions), allowing groups equal representation in the body of participants in relation to these quotas. This option challenges the organisers with the question of which quotas or parameters of stratification are important to include in the selection process. As in selective recruitment, this process includes a prioritisation among different characteristics, experiences and interests. The legitimacy of this prioritisation can be questioned by interest groups in a society, if choices are made that favour specific interests and disregard others.

Three distinct types of recruitment strategy have been differentiated in the discussion above: open self-selection recruitment on the one hand and two strategies of strategic recruitment on the other—selective and randomised. As is evident in the discussion, each of these strategies carries strengths and weaknesses. In the end, the review of earlier studies therefore gives us no clear answer as to which of these strategies should be prioritised. Instead, it offers us a useful map of the possible implications of different recruitment strategies that can guide the analysis. The characteristics and possible strengths as well as weaknesses of these strategies presented in the discussion are summarised in Table 1.1.

1.3 How Do Individuals Become Participants? Recruitment Strategies Employed in Contemporary eParticipation Projects

The research field of eParticipation is dominated by case studies and qualitative research methods. Consequently, broad overviews of the field of eParticipation projects are scarce. Åström and Grönlund (2011) offer a case survey of local

Table 1.2 Recruitment strategies in local eConsultations

	Frequency	Share (%)
Single strategies	43	79
Open	39	72
Random	0	0
Selected	4	7
Multiple strategies	11	21
Open and selected	8	15
Open and random	3	6
Selected and random	0	0
Total	54	100

Source: Åström and Grönlund (2011)

Notes: The data were collected from a case survey of 58 case studies of local eConsultations in Europe. Four cases were excluded, as they did not include citizens as participants

eConsultations in Europe ($N = 54$). This comparative analysis creates a much-needed overview of the issue and explores the distribution of different strategies for recruitment among local eConsultation projects. Reanalysing the data of this case survey allows us the opportunity to investigate the diffusion of different recruitment strategies among local eConsultations.

Among the case studies surveyed by Åström and Grönlund, it is evident that open self-selection is the most common strategy. Only 7% of the consultations employ a selected recruitment, and no cases in the survey exclusively use randomised recruitment. One-fifth of the cases combine multiple recruitment strategies. Fifteen percent employ open and selected recruitment, and 6% combine open and random recruitment. All in all, the results of this comparison comply with the conclusions of earlier research that open selection is the dominant recruitment strategy in participatory projects (e.g. see Fung 2006; Fiorina 1999). While four out of five (79%) consultations exclusively employ open self-selection, a total of 93% of the cases use open self-selection solely or in combination with another form of recruitment (Table 1.2).

Multiple factors may help to explain the prominence of open self-selection recruitment. First, it is the least costly and demanding form of participant selection. Open recruitment does not require any preceding statistical analysis, as is the case of random selection, and it does not entail any need for active recruitment tactics, unlike selected recruitment. Instead, it is based on the notion that “if we build it, they will come”: The organisation that implements the online consultation creates the online platform and advertises the project to members of the community in the hope that as many as possible will participate. Additionally, as discussed above, open self-selection is normatively appealing as it appears to give all citizens an equal opportunity to participate, and it therefore inherently carries a latent possibility for a strong political equality. As is evident from the discussion above though, this form of recruitment is connected with clear weaknesses, possibly reinforcing inequalities in societies between active and nonactive, knowledgeable and non-knowledgeable, as well as citizens who are technologically accustomed and those who are not.

1.4 The European Citizens Consultations: Normative Implications of Open Self-Selection and Randomised Recruitment in eParticipation

The 2009 ECC is the largest EU-initiated participatory engineering project to date. It was organised by a consortium of over 40 non-governmental organisations, foundations and research institutions. The project involved online discussion forums and face-to-face citizen consultations in all 27 EU member states. ECC was a versatile project featuring both aggregative and deliberative forms of participation, involving citizens as well as policymakers, being partially open to the public but in some phases closed to strategically recruited participants, taking place on national as well as European levels, and combining online with face-to-face participation. As such, the ECC process is a useful case with which to investigate mechanisms of different recruitment strategies in eParticipation. Within the ECC process, episodes of open self-selected, randomised and selected recruitment are found.

The project spanned almost 1 full year (December 2008 to October 2009) and was divided into five phases. In December 2008, online discussion forums were opened in all EU member states. The online discussions were open to the public and intended to set the agenda for the rest of the project. The ECC online forums gathered almost 30,000 registered participants and 150,000 unique visitors to the forum Web sites, making it by far the most extensive eParticipation project initiated by the EU (Kies and Wojcik 2011). Participants were asked to debate the issues they found most important for the social and economic future of Europe and put forward proposals for what the EU should do to “shape our social and economic future in a globalised world” (ECC 2009). Until early March 2009, participants could vote in favour of their favourite proposals: 1,142 proposals were issued on the forums, and the ten proposals in each country that received the most votes were then selected to set the agenda for the next phase of the project (Karlsson 2010). The range of issues touched upon by the proposals was wide. While some proposals were fairly evolved and regarded the social and economical future of Europe, many related neither to the topics of the consultation nor the EU (Kies and Wojcik 2011, p 208).

The first online phase was followed by national consultations, held in every country in March 2009. These were so-called mini-publics (Goodin and Dryzek 2006) of 30–150 citizens (depending on the size of the country) chosen through a stratified sampling of the population in order to create a randomised selection and a representative sample of the wider public in each country. The participants of the national consultations were first contacted in January 2009, when interest in participation among a larger sample of citizens in each country was inventoried. Among those interested, a sample of citizens, representative of the wider public in each country with regard to age, gender and geographical origin, was invited to participate.

During the national consultations, which lasted 2 days, group deliberations and votes took place. The ten most-supported recommendations from each online forum created a starting point for discussion in these national consultations. The participants were divided into groups of 8–10 persons that, together with

a moderator, discussed and conducted votes in order to shape and agree on one to three common recommendations to the EU institutions. If the group could not reach a common decision, a vote was introduced and supervised by the moderator. Additionally, meetings and debates were held with strategically recruited experts. These actors played a central role in supplying the participants with policy information and an understanding of the argumentation in EU institutions. The result of these consultations, which had been formulated in group deliberations and approved by a vote, was a set of ten recommendations to EU institutions in every country. These final recommendations were presented to a panel of selected MEPs and to candidates in the 2009 EP election from each country.

In the upcoming sections, two phases of ECC will be investigated with a focus on the role of recruitment of participants. First, we will analyse the national face-to-face consultations and the randomised recruitment strategy that was employed for these consultations. Thereafter, the online forums of the ECC, based on open self-selection recruitment, will be examined. Each section opens with a more in-depth description of the recruitment strategy before delving into an analysis of its execution within the ECC process.

1.4.1 Randomised Recruitment and Representativeness

One central role of political participation in democratic governance is to perform a consultative function through which political representatives and public officials can form a better understanding of public opinion. Some methods of public participation, such as citizen surveys, deliberative polls and citizen panels, are specialised for performing this function. One common design for these methods of public participation is the production of a miniature representation of an entire population (that of a specific country, city or area) through a controlled process of participant selection (either totally randomised or a randomised sample altered in relation to selected quotas). The outcome of the participatory process based on such a design is often regarded as a legitimate representation of the opinion of the rest of the population, or at least what its opinion would be had it also participated in the process (Fishkin and Luskin 2005, p 290). The legitimacy of these participatory processes is considered to expand beyond the limited group of active participants.

As elegant and straightforward as this may sound, the creation of a representative so-called mini-public has proven to be a difficult task. The first problem facing managers of participatory processes is the inevitable element of self-selection. Since no citizen can be forced to participate in any participatory process, some citizens will agree to take part and others will decline. It is also very possible that there are systematic differences between those citizens who accept to participate and those who do not. This creates the possibility for asymmetries in the sample. While some organisers and researchers of participatory processes with randomised selection argue that, if the sample of citizens is large enough, such asymmetries can be seen as a minor inconvenience (Fishkin and Luskin 1999, 2005), others handle such asymmetries through the inclusion of selection quotas (employing what in

statistical terms is called ‘stratified sampling’). In order to ensure that a randomised sample is representative of the wider public, even after the influence of self-selection, the distribution of participants in relation to these quotas is controlled.

However, the inclusion of selection quotas creates the need for a problematic prioritisation among the endless list of possible characteristics on which to base the selection of quotas. First, there are obvious demographic and social characteristics to take into account such as age, gender, education, location, income, social class and so on. Ideological orientations and attitudes are of course of the greatest importance when aiming at creating a representative group of participants addressing a specific political issue. Additionally, it can be relevant to include in the selection-criteria-specific experiences such as prior experience of political participation, as well as experiences related to the specific policy area under consideration. Parkinson (2003) argues that the choice of quotas must be based on the saliency of specific criteria in relation to the issue at hand (p 187). Still, the authority to choose which criteria are salient and, in the end, which experiences and attitudes will be present among participants must be exercised with careful consideration. There is a risk that participatory processes introduced by a political institution or political majority are influenced by the initiators’ own ideological frames, rendering the selection process biased and its legitimacy questionable through the exclusion of critical perspectives.

In addition to the major challenge to create a viable set of criteria for the selection process is the inevitable influence of self-selection. If we assume that a comprehensive list of possible participants could be created, representative of the wider public in all relevant aspects, participants representing all of those characteristics must want and be able to participate in the process in order for the representativeness of the group to be fulfilled. The smaller the group of participants, and the more sophisticated the set of selection criteria are, the more unsettling is the absence of specific participants. These two circumstances make the selection process for mini-public participation projects with an aim to function as consultative tools for political actors and governmental institutions strenuous and expensive tasks. This is especially true when employing a strong definition of representativeness, that is, that each characteristic included as a selection criteria should be represented in the group of participants in a way that mirrors the distribution in the wider public (Fishkin and Luskin 2005). In order to tackle this problem, a softer definition of representativeness can be employed, where the focus is instead put on whether or not each relevant position, characteristic and experience is present among the participants (Parkinson 2003).

Regardless of whether the stronger or weaker definition of representativeness is employed, the creation of a legitimate mini-public has proven to be challenging in consultative participatory projects. The ECC 2009 acts as a good example of such challenges. ECC was a project designed to use “citizens as policy advisors: feeding citizens’ opinions into the political debate at both European and national levels” (ECC 2009). The overall topic for discussion was the social and economical future of Europe and the European Commission, which initiated and supported the ECC project in order to gain an understanding of European citizens’ agendas on these

issues. Citizens' consultations were held in all EU member states, bringing together groups of participants that were intended to be representative mini-publics of the wider public in that country. The ECC selection process was rigorous and included 24 different recruitment agencies (market research agencies and survey research institutions). The entire selection process had a budget of €300,000 (15% of the total budget for the ECC project) for the recruitment of 1,600 participants. The selection was based on demographical characteristics such as age, gender and location (which part of the country), and a random selection of citizens was made with statistical controls for these factors creating a sample of citizens that, in the evaluation of the ECC project, was characterised as acceptable representative of EU population (Leyenaar and Niemöller 2010, p. 18). The different national citizens' consultations managed to bring together groups of citizens representing women and men, people of all ages and parts of the countries fairly equally. Still, as will be illustrated here, the recruitment failed dismally in creating a representative mini-public regarding crucial ideological characteristics according to both definitions of representativeness presented above.

The participants' attitudes towards the EU could easily be defined as one of the salient ideological dimensions for the ECC process. In a discussion of the economic and social future of Europe, initiated by EU institutions, the question of whether or not participants support the EU integration process and the legitimacy of European political institutions is of great importance. The participants were engaged in discussions that resulted in policy recommendations addressed to the European Parliament and the European Commission about future action in these areas. While EU-positive participants recommended the expansion of EU competences in these areas and equalisation of policymaking in all member states, EU-sceptical participants recommended more national autonomy to tackle contextually specific situations. When investigating the distribution of EU-sceptic attitudes among the ECC participants, selected through the rigorous and costly recruitment process described above, we can easily see that a sufficient representativeness of the wide public regarding attitudes towards the EU was not reached.

Comparing the representation of EU-sceptical citizens with the diffusion of EU-sceptical attitudes in the EU member states at the time of the consultations, we can see that in no less than 27 of the 28 ECC national consultations, the group of participants was characterised by an under-representation of EU-sceptical attitudes (see Fig. 1.1). Only the consultation in Luxembourg included a larger share of EU-sceptical participants than the share of EU sceptics among the Luxembourg public. In five consultations, the under-representation was only slight. The remaining 22 consultations were characterised by a substantial under-representation of EU-sceptical attitudes (>5%) in comparison to the wider public. Hence, the ECC process as a whole must be said to have failed to reach representativeness according to the strong definition that important characteristics should be equally represented in the mini-public and the public.

Employing a weaker definition of representativeness on the case of ECC and EU scepticism, we can view the presence of any EU-sceptical participants in

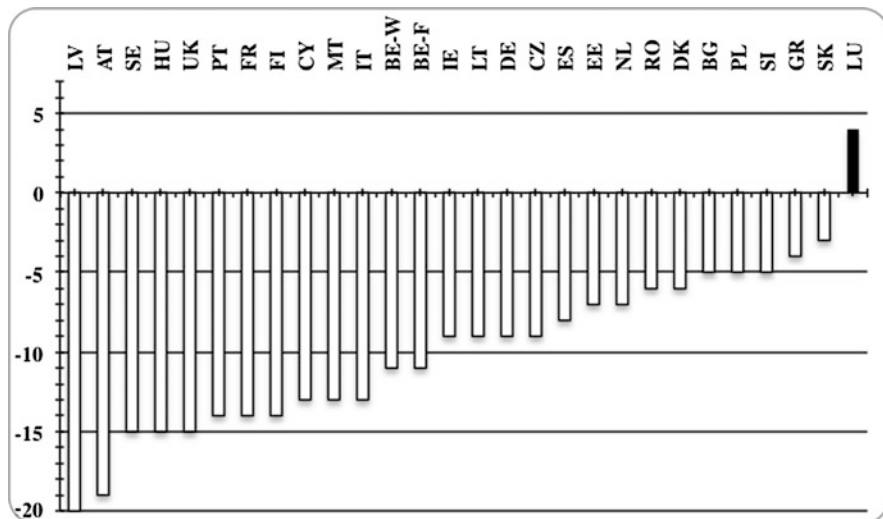


Fig. 1.1 The representation of EU-sceptic participants in the ECC consultations in relation to the public of the EU member states. *Source:* Freudenberger et al. (2009). The data regarding EU scepticism among the national publics are derived from the Eurobarometer 71

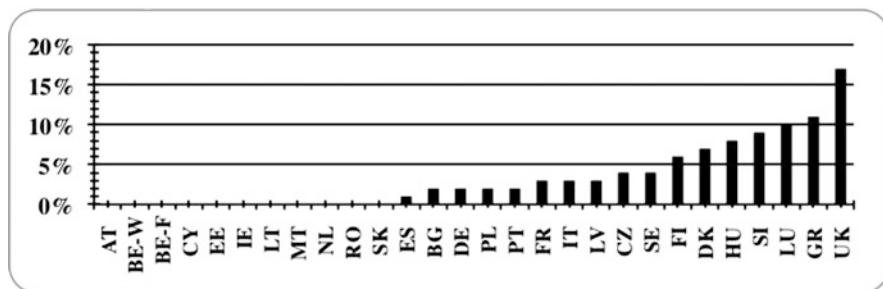


Fig. 1.2 The inclusion of EU-sceptic participants in the ECC national consultations. *Source:* Freudenberger et al. (2009). Country codes using the ISO-3166 standard

the consultation as a sufficient condition. The central idea behind this concept of representativeness is that the most important criteria is that all relevant positions and experiences in relation to a specific issue are voiced in the discussion in order to foster a legitimate outcome. Analysing the share of EU-sceptical participants in the ECC consultations (see Fig. 1.2), we can see that several of the ECC consultations fail also this task. In 11 of the 28 consultations (39%), not one single participant held an EU-sceptical position. In these consultations, no one represented the EU-sceptical citizens of that country and was able to voice an EU-sceptical position in the discussions. A total of 60 participants with EU-sceptical attitudes were

included among the participant body of 1,559 people, equalling 3.8% of the participants. In relation to the Eurobarometer survey of the spring of 2009, this means that the ECC consultations under-represented EU-sceptical citizens with 12.2% (European Commission 2009).

In the ECC, a salient ideological dimension was significantly under-represented among the participants. The authority of the project's consultative function to produce a set of policy recommendations that held legitimacy beyond the very limited groups of actual participation can therefore be questioned. This project instead produced an outcome that reflected what a predominantly and, in close to half of the cases, exclusively EU-positive body of participants recommended. Instead of sufficing as a tool for fostering policy advice from a representative sample of those EU citizens in the unions' consultation process, this project instead promoted a strongly biased position.

The failure of the ECC consultations to create a representative sample of the EU population with regard to its attitudes towards the union cannot be understood as due to technical or financial deficiencies. The budget for recruitment was large in comparison with that of other participatory projects, and the recruitment process was executed and overviewed by professional market research agencies and survey research institutions. Rather, the end result of this recruitment process must be understood in relation to two factors that are potentially influencing all processes of randomised recruitment. First, there is an inherent influence of self-selection among recruited participants that affect the representativeness of bodies of participants. Although statistical measures may easily create what on paper resembles fully representative lists of participants, recruited citizens can always turn down the offer to participate in a project. In the case of the Swedish national consultation, 10,000 citizens received the offer to participate, and the randomised selection was made among those citizens who accepted to participate. Given that recruited citizens were informed that the ECC project was initiated and supported by the European Commission, it is probable that EU-sceptical citizens were less willing to participate.

Secondly, the selection criteria used in this process were restricted to demographic factors such as age and gender. Hence, the selection did not take attitudes towards the EU into account and could not compensate for the influence of self-selection in the sample. However, this did not depend on a lack of information; in fact, the questionnaires used for gathering information about potential participants actually included the standardised question used in the Euro barometers for investigating the diffusion of EU-sceptical attitudes among EU citizens. This information was not used in the selection of participants. One interpretation of this situation is that the selection process of ECC was influenced by the ideological disposition within the organisations initiating, financing and implementing the ECC process. Many of these organisations were predominantly executing activities either directed towards the EU institutions or financed by the EU. A strong EU-positive bias among these may thus explain the decisions behind the low level of representativeness of the ECC participants.

1.4.2 Open Recruitment and Agenda Control

As we have seen above, the large majority of participatory projects employ an open self-selection recruitment strategy. While holding a strong instinctive appeal, offering the theoretical possibility of legitimacy through political equality as well as mobilisation of the most affected citizens' open-ended processes of political participation has proven able to mobilise biased groups of participants and create a disproportional agenda control (Fiorina 1999; Karlsson 2012). In order to illustrate this argument, ECC 2009 will once again work as an example. As described above, the initial phase of the ECC was a public agenda-setting process where the general public of the EU member states was able to contribute to setting the agenda of the forthcoming phases of the project. Online forums were set up in all countries where anyone interested in the issues of economic and social policy in Europe could register and debate as well as vote for proposals for what should be the issues for the process. The inclusion of this phase in the ECC process created the possibility of compensation for the biases of the future process, discussed above. As will be illustrated here, this process created another strong bias as specific interest groups successfully mobilised to dominate the process in several of the online forums.

The online discussion forums had an agenda-setting function for the rest of the ECC process and were implemented in order to give the broader public an opportunity to influence the process. Each forum produced a list of ten recommendations, creating the starting point for the deliberative conference (attended by randomly selected participants) that was held in each country. Citizens were invited to register as participants in the forum in their country and then had the chance to debate the issues they found most important for the social and economic future of Europe and put forward proposals for what actions the EU should take (ECC 2009). Throughout the process, participants could vote in favour of (but not against) proposals, and all participants were allowed to place one vote on each proposal in the forum, with the exception of the proposals that they had posted themselves. The ten proposals from each country that received the most votes were then selected to set the agenda for the next phase of the project.

The forums were all moderated by one moderator, who worked one and a half hours each day throughout the project period. The style of moderation was what Wright and Street (2007, p. 857) call "silent moderation", when the moderator is allowed to delete messages without leaving any traces visible to the participants. Besides the moderator, each forum was supported by an outreach person, who contacted stakeholders such as political parties, NGOs and political bloggers and encouraged them to participate in the forum or advertise the project with banners on their Web sites in order to make the forum better known to citizens. Banners advertising the forum were also visible on the EU Commission's national Web sites, as well as on the Web sites of the organisations implementing the ECC project in each country. All in all, the forums were structured in a way that created strong incentives for mobilisation around an issue. In the end, the number of votes gathered in support of a proposal, rather than the success of a participant's argumentation in the discussion section of the forum, determined whether or not

a proposal was passed on to the subsequent phase of the consultation. The thresholds created around participation were low: Anyone with a valid e-mail address could register as a participant. This design created strong opportunities for interest groups and networks organised online to affect the outcome of the online consultations.

One illustrative example of an interest group that was well represented in the Swedish ECC forum is the Swedish Piracy Party (PP), a relatively young political party focused on issues of copyright, surveillance laws and personal integrity, with an emphasis on the information society. This party has strong organisational resources allocated for online activities: Its members and supporters are skilled in both technical and social aspects of digital communication, and the party has repeatedly made use of online resources for activism and campaigns. The leading PP candidate for the 2009 EP election, Christian Engström, posted two policy proposals on the Swedish ECC forum that upstaged all competition (gained 68% of all votes), following a massive mobilisation of support among PP activists and supporters. The positions of the PP that had a relatively modest support among Swedish voters (they gained one mandate and 7% of the votes in the 2009 EP election) dominated the agenda of the Swedish public in this agenda-setting participatory process (Karlsson 2010, 2012). Similar to the PP's success in the Swedish forum, other more or less organised interest groups reached great success in different ECC online forums. Above all, activists promoting Esperanto as a common work language in the EU and supporters of the proposal to legalise cannabis dominated the agenda setting in many forums (Kies and Wojcik 2011). These are issues that are far from the top priority of most EU citizens when it comes to the social and economical future of Europe.

In order to create a measurement of the online mobilisation among the participants, the number of incoming Web links to the top ten proposals of the Swedish ECC forum has been investigated. Through search engines, the links on different Web sites leading to the ten most popular proposals of the Swedish ECC forum have been collected. A total of 1,071 hyperlinks were found. The results from this analysis are presented in Table 1.3. Virtually, all—a total of 98% of the

Table 1.3 Number and share of incoming links to the top ten proposals of the Swedish ECC forum

Proposal title	Incoming links	Share (%)
Esperanto as a common work language in Europe	361	33.7
Legalise marijuana	354	33.1
Alternative energy sources are not enough	336	31.4
Ban cruelty towards animals	5	0.5
Copyrights	3	0.3
An alternative to medical patents	3	0.3
Trade union action for job seekers to another country	3	0.3
Humboldt, an Erasmus programme for teachers	2	0.2
EU, should not do anything	2	0.2
Globalisation without centralisation	2	0.2
Total	1,071	100

Note: Adapted from Karlsson (2012)

hyperlinks—were directed to the same three proposals. Hence, the mobilisation efforts were very intense around a very limited number of proposals, with more or less organised interest groups as an important driving force. Three specific groups were very active in their efforts to mobilise participants to vote for their proposals, creating a total of over 1,000 links on different Web sites to these proposals. The remaining seven top proposals of the Swedish forum received only a total of 20 incoming links, revealing a low level of mobilisation among their supporters. The exceptions from this rule are the two proposals of the PP (‘Copyrights’ and ‘An alternative to medical patents’) that received only three incoming links each, but these links nonetheless proved to be strategically strong channels for mobilisation. The proposals of the PP were linked to from the blog of Christian Engström as well as the central online forum for the party. Through these two channels, the party successfully mobilised its members and supporters. In this case, the low quantity of incoming links was compensated for by a high quality in the placement of these links, amounting to a successful mobilisation that flooded the ECC forum with PP supporters.

The ECC illustrates how specific organised interests can gain a disproportional (in relation to public opinion) impact through open-ended participatory processes and divert the agenda of participatory processes. The relatively small size of these projects combined with the low thresholds for participation makes domination feasible for well-organised interest groups. This is especially true for processes of online participation when the possibility for rapid mobilisation is high—an opportunity seized by the PP, with a membership base with strong technological capabilities and a good understanding of online culture. This is a potential problem for all open-ended processes of political participation that is especially problematic when the number of participants and the threshold for participation are low. In the end, the efforts of the organisers of the ECC process to create easily accessible online forums through which any interested EU citizen could participate in order to discuss the issues they found to be most important for the future of Europe turned out to be a strong machinery for relatively narrow interest groups to gain control over the agenda of the ECC process.

Conclusions

This chapter discussed the normative implications of different recruitment strategies in eParticipation processes in relation to democratic theory as well as in practical cases of participatory processes. As is evident in the theoretical discussion, all such strategies are connected with their own strengths and challenges related to the legitimacy of participatory processes. While the most common open self-selection recruitment strategy offers the potential of mass participation and political equality, it creates opportunities for domination by specific interests and resourceful groups. Strategies of randomised or selective recruitment offer opportunities for compensating for such asymmetries but instead create risks of biases.

The case study of the ECC teaches us the importance of the choice of recruitment strategy and also of the many choices related to how this strategy

is implemented. The analysis of the ECC shows us that both randomised and open self-selected recruitment can create situations where a specific interest or ideological perspective becomes dominant. The ECC case does not leave us with a watertight solution for recruitment in eParticipation processes and neither with any reason to believe that any single panacea for the recruitment of participants into eParticipation processes exists. Instead, the lessons of the ECC give us some important insights into what questions need to be asked when designing eParticipation processes.

1. Are there specific interest groups within the community of the project, related to the issue at hand, whose inclusion would be valuable for the process but that could risk dominating the process if they were given the opportunity to mobilise many of their supporters to participate? If so, a selective form of recruitment could be of value in order to ensure that these groups are present in the process but not given a dominating position.
2. Is the issue under investigation in the process and the method of participation likely to attract a large number of participants? If this is the case, an open self-selected recruitment could have clear merits as all interested parties are given an opportunity to be present. If not, it is probable that a strategic recruitment is of more merit, blocking specific groups from dominating the process and including those that would otherwise be inactive.
3. Is there a salient ideological divide related to the subject under investigation that must be reflected in the recruitment in order to ensure that the process is not biased? If so, it is of great importance to use a strategic form of recruitment in order to ensure that all sides of this divide are present in the process.

An eParticipation process that chooses its recruitment strategy in relation to these three questions could avoid the problems of legitimacy created within the ECC process and successfully mediate the strengths and challenges of different recruitment strategies in a meaningful way. In order to do so, the design of the process must be made with the characteristics of the policy topic handled, the political and institutional context surrounding it and the technological architecture used for participation in mind. Hence, we are not likely to find a panacea for recruitment of participants but possibly a framework for better informing the choice among the flawed strategies that are available. Even when these questions are carefully considered and a choice of recruitment strategy is taken, additional choices relating to the implementation of the recruitment strategy that highly influence the level of legitimacy of the process need to be made. As the case study of the ECC process shows us, many problems can be created through deficiencies in the implementation process. Most importantly, the inescapable influence of self-selection among participants, present regardless of which recruitment strategy is used, is a factor that must be considered. Only through careful investigation of the sample of citizens willing to participate in the process can we make problems of disproportionality and exclusion visible.

All in all, this study has underlined the many and important normative implications of the choice and implementation of recruitment strategies in

eParticipation processes. In light of this analysis, it is possible to argue that the choices related to deciding who is given the right to participate may be the most important design-related choices for ensuring the legitimacy of any participatory process. Or in the words of Fung (2006, p 67): “Whether or not the direct participation of citizens in governance can remedy one or other of these deficiencies depends in large measure upon who participates”.

References

- Åström J, Grönlund Å (2011) Online consultations in local government – What works, when and why? In: Coleman S, Shane P (eds) *Connecting democracy*. MIT, Cambridge, MA
- Åström J, Freschi AC, Montin S (2010) Electronic and representative democracy: a happy couple? Comparing online dialogues in the UK, Sweden and Italy. In: Amnå E (ed) *New forms participation: normative implications*. Nomos Verlag, Baden-Baden, pp 35–52
- Brown MB (2006) Survey article: citizen panels and the concept of representation. *J Polit Philos* 14(2):203–225
- Davies T, Gangadharan SP (2009) *Online deliberation: design, research and practice*. CSLI Publications, San Francisco, CA
- Essaiasson P (2010) Is citizen political involvement always a plus? In: Amnå E (ed) *New forms of citizen participation: normative implications*. Nomos Verlag, Baden-Baden
- EEC – European Citizens Consultations (2009) Project outline: European citizens’ consultations on the future of Europe. <http://www.european-citizens-consultations.eu/files/ECC%2009%20Project%20Description%20final.pdf>. Accessed 2 Dec 2010
- European Commission (2009) Standard Eurobarometer 71 Report. http://ec.europa.eu/public_opinion/archives/eb/eb71/eb71_std_part1.pdf. Accessed 5 Oct 2011
- Fiorina MP (1999) Extreme voices: a dark side of civic engagement. In: Skocpol T, Fiorina MP (eds) *Civic engagement in American democracy*. Brookings Institution Press, Washington, DC, pp 395–426
- Fishkin JS, Luskin RC (1999) Bringing deliberation to the democratic dialogue: the NIC and beyond. In: McCombs M, Reynolds A (eds) *A poll with a human face: the national issues convention experiment in political communication*. Lawrence Erlbaum, Mahwah, NJ, pp 3–38
- Fishkin JS, Luskin RC (2005) Experimenting with a democratic ideal: deliberative polling and public opinion. *Acta Polit* 40:284–298
- Freudenberger M, Karlsson M, Kies R, Leyenaar M, Niemöller K, Wojcik S, Xekalaki X (2009) Evaluation of the European citizens’ consultations – survey to participating citizens. In: Leyenaar M, Niemöller K (eds) *European citizens’ consultations 2009 – evaluation report*. King Baudouin Foundation, Brussels, pp 10–11
- Fung A (2006) Varieties of participation in complex governance. *Publ Admin Rev* 66(s1):66–75
- Fung A (2010) The principle of affected interests: an interpretation and defense. Unpublished manuscript, available on request from author. Kennedy School of Government, Harvard University
- Goodin RE, Dryzek JS (2006) Deliberative impacts: the macro-political uptake of mini-publics. *Polit Soc* 34:219–244
- Karlsson M (2010) A panacea for Pan-European political participation? Analysis of the European Citizen Consultations. In: Amnå E (ed) *New forms of participation: normative implications*. Nomos Verlag, Baden-Baden
- Karlsson M (2012) Understanding divergent patterns of political discussion in online forums – evidence from the European Citizens’ Consultations. *Inf Technol Polit* 9(1):64–81
- Kies R, Wojcik S (2011) European web-deliberation: lessons from the European Citizens’ Consultation. In: De Cindio FA, Macintosh A, Peraboni C (eds) *From e-participation to online*

- deliberation. Proceedings of the fourth international conference on online deliberation. Leeds University Business School, Leeds, pp 198–211
- Leyenaar M, Niemöller K (2010) Evaluation report: ECC 2009. King Baudouin Foundation, Brussels
- McLaverly P (2002) Public participation and innovations in community governance. Ashgate, Aldershot
- Mossberger K, Tolbert CJ, Stansbury M (2003) Virtual inequality: beyond the digital divide. Georgetown University Press, Washington, DC
- Parkinson J (2003) Legitimacy problems in deliberative democracy. *Polit Stud* 51(1):180–196
- Persson T (2007) Democratizing European chemicals policy: lessons from the open consultation on REACH. *J Civ Soc* 3(3):223–238
- Pingree R (2009) Decision structure: a new approach to three problems in deliberation. In: Davis T, Gangadharan SP (eds) *Online deliberations: design, research, and practice*. CSLI Publications, San Francisco, CA, pp 309–316
- Sunstein C (2003) The law of group polarization. In: Fishkin JS, Laslett P (eds) *Debating deliberative democracy*. Blackwell, Malden, MA
- Teorell J (2008) Samtalsdemokrati med förhinder – en kritik mot Fishkins medborgarpaneler. In: Hermansson J, Karlsson C, Montgomery H (eds) *Samtalets mekanismer*. Liber, Malmö, pp 51–76
- Velikanov C (2010) Facilitation procedures for written online deliberation: a research and development project in the field of deliberative democracy. In: De Cindio F, Macintosh A, Peraboni C (eds) *From e-participation to online deliberation*, Proceedings of the fourth international conference on online deliberation. Leeds University Business School, Leeds, pp 240–249
- Wang XH, Wart MW (2007) When public participation in administration leads to trust: an empirical assessment of managers' perceptions. *Publ Admin Rev* 62(2):265–278
- Wright S (2009) The role of the moderator: problems and possibilities for government-run online discussion forums. In: Davies T, Gangadharan SP (eds) *Online deliberation: design, research and practice*. CSLI Publications, San Francisco, CA, pp 233–242
- Wright S, Street J (2007) Democracy, deliberation and design: the case of online discussion forums. *New Media Soc* 9(5):849–869

Noella Edelmann, Johann Höchtl, and Michael Sachs

Abstract

In Government 2.0, public value no longer needs to be provided by government alone but can be provided by any combination of public agencies, the private sector, civil society organizations or citizens. The ubiquitous presence of ICT, citizens' digital literacy, and their potential willingness to participate online can efficiently enable collaborative production. Models for the inclusion of external stakeholders in public value production can increase the degree of public sector innovation and improve the outcomes of such processes. Governments can use the most valuable resource they have, the citizens, by establishing opportunities for civil society and businesses to engage in an open government.

2.1 Introduction

Public administration has not yet found its new role in the virtual environment, but it is clear that closed, hierarchical governed systems will increasingly be untenable and open and collaborative production systems in governments and public administrations need to encourage stakeholders and citizens to participate in order to achieve and produce better solutions and outcomes. On his first day in office, US President Obama signed the Open Government Memorandum: "We will work together to ensure the public trust and establish a system of transparency, public participation, and collaboration. Openness will strengthen our democracy and promote efficiency and effectiveness in Government" (Obama 2009). The European Union too seeks to involve citizens in decision-making processes, and

N. Edelmann (✉) • J. Höchtl • M. Sachs

Centre for E-Governance, Danube University Krems, Dr.-Karl-Dorrek-Straße 30, 3500 Krems, Austria

e-mail: noella.edelmann@donau-uni.ac.at; johann.hoechtl@donau-uni.ac.at; michael.sachs@donau-uni.ac.at

the Ministers responsible for eGovernment declared in December 2009 that “there is a growing expectation from European citizens and businesses for their governments to be more open, flexible and collaborative in their delivery of public services across Europe” (Ministers 2009). Governments worldwide have understood the importance of including citizens in decision-making processes, to incorporate stakeholders’ potential for achieving innovation, with the aim of achieving better governance and better regulation.

The Internet enables government agencies to restructure their interactions with citizens: “computer networks (...) harness the power of a larger population of networked users” (Whitehead, quoted in Fountain 2001). The government will need to have the ability to organize, coordinate and control complex policy domains as well as provide the databases on platforms for encouraging communication with and between citizens, institutions and business. This means recognizing the importance and necessity of sharing knowledge, experiences and resources in new ways: networks and collaborative environments need to have ties to agencies, supply chains, sources of knowledge and platforms which help citizens and agencies work together to achieve mutual productive gains. In Government 2.0, public value no longer needs to be provided by government alone but can be provided by collaborative production between different public agencies, with the private sector, community groups or citizens. In this context, policies at the institutional and public level will be able to fully utilize the power of mass collaboration within the legal framework. This informal, non-hierarchical nature of mass collaboration facilitated by electronic communication technology is not yet fully endorsed by public administrations, and governments face the challenge of establishing a framework that defines new institutions of governance and the roles so that the innovative capacity of the market can be used.

The aim of co-productive value production is not collaboration at all means but efficient and effective decisions that include all stakeholders. A new paradigm of collaboration and innovation in public administration requires that certain online behaviours be learned, understood and adopted. Furthermore, whilst the Internet is able to support and encourage prosocial behaviours for the good of a community or society, simply providing an online environment will not automatically lead to contribution, participation and collaboration (Kreijns et al. 2003). Members need to be engaged for participation and collaboration to occur, and such behaviour may not always be visible: this is “lurking” and tends to have a negative connotation. However, lurking can also be valuable in a democratic society where information provides the basis of effective decisions and innovation.

2.2 Online Prosocial Behaviour

Prosocial behaviour occurs offline and online and is a type of behaviour that often leads to activities with positive ends (Rheingold 2002) or results that benefit others. In the online context, prosocial behaviour can include donating money, computer

power, software and documentation, time and attention, information and emotional support, working together and collaborating.

According to Amichai-Hamburger (2005), online prosocial behaviour is characterized by visible requests for help, but not always the people making the request; helping behaviour that can be made visible (but does not have to be); potential help providers that are not visible until they actually offer help; physical invisibility that reduces the barrier for help providers whose age, gender, race or other visible attributes lead people to discount their contributions in the offline world; online help that can be judged solely on the content of help; the ease of making a contribution—at any time of day, from any place, read and sent at one’s own convenience; and finally, the controllability of further involvement and provision of help.

But why do people contribute or collaborate to achieve a common end or a result that benefits others? There are several reasons, including empathy, community interest and generalized reciprocity. Individuals benefit from prosocial behaviour and are often grateful for it; groups and communities also benefit (Lakhani and Hippel 2003). Collaborative behaviours do occur online, and they represent different participative behaviours that may lead to different innovative effects, results and solutions.

2.2.1 Hyperlinking

“Without linking, there would be no Web” (Weinberger 2008). Hyperlinking, that is, the activity of making online ties and links, is part of everyday life, “created and situated in a political-social context” (Turow and Tsui 2008), and affects the size and shape of the public sphere by facilitating the wide sharing of information. The hyperlink began as a citation mechanism but is now both a navigation tool and a social behaviour that has social implications (Halavais 2008). On the one hand, links can be useful for providing trust and providing support (evidence), transparency and credibility as they are able to specify “the relationship between what is known and how it is known” (Turow and Tsui 2008) simply by linking to the source. On the other hand, hyperlinks have a gatekeeping effect, guiding users (Hargittai 2008) and their attention (Webster 2008), thus controlling and managing the audience flow. Few people “would create hyperlinks purely for their own use” (Adamic 2008); hyperlinks are social and used to express social relationships in a public space for others to see, as gifts, and to reinforce existing relationships. Hyperlinks affect the dynamics of content production, distribution and access, so it is necessary to understand not only user consumption of the Internet but also their navigation, attention, generation and how the content sources interact with one another (Napoli 2008).

2.2.2 Participation

Participation is one of the most important keywords when discussing the Internet and its development: in 2006, Time Magazine nominated “You” as the person of the year, “You” being all the users producing “user-generated content” by chatting, file sharing, emailing, blogging, socializing on the Web and creating Wikis. Since then, some of the tools and forms of communication, such as blogging, Facebook and Twitter, have been taken up by the formal political system and political public administrations for decision-making processes. According to Ferro and Molinari (2010), in some cases, citizens may refuse to use the official government spaces provided and thus influence the way online tools are used and adopted, and other citizens are involved.

Online participation involves a number of activities, including generating messages, reading them and responding to them, organizing discussion and offering other online and offline activities that could be interesting. Some scholars believe that the characteristics of the Internet such as anonymity and reduced observable social cues can encourage discussions and generate interesting arguments, that is, they are “conducive for public deliberation by attenuating the effects of the undesirable social-psychological influences on opinion expression” (Ho and McLeod 2008). In addition, anonymity in the online environment reduces the observable status differences, so that citizens who are less confident in offline environments will speak out in the online environment, leading to greater idea generation and increased levels of participation.

2.2.3 Collaboration

The Web is easy to use and enables new forms of working together. Internet users do not just read the content but want to use it and have control over it. Some of the characteristics of online communication (such as multimedia, interactivity, synchronicity, hypertextuality) encourage participants to engage in new behaviours such as new reading conventions creating new meanings and collaborating with others (Wood and Smith 2004). Collaboration is based on individuals engaging in loose voluntary associations and using technologies to achieve shared outcomes and can impact workplaces, communities, national democracies and the economy, as well as have social benefits, such as making governments more transparent and accountable (Tapscott and Williams 2006).

Peer production will continue with increased access to tools, applications, databases and knowledge, and increased transparency and skills. Collaboration will improve as businesses, governments and public administrations change their internal processes (Tapscott et al. 2007) and users learn and adopt the new rules of behaviour. Providing a platform will not be enough: it is necessary to ensure that users having rich and engaging online experiences, relationships and interaction. Thus, collaboration will need some form of management to help guide and support users and to deal with the complexity of such activities.

2.2.4 Negative Online Behaviours

Even though some participant activities are very successful (e.g. Wikipedia), in both the electronic and the offline context, the majority of help is given by the minority (who incur substantial costs in terms of their own time). Preece and Shneiderman (2009) state that for all the enthusiasm for the online environment, “the reality is that many Web sites fail to retain participants, tagging initiatives go quiet, and online communities become ghost towns. Many government agencies are reluctant to even try social participation. . .”. Although people will contribute time and effort, traditional offline problems such as the bystander effects or diffusion of responsibility and simply lack of participation do occur (Yechiam and Barron 2003).

According to Nielsen (2006), user participation follows a “90-9-1 rule”: 90% of users are lurkers (i.e. read or observe but do not actively contribute), 9% of users contribute from time to time, but other priorities dominate their time, and 1% of users participate a lot and account for most contributions. Take-up of participatory and open government initiatives is not large, especially for the government-led initiatives: an eParticipation project is considered successful if it is able to reach a few thousands of users (Osimo 2010).

There are many reasons why people do not contribute, some are selfish, but there are other reasons too (Nonnecke and Preece 2001). The perception of the current opinion climate (Noelle-Neumann 1984) as well as the perceptions of the future (Scheufele 2001) can predict the willingness to express an opinion or to contribute. Explanations for low levels of collaboration with governments include online government working processes that are a mirror image of existing (offline) services; a lack of skills inside public administrations; governments that do not try to generate value for the citizens; the technological assumption that if you “build, they will come”; online service infrastructures guided by technology rather than user needs and expectations; and governments that distrust citizens and do not really listen to what citizens say (Coleman and Blumler 2009; Ferro and Molinari 2010; Verdegem and Verleye 2009).

Virtual communities experience serious problems if there is a lack of participation and contribution, and where the majority of participants are so-called lurkers. Lurkers are those participants who do not visibly contribute online. Lurking is possible because of the technology used: it provides access without being visible or having to publicly participate. Opinions about lurking and lurkers vary considerably (van Uden-Kraan et al. 2008). Whilst it is on the one hand considered negative behaviour, lurking may well be acceptable and even beneficial: groups encourage lurking because in this way potential new users get a feeling for how the group operates and what kind of people participate in it. Lurking may be desirable for very busy groups; if all subscribers to a group were to participate actively, it could cause repetition of queries and result in an overload of contributions.

Whatever reasons lurkers have for not participating, it is important that they should not all be given the label “selfish free-riders” (Kollock 1999). Rather, it is important to understand lurkers, as ignoring and misunderstanding them will distort

how we understand online life as well as leading to mistakes in the way sites (Nonnecke and Preece 2001), participation initiatives and policies for increasing participation are organized and designed. Studies show that the lurker might be a valuable participant (Takahashi et al. 2003) and that lurking may have wide reaching consequences (such as leading to active participation in the real world), which are not yet known and require further research.

2.3 Creating Public Value

Closed hierarchy is the traditional organizational form of bureaucratic government, but nowadays, the word “bureaucracy” has a rather negative connotation and is mainly used to describe a hierarchical and inefficient organization. The notion and duties of government have changed over decades. Weber (1980) defines the state as a monopoly on the legitimate use of violence. Weber describes a patrimonial view of bureaucracy, where bureaucracy means (1) official jurisdictional areas ordered by rules, (2) official authority to enforce these rules and (3) a methodical provision for the regular and continuous fulfilment of authority.

Porter’s (1990) approach towards the nature and duties of states and nations is grounded in economic theory: nations exist as there are goods which are necessary but for which there can be no market because the transaction costs surpass the profit. This failure of the market justifies government bodies, which act as collectives for the benefit of all. Public transport, energy infrastructure or streets in low-income areas are examples of public value that would not be reasonable in terms of pure economical valuations. Porter concludes his analysis (in a pre-Internet-dominated epoch) by stating that the “proximity of [...] personnel, along with cultural similarity” will foster a free and open information flow, a prerequisite for low transaction costs (Porter 1990, p. 86).

Friedman (2005) rebuts Porter’s explanation, taking market failures as the reason why states fail to deliver public value efficiently. From the members’ point of view, contributing to the group’s political efforts is the production of a public good where the public is not the whole population but members of an interest group. Public goods theory tells us that it is harder to produce public goods for a very large public than for a very small public, and, according to Friedman, “there are a variety of social mechanisms by which it may be possible to provide, at some level, public goods even for quite large publics” (Friedman 2005).

Public administration should work to achieve legislative goals in the most effective and efficient manner, as stated in the constitution or as a legal obligation (Constitution of South Africa 1996; §18 AVG Austria). While political decisions may contradict this paradigm for good reasons (such as deficit spending), public actions need to be carried out efficiently: while the tax payer may lack the required information to question decisions (effect), he certainly wants to see his money spent efficiently.

Government production is favourable when the benefits outweigh the costs of production, so the bigger the difference between output value and costs of production, the more efficient the process will be (Moore 1995). This defines efficiency solely in terms of money, provides no alternative meaningful assessment of efficacy, assumes that public values can only be created by public agencies and does not account for the value created by and for citizens participating in public value production.

Extending Moore's model of public value creation, Bozeman (2007) defines public value independently from public production processes. This means that the notion of "public value" is more psychological and sociological than just the measurable production of goods and services. Thus, public production has a creative dimension that accounts for effectiveness and a legal dimension, measurable in terms of efficiency.

2.3.1 A New Paradigm of Collaboration

Open government concepts seek to include society in governmental processes to increase efficacy and efficiency as well as citizen satisfaction. The ubiquitous presence of ICTs (information and communication technologies), citizens' digital literacy and their willingness to participate online could efficiently enable collaborative production. The inclusion of third parties in the policymaking process increases the potential of innovative approaches to problems, as many minds can create new and better solutions to existing problems. Traditional stakeholders, such as unions, interest groups and associations of political parties, have been included in the process of policymaking ever since modern representative democracies have been established. Even if these traditional stakeholders represent large groups of society, not all members of society are equally represented. ICT allows for a new form of mass communication where many-to-many communication replaces the one-to-many concept. With the use of Web 2.0, individuals can contribute to large-scale projects, enabling the individual to participate in the shaping of his/her life world at a political level.

New policies are usually implemented on the basis of the policy cycle, itself an iterative concept that ensures that targets are met and implementations are evaluated. In open government, various stakeholders can participate at any stage of the policy cycle (Fig. 2.1):

- Stage 1, Agenda setting: At this stage, a problem is depicted and possible future solutions are outlined. When all stakeholders participate at this stage, the actual problem can be described in great detail, and possible solutions that will not fit stakeholders' needs can be rejected at this initial stage.
- Stage 2, Formulation: During the formulation stage, all stakeholders define the solution required to solve a specific problem. This is the planning stage of the policy cycle, where all ideas and interests must be merged into one concrete plan. Protests from stakeholders against the solution can be considered prior to implementation.

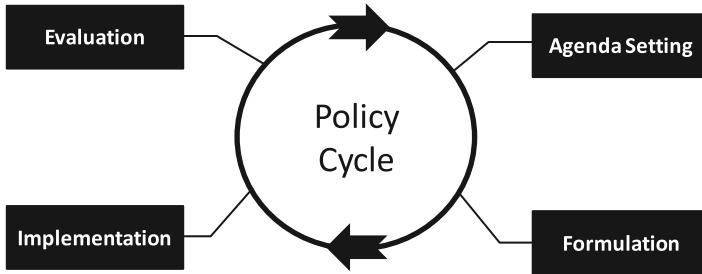


Fig. 2.1 Policy cycle according to Müller (2010)

- Stage 3, Implementation: The implementation focuses on carrying out the plan described in the formulation stage. Stakeholders can actively engage in the realization and disseminate the new implementation to a wider audience.
- Stage 4, Evaluation: The final stage of the policy cycle is the evaluation stage. Stakeholders that are directly involved in the new policy can give the best feedback, as they have to deal with the new solution. If the outcome is not as expected, the policy cycle continues with stage 1.

In public administration, the open policy cycle can be applied in policymaking as well as service delivery. An open policy cycle allows for innovation, as externals can participate and contribute to the discourse. Collaboration does not necessarily need mass participation, but the process needs to include experts and dedicated people who are generally willing to share their ideas and knowledge. The most successful collaboration systems, like Wikipedia or Linux, are based on the qualitative contributions of a minority of users. In collaborative value production, the public administration must provide the necessary input and information and encourage citizens to participate.

Co-production already has a tradition in economy. According to Pisano and Verganti (2008), different models of collaboration depend on governance structures (flat vs. hierarchical) and forms of participation (closed vs. open) to support innovation, where innovation is the key factor for the new products and concepts that are to generate increased efficiency and effectiveness. Depending on the needs of the institution that runs the collaborative platform, different concepts of such platforms are possible as seen in Fig. 2.2.

Pisano and Verganti established this model for businesses where improvements are measured mainly by revenue. Adapting this model to governments must take political and sociological factors into account as public value cannot be measured in financial terms only. All collaboration models require a certain degree of transparency, as information must be shared with all potential collaborators.

The innovation mall model uses open forms of participation but a hierarchical governance structure. This means that collaboration is open to all people interested in participation, but the outcome of all innovation processes will be evaluated by

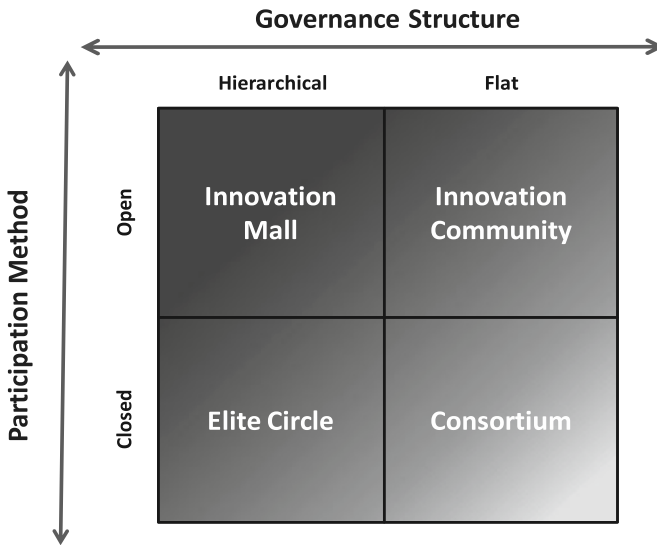


Fig. 2.2 Collaboration model according to Pisano and Verganti (2008)

governing body such as public administration. The peer-to-patent project¹ used the concept of the innovation mall to improve the quality and processing time of administrative procedures (Noveck 2009). A backlog of 600,000 applications at the US Patent and Trademark Office (USPTO) was reduced with the help of third parties. The project opened the analysis of applications to external experts, who, on the basis of their expertise and contributions, were able to help reduce the time required for issuing patents from 44 to 23 months. Members of the public were welcome to participate, but USPTO officials checked the proposed solutions on their correctness.

The Innovation Community is open in terms of participation and leaves governance to the community. This method of innovation was applied by the US administration during the Open Government Dialogue² in 2009. The federal government asked all citizens interested in improving government services and efficiency to present their ideas: 15,000 users discussed 4,262 ideas, writing 26,000 comments. The ideas were ranked by the users with 356,000 votes. The users' rankings showed that legalizing marijuana was a top priority, but this has not been realized by the federal government. The advantage of open collaboration is that the community brings new ideas; the next issue is then to see if any of the new ideas can actually be used for problem solving. If users' inputs are not taken seriously, the community might feel misused. At least concrete feedback must be given if popular ideas are not being considered.

¹ <http://www.peertopatent.org>. Accessed 26 May 2010.

² <http://www.opengov.ideascale.com>. Accessed 26 May 2010.

In a hierarchical governance structure, the public administration reserves the right to decide what ideas to keep and which ones to reject. Thus, the elite circle, using hierarchical governance and a closed participation model, meets traditional collaborative production run by public agencies. The initial stage of such a collaborative process is crucial, as the agenda must be set in detail. The elite circle consists of experts who are asked to provide solutions for a particular problem predefined by public administration. In Austria, the political parties' parliamentary clubs regularly invite stakeholders to present their solutions, but these externals cannot influence what the decision-makers actually take into account. The collaborative model for a consortium is based on flat governance and closed participation. The consortium is selected by the governance body and usually consists of experts that tackle a wide field where various improvements can be made. Within the selected field, members of the consortium can tackle any problems and propose any solutions. The consortium defines the agenda during the course of a collaborative process. In public administrations, the final decision regarding the implementation remains with the respective authority, but the consortium model can be sustainable only if the consortium's propositions are listened to and taken seriously. This method was applied in the Austrian constitutional convention (Verfassungskonvent³), the working group that discussed profound changes to be made to the Austrian constitution. From 2003 to 2005, the constitutional convention discussed and agreed on reforms of the Austrian state, but the government has not implemented substantial parts of the recommendations.

Using these collaboration models in government or public administration is different than in business. Public administrations are determined to spend money reasonably, as it is tax money that is being spent. Consequently, this limits risk taking and the culture of failure in public administrations and government projects must be successful from the beginning. Businesses, on the other hand, allow failure to a certain degree when launching innovation processes, as one successful project will refinance a handful of failed projects.

2.3.2 Collaboration Model for Public Value Production

Merging the above concepts of collaboration with the potentials of the open policy cycle offers public administrations the opportunity to define their needs internally and then choose a procedure that provides the best solutions. The degree of participation and governance as well as the open stages of the policy cycle can be chosen freely. The differences between Pisano's and Verganti's models of collaboration are gradual, as the degree of governance and participation can change even within different phases of one project. The following model describes the creation of public value by use of open collaboration (Fig. 2.3).

³ <http://www.konvent.gv.at>. Accessed 16 June 2011.

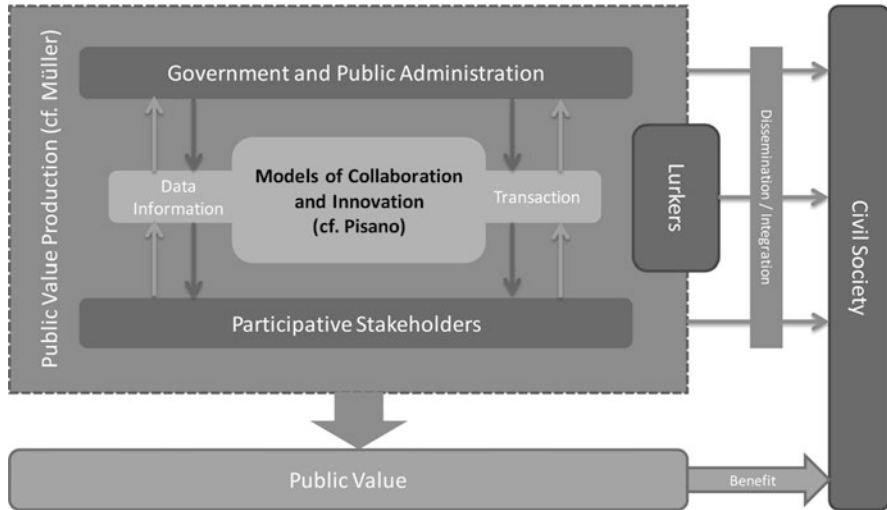


Fig. 2.3 Collaborative public value production

The framework of this model is set by the policy cycle as basis for the production of public value. Ideally, the processes within the policy cycle of governmental projects are transparent so that the interested public can follow developments. At different stages of the policy cycle, governmental agencies can interact with participative stakeholders by sharing data and information about the project. These can be top-down and/or bottom-up processes depending on the collaboration model. The actual transaction that can bring innovation to public sector projects can also be achieved with top-down and/or bottom-up processes. All stakeholders of the collaboration process as well as lurkers who follow the process will eventually inform the civil society about new projects and outcomes and consequently support its integration into society. The outcome of the collaboration and innovation process is new or improved public value. This leads to benefits for civil society though individuals might not notice to take for granted.

The theoretical framework of open government gives citizens the space to actively engage in shaping the state they live in (Parycek and Sachs 2010). Citizens are empowered as governments become more transparent, participatory and collaborative. Consequently, citizens gain further responsibilities as they interact with government and public administration more intensely than in traditional governmental structures. In order to provide public spaces for collaborative activities, public administrations need to assess what kind of collaboration model is needed to reach the required objectives. The aim of collaborative value production is not collaboration at all means but efficient and effective decisions that include all stakeholders. The most successful projects of citizen engagement focus on regional or municipal issues, as citizens are the experts of their local environment and issues.

Public administration must address citizens and business as equal stakeholders of the collaborative production cycle. Even if successful innovation cannot always

be granted, public administration will be able to gain knowledge for further improvements of collaboration processes. If governments create opportunities for civil society, business and public administration to engage in an open government, then they can use the most valuable resource they have, the citizens. All stakeholders of these processes need to adapt to changes in society and technology to achieve better collaborative procedures. Businesses already use the input from consumers to enhance their products, so government can do this too in order to increase citizen satisfaction.

2.4 Discussion

The impact of Web 2.0 on society results in a paradigm shift based on real-time, geographically independent communication and information access. Parts of the young generation of digital natives use social media and ICT to share content and work collaboratively in networks. These young adults will become the opinion leaders and decision-makers in the near future. It is only a matter of time until their ideas and attitudes have a serious impact on society, as present developments show.

O'Reilly frequently demanded "Government as a Platform" (Lathrop and Ruma 2010) by investigating the key success factors of Web 2.0 platforms and their respective models to incorporate people's innovation potential. O'Reilly enumerates the adoption of open standards, simple interfaces, a design for participation with low entry barriers as properties of successful platforms in economy, but leaves the possible implications caused by a target mismatch between economy and government unanswered. The goal conflict between maximizing shareholder value vs. public value will result in a different and more complex role description and good practice library than the role of the economy platform provider in peer production. Public administration seeks to utilize the collaborative production model of economy for citizen's satisfaction. However, utilizing this potential requires participation in an environment where the administration has not yet established the required procedures, organizational culture and captive mind set.

Noveck (2009) looks for answers in the design elements of collaborative democracy and describes granularity, groups and reputation as the key enabling properties for successful participation. Granularity enables peers to engage in the best manner and assures a high level of involvement, as a complex problem can be broken down in smaller and more manageable pieces. "Groupness" is well observed in real life as well as thriving online communities: the human's impulse for cohesion in groups has to be supported by virtual communities to enable high participation rates. In absence of monetary remuneration of citizens' value production, rating and reputation is one form of social compensation, a form of virtual currency widely accepted in online communities. These are the elements that have allowed Linux to be so successful. Yet to erect policies by and for the administration has to reflect these mechanics of civil engagement; policies, which turn ideas and visions into concrete measures to ensure equal possibilities among citizens, and to deliver the aims of the administration, with no individual left behind.

2.4.1 Fostering Innovation

In modern democracies, the law emanates from the people. Governments represent the people; therefore, governments have to include the people into the decision-making process at various levels. Collaborative value production triggered by public administration can engage citizens in shaping the regulated terms of coexistence. Electronic collaboration will still need leaders and persons who are responsible for monitoring and supporting such processes. The role of the civil servant in such a process must be redefined, as the present confining guidelines for civil servants are not flexible enough for innovation processes based on using the Web. Innovation always starts with criticizing existing mechanisms and thinking beyond given constraints. Civil servants are presently asked to follow guidelines that on the one hand secure neutral perspectives and ensure the correct treatment of all citizens but on the other hand limit civil servants, as they cannot take points of view that contradict existing regulations.

The Internet offers anonymity to users, and this anonymity can be an advantage in innovation culture. As some groups, for example, civil servants, cannot speak freely about all the agendas they are interested in, anonymity allows such user groups to participate more freely. When the goal of an innovation process is to get the best ideas, it does not matter where the ideas come from. Consequently, anonymity can encourage participation and innovation as the contributing user must not be afraid of resentment against his/her real personality.

However, anonymity has a downside. The amount of radical, undesired and simply useless contributions increases in an anonymous environment. People are more likely to denounce and verbally attack (“flame”) others when they can hide behind a virtual identity. Using several virtual identities in an online discussion process can also be a way to manipulate the discussion. Moreover, government must decide if contributions to governmental projects can be made by citizens affected by the issue, all citizens, non-citizens or virtual identities.

The models given in this chapter allow governments to simply use collaboration. Civil servants will have to decide at what stage the policy cycle is to be opened and what collaboration model to choose. The flexibility of open collaboration models should be used by governments to design the processes exactly to the needs of a project.

2.4.2 Paradigm Change in Public Administration

The literature review above presents the reasons why government bodies exist and who is responsible for creating public value. Recent literature acknowledges the role of the civil society, “les citoyennes” in Habermasian parlance, yet assessing the value they create is difficult at its best. Instead of trying to erect such a model, which according to Bozeman (2007) would be almost impossible to evaluate anyway, the identification of motivating factors to stimulate engagement suffices. The question is whether public engagement will always have a positive societal

effect, and thus should be supported by the government. Answering this question imposes a dilemma for public administration. While the role of public administration is to carry out public policy, legitimated by law, democratic administrations influenced by Enlightenment have the tendency of becoming a diffuse body. These administrations do not solely carry out public policy for the benefit of all, but non-disclosure, overemphasis of data privacy and intransparency of actions develop a strong tendency to pursue actions which seem favourable from an administrative point of view. This concentration on self-sustainment raises the risk of bureaucracy and corruption. Thus, it is questionable whether the impetus of change can be induced by the public administration itself.

eParticipation as a mean for public value creation has a strong standing on the European agenda and that of the member states. Yet, according to Mayer-Schönberger (2009), no single state-driven participation project ever attained substantial and sustainable effects. The EU eParticipation report of 2009 concludes that eParticipation benefits are “information availability, better information, exchange and stakeholders accessibility to it, followed by greater accountability and transparency” (Millard et al. 2009, p. 17). However, information and transparency are enablers of participation and thus collaborative value production; thus, they are a mean instead of an effect. The effect of transparency and disclosure is participation, not the other way round.

Transparency can only be achieved by a combined approach: legal obligations to disclose data, organizational change to foster collaboration between government entities instead of thinking in silos and supporting a social behaviour of collaboration between government bodies as well as in their relationship to stakeholders. Behavioural change, for example, and “open attitude” cannot be demanded from people but supported by organizational change following an overall corporate culture of disclosure and openness. The so-called Civil Servant 2.0 is fluent in using the Internet as an information broker, understands network effects triggered by social media, acts as a knowledge worker in an environment which fosters competition between departments because of comparable services and is supported by charismatic leaders (Fig. 2.4).

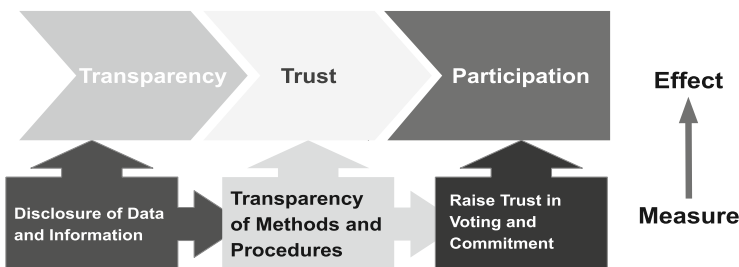


Fig. 2.4 Data and information transparency as a prerequisite for participation

While this impetus of change is unlikely to come out of public administration itself, exogenous factors as economic and society pressures make that change unavoidable. Economic pressure requires new and innovative ways to carry out public policies at reduced costs yet at a higher efficiency level. Society pressure arises from empowered parties and the civil society by their usage of collaborative platforms on which they generate data, information and statements which requires the administration to react. This direction of pressure can clearly be witnessed by observing recent developments of open government data portals. Enough pressure can force the administration to release data, even in the absence of legal obligation as found in the UK's Freedom of Information Act or the statutory rights governing the disclosure of information in the USA (Höchtel and Reichstädter 2011). Today, these forces set data free and are likely to change our conception about who is creating public value for whom and why.

Conclusions

Governments and public administrations are obliged to inform citizens, as the latter are the sovereigns in democracies. Further inclusion of the sovereign in decision-making does not mean to change the present structure of democracies, as inclusion does not automatically lead to more direct democracy. Inclusion of non-organized citizens can improve the decision-making process which leads to efficient and effective results. Transparency and access to information are the basis for proper decisions, and they create trust that motivates citizens to be involved in collaborative processes. Yet, public administrations and government need to rethink their operational structure as well as the interaction with citizens.

References

- Adamic LA (2008) The social hyperlink. In: Turow J, Tsui L (eds) *The hyperlinked society: questioning connections in the digital age*. The University of Michigan Press, Ann Arbor, MI, pp 227–249
- Amichai-Hamburger Y (2005) Personality and the internet. In: Amichai-Hamburger Y (ed) *The social net: human behavior in cyberspace*. Oxford University Press, New York, NY, pp 27–55
- Bozeman B (2007) *Public values and public interest: counterbalancing economic individualism*. Georgetown University Press, Washington, DC
- Coleman S, Blumler J (2009) *The Internet and democratic citizenship: theory, practice and policy*. Cambridge University Press, Cambridge, NY
- Ferro E, Molinari F (2010) Framing Web 2.0 in the process of public sector innovation: going down the participation ladder. *Eur J ePract* 9(1):20–34
- Fountain J (2001) *Building the virtual state: information technology and institutional change*. Brookings Institution Press, Washington, DC
- Friedman D (2005) Do we need a government? http://www.daviddfriedman.com/Academic/mps_iceland_talk/Iceland%20MP%20talk.htm. Accessed 10 Sep 2011
- Halavais A (2008) The hyperlink as organizing principle. In: Turow J, Tsui L (eds) *The hyperlinked society: questioning connections in the digital age*. The University of Michigan Press, Ann Arbor, MI, pp 39–55
- Hargittai E (2008) The role of expertise in navigating links of influence. In: Turow J, Ho S, McLeod D (eds) *Social-psychological influences on opinion expression in face-to-face and computer-mediated communication*. *Commun Res* 35(2), pp 190–207

- Ho S, McLeod D (2008) Social-psychological influences on opinion expression in face-to-face and computer-mediated communication. *Commun Res* 35(2):190–207
- Höchtel J, Reichstädter P (2011) Linked open data – a means for public sector information management. *Electronic government and the information systems perspective*. Springer, Heidelberg, pp 330–343
- Kollock P (1999) The economies of online cooperation. In: Kollock P, Smith M (eds) *Communities in cyberspace*. Routledge, London
- Kreijns K, Kirschner PA, Jochems W (2003) Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: a review of the research. *Comput Hum Behav* 19(3):335–353
- Lakhani K, Hippel E (2003) How open source software works: “free” user-to-user assistance. *Res Policy* 32(6):923–943
- Lathrop D, Ruma L (2010) *Open government: collaboration, transparency, and participation in practice*, 1st edn. O’Reilly Media, Sebastopol, CA
- Mayer-Schönberger V (2009) The demise of electronic government. Presentation for EDEM conference, Vienna, Austria. <http://www.slideshare.net/dgpazegovzpi/the-demise-of-electronic-government>. Accessed 10 Sep 2011
- Millard J et al (2009) European eParticipation summary report, European Commission, Brussels, p 17. http://ec.europa.eu/information_society/activities/egovernment/docs/reports/eu_e-participation_summary_nov_09.pdf. Accessed 10 Sep 2011
- Ministers responsible for eGovernment policy of the EU Member States (2009) Ministerial declaration on eGovernment. <http://www.epractice.eu/files/Malmo%20Ministerial%20Declaration%202009.pdf>. Accessed 05 Oct 2011
- Moore MH (1995) *Creating public value: strategic management in government*. Harvard University Press, Cambridge, MA
- Müller P (2010) Offene staatskunst. In: *Internet and Gesellschaft Collaboratory* (ed) *Offene staatskunst. Bessere bildung durch open government?* 1st edn. Eurocaribe Druck, Hamburg
- Napoli PN (2008) Hyperlinking and the forces of “massification”. In: Turow J, Tsui L (eds) *The hyperlinked society: questioning connections in the digital age*. The University of Michigan Press, Ann Arbor, MI, pp 56–70
- Nielsen J (2006) “90-9-1” rule for participation inequality: lurkers vs. contributors in Internet communities. Jakob Nielsen’s Alertbox. http://www.useit.com/alertbox/participation_inequality.html. Accessed 25 Aug 2011
- Noelle-Neumann E (1984) *The spiral of silence: public opinion, our social skin*. University of Chicago Press, Chicago, IL
- Nonnecke B, Preece J (2001) Why lurkers lurk. *Seventh Americas conference on information systems 2001*, pp 1521–1530
- Noveck BS (2009) *Wiki government: how technology can make government better, democracy stronger, and citizens more powerful*. Brookings Institution Press, Washington, DC
- Obama B (2009) Memorandum for the heads of executive departments and agencies. *Transparency and open government*. http://www.whitehouse.gov/the_press_office/Transparency_and_Open_Government/. Accessed 18 Sep 2009
- Osimo D (2010) Editorial, *Government 2.0 – hype, hope, or reality?* *Eur J ePract* 9:2–4
- Parycek P, Sachs M (2010) Open government – information flow in Web 2.0. *Eur J ePract* 9:57–68
- Pisano GP, Verganti R (2008) Which kind of collaboration is right for you? *Harv Bus Rev* 86:1–8
- Porter ME (1990) *The competitive advantage of nations: with a new introduction*. Free Press, New York
- Preece J, Shneiderman B (2009) The reader-to-leader framework: motivating technology-mediated social participation. *AIS Trans Hum Comput Interact* 1(1):13–32
- Rheingold H (2002) *Smart mobs: the next social revolution*. Perseus Publishing, Cambridge, MA
- Scheufele D (2001) Democracy for some? How political talk both informs and polarizes the electorate. In: Hart RP, Yantek T (eds) *Communication and U.S. elections: new agendas*. Rowman and Littlefield, Lanham, MD, pp 19–32

- Takahashi M, Fujimoto M, Yamasaki N (2003) The active lurker: influence of an inhouse online community on its outside environment. In: International ACM SIGGROUP conference on supporting group work. GROUP'03. ACM, Sanibel Island, Florida, FL, pp 1–10
- Tapscott D, Williams A (2006) *Wikinomics: how mass collaboration changes everything*. Portfolio, New York
- Tapscott D, Williams AD, Herman D (2007) *Government 2.0: transforming government and governance for the twenty-first century*. New Paradigm
- Turow J, Tsui L (eds) (2008) *The hyperlinked society: questioning connections in the digital age*. The University of Michigan Press, Ann Arbor, MI
- van Uden-Kraan CF, Drossaert C, Taal E, Seydel E, van de Laar M (2008) Self-reported differences in empowerment between lurkers and posters in online patient support groups. *J Med Internet Res* 10(2):18
- Verdegem P, Verleye G (2009) User-centered E-Government in practice: a comprehensive model for measuring user satisfaction. *Gov Inf Q* 26(3):487–497
- Weber M (1980) *Wirtschaft und Gesellschaft. Grundriß der Verstehenden Soziologie*. 5th ed. Tübingen: Mohr Siebeck
- Webster JG (2008) Structuring a marketplace of attention. *The hyperlinked society: questioning connections in the digital age*. The University of Michigan Press, Ann Arbor, MI, pp 23–38
- Weinberger D (2008) The morality of links. In: Turow J, Tsui L (eds) *The hyperlinked society: questioning connections in the digital age*. The University of Michigan Press, Ann Arbor, MI, pp 181–190
- Wood AF, Smith MJ (2004) *Online communication: linking technology, identity, and culture*, 2nd edn. LEA, Mahwah, NJ
- Yechiam E, Barron G (2003) Learning to ignore online help requests. *Comput Math Organ Theor* 9(4):327–339

An Integrated Methodology for the Evaluation of ePetitions

3

Kostas Ergazakis, Dimitrios Askounis, Panagiotis Kokkinakos, and Anastasios Tsitsanis

Abstract

An ePetition is a petition that gathers support electronically. The review of existing ePetition cases reveals that the real impact of current ePetition practices is difficult to be addressed and evaluated. This difficulty is also due to the lack/incompleteness of specific and unified methodologies for the evaluation of ePetition results. In this framework, the authors in this chapter are firstly presenting an overview of existing methodologies for the evaluation and assessment of ePetition approaches. Then, they propose a unified and complete methodology for the in-depth evaluation of an ePetition approach. The last part of the chapter is devoted to the presentation of the main results from the real-life application of this evaluation methodology, in the context of an FP7-funded project.

3.1 Introduction

Petitioning is a way in which citizens can express their opinions and views about issues that concern them. A petition is a formal request to a higher authority, signed by a number of citizens. The right of the subject to petition has been exercised since Saxon times and during the last years, the petition concept has been expanded and it can be exercised in an electronic way. An ePetition is a petition that gathers support electronically. An ePetition service forms another important channel for the petitioning process and provides facilities for citizens to initiate, support and

K. Ergazakis (✉) • D. Askounis • P. Kokkinakos • A. Tsitsanis
Decision Support Systems Laboratory, School of Electrical and Computer Engineering, National Technical University of Athens, Iroon Polytechniou 9, 15773 Zografou, Athens, Greece
e-mail: kergaz@epu.ntua.gr; askous@epu.ntua.gr; pkokkinakos@epu.ntua.gr; ttsits@epu.ntua.gr

Y. Charalabidis and S. Koussouris (eds.), *Empowering Open and Collaborative Governance*, 39
DOI 10.1007/978-3-642-27219-6_3, © Springer-Verlag Berlin Heidelberg 2012

possibly comment on petitions online. This creates an online record of ePetitions and provides an opportunity to create an online hub for petitioning information, including paper.

ePetitions are really important because they enable and encourage petitioners to provide background information and material to the petition, such as reports, statistics, links to other sites, and multimedia material (Berman and Mulligan 2003; Carroll and Hackett 2006; Dahlberg and Siapera 2006; Downey and Fenton 2003). In addition, ePetitions encourage discussion around the issue so as to help inform those who are interested in signing and those receiving the ePetition. As such, ePetitions can play a significant role in the decision-making process. An ePetition Web site can enable councils and citizens to see how petitions are processed in general. A transparent Web site which shows how petitions influence decisions makes it more important to have an established process that shows how a decision-maker (e.g. a municipal council) will respond and how quickly a citizen may receive a response (ICELE 2008; Seaton 2005).

In addition, ePetitions with an accompanying discussion forum allow the decision-makers to understand the issues in more detail since the discussion can also include comments from people who disagree with the petition or have supplementary points to raise (Mosca and Santucci 2009). Moreover, the increased visibility of an ePetition's progress after being submitted increases the political accountability of the decision-makers to petitions, including potential lack of a response. This enhances ePetitions as an important tool of eDemocracy (Graber 2002; Holtz-Bacha 2004) and can therefore serve as a powerful instrument, supporting open and wide-ranging dialogue among stakeholders on a variety of critical issues. Nevertheless, they also influence the decision-making process in line with the Lisbon Treaty (Baringhorst 2009; Lusoli and Jankowski 2005).

On the other side, there are many problems at regional and even at global level today (e.g. environmental problems) that call for wide participation of citizens in decision-making and policy formulation processes. An overview of existing ePetition cases conducted in the framework of the research work reveals that current ePetition practices concern, in their great majority, local issues and are addressed to local councils. However, it is not clear at all how and at which degree the existing approaches have the anticipated impacts to the policy formulation process. In this respect, it is necessary to develop appropriate evaluation methodologies and frameworks that can be adopted and applied so as to assess the real impacts and added value of ePetitions.

Section 3.2 presents a review of existing eParticipation evaluation approaches, as well as a review of existing tools and models for technology adoption. In Sect. 3.3, the authors analyse the proposed evaluation methodology, which has been developed and applied in the framework of an EU-funded project in the field of ePetitions. Section 3.4 presents the main results from the practical application of the proposed methodology, while Sect. 3.5 summarises the main conclusions and provides future research challenges.

3.2 Current Approaches

3.2.1 eParticipation Evaluation Approaches

There are many approaches that have been implemented in order to define an evaluation framework for eParticipation. A suchlike approach has been conducted by Whyte and Macintosh (2003), who argue that the evaluators should focus on questions about political, technical and social perspective. The political perspective focuses mainly on the effectiveness and the transparency of citizens' eEngagement in decision-making process. The technical perspective includes the design of the evaluated system concerning the effect of design in the outcome of it. Social perspective embodies the relation between the process of eParticipation followed in the system and its outcome and the factors that affected this relation. Another approach of eParticipation evaluation focuses mainly on the nature of the evaluated data. In this approach, there is a distinction between quantitative and qualitative methods of evaluation. Quantitative methods are based on numeric data that are collected usually through questionnaires. The data are processed statistically so as to reach conclusions. Qualitative methods are based on non-numeric data, which are gathered through various tools (e.g. questionnaires, interviews).

3.2.1.1 UK Local eDemocracy National Project Evaluation Framework

This evaluation framework (Macintosh and Whyte 2008; Whyte et al. 2005) was formed to evaluate the 'UK Local eDemocracy National Project', which aimed to investigate new channels of participation. A range of new or enhanced tools and techniques to encourage participation, ensure the inclusion of particular groups, research public opinion, develop marketing techniques, etc., were to be delivered to the local authorities. The project overall funding was £4.5 million, and it was managed by local authorities.

In order to develop a proper evaluation method, a thorough understanding of the objectives of the project is needed. The 'democratic criteria' that the project had defined were used as a democratic evaluation perspective: representation, engagement, transparency, conflict and consensus, political equality and community control. The project's main objectives were transformed in project perspective criteria: engaging with a wider audience, obtaining better informed opinions, enabling more in-depth consultation, cost-effective analysis of contributions and providing feedback to citizens.

Additionally, a group of socio-technical criteria included aspects of usability, usefulness and acceptability. This evaluation framework followed a specific path: suitable actors were targeted: citizens who had used the eDemocracy tools of the project, citizens who had not used the tools, local councillors involved in the engagement process, 'internal' users such as moderators and administrators, engagement owners and project managers/technologists. A proper range of methods was used: semi-structured interviews, field tests of the tools, online questionnaires, project documentation, results of online discussions and Web server log files. The 'key dimensions' of eParticipation were adopted from previous work

to help characterise eParticipation initiatives, quality criteria, application of the evaluation framework and feedback of the results.

The application of the above-mentioned framework resulted in an assessment that was considered fair by participants. An important conclusion was that, practically, local authorities are still relying on questionnaires that take into account subjective user satisfaction level in order to assess the enhancement of local democracy eParticipation. In addition, more consideration needs to be placed on when and how to use tools in order to enhance democracy. The development of citizen-friendly tools is important but not enough to ensure enhanced participation. Finally, further development can be made, especially on how to combine tools to enable inclusive engagement.

3.2.1.2 Scotland eParticipation Initiatives Evaluation Framework

This framework (Tait 2008) was used to evaluate the use of eParticipation initiatives in Scotland. As part of the general reforms of local government in the UK, Scottish local authorities adopted a range of initiatives for involving and empowering citizens in the policymaking. The main aims of the initiatives were the improvement of service delivery, growing greater public confidence, attempting to overcome the problem of the ‘democratic deficit’ that is evident from low turnout figures for elections. Additionally, this specific research also aimed to make a contribution to developing evaluation criteria for analysing eParticipation initiatives.

As a first step of the methodology, relative data were collected, in two phases: implementation of a benchmarking study of the 32 local authority Web sites in Scotland to conduct an analysis of the Web sites and determine the extent to which eParticipation tools are being used, and conduction of telephone interviews with officers in Scottish local authorities to find out about eParticipation initiatives. To achieve an ideal framework for the evaluation, an interpretation of already existing criteria was made: effective participation, enlightened understanding, equality in voting, control of the agenda and inclusion of adults. Using the above-mentioned criteria, eParticipation initiatives that were discussed by participants were evaluated. It is recognised that details were based on self-reporting by participants because it was not possible to get the required information through any other means.

The majority of the initiatives met the criteria for ‘effective participation’. The same conclusion was made on the criteria for ‘enlightened understanding’. On the contrary, it was figured out that very few of the initiatives allowed the public to exercise ‘control over the agenda’. The criteria for ‘inclusion of adults’ were met, due to the fact that the initiatives were coupled with offline equivalents. If the ‘e’ method was the only alternative, the respondents indicated that there were processes in place to assist people who had difficulties with technology. The findings of the evaluation showed that eParticipation methods are being used to a very limited extent in Scottish local authorities. The most commonly used method is online questionnaires but in most cases not regularly. The findings also showed that eParticipation does not form a significant part of consultation strategy in the Scottish local authorities and is always used in conjunction with other methods. Finally, it was made clear that responders believe that eParticipation is a more

convenient way for people to participate than ‘traditional’ forms of consultation and could also have positive benefits for the local authority, although it could facilitate higher response rates.

3.2.1.3 Evaluation Framework for European Commission Co-Funded Projects (DEMO-Net)

This evaluation template (Tambouris et al. 2007) has been used to assess almost 20 European Commission co-funded projects (e.g. AGORA2000,¹ AVANTI,² CYBERVOTE,³ EURO-CITI,⁴ QUALEG,⁵ WEBOCRACY⁶), which have a strong eParticipation angle. The work was carried out in the framework of DEMO-net⁷ project, which lasted for 4 years (2005–2009), and aimed to strengthen scientific, technological and social research excellence in eParticipation across Europe. The project was funded by the European Commission under the IST programme of the Sixth Framework Programme for research and development.

The methodology that was used to conduct the evaluation framework contains the following steps: determination of the main areas of participation in the democratic process (all traditional participation areas, without caring about any ICT support), and for each participation area, determination of the relevant ICT support in terms of tool categories and technologies. The use of these tools and technologies in the domain of participation will actually constitute what we term as eParticipation.

The developed framework suggests that there are three main layers of analysis: participation areas have to do with the specific area or areas of citizen engagement and involvement in the democratic process; as tools, they defined the software applications, products, components, etc., that can be used in an eParticipation project. These tools can be separated in different categories, such as Web portals, search engines, chat rooms and wikis. eParticipation tools can be based on several technologies (e-mail, instant messaging, file sharing, semantic Web technology, security protocols, ontological engineering, etc.).

The next step would be to introduce an assessment template. This template consists of many separate fields such as:

- tool category (e.g. Web portal, wiki, online survey tool);
- level of participation assessed: the International Association for Public Participation (IAP2)⁸ participation spectrum was adopted to accommodate five

¹ http://cordis.europa.eu/fetch?CALLER=PROJ_ICT_TEMP&ACTION=D&DOC=18&CAT=-PROJ&QUERY=01326b2c3cc7:e73d:25a9bdca&RCN=52651. Accessed 20 Sep 2011.

² http://cordis.europa.eu/fetch?CALLER=PROJ_ICT_TEMP&ACTION=D&CAT=PROJ&RCN=57463. Accessed 20 Sep 2011.

³ http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_RCN=4850479. Accessed 20 Sep 2011.

⁴ <http://www.demo-net.org/what-is-it-about/projects/projects/european-cities-platform-for-online-transaction-services-euro-citi>. Accessed 20 Sep 2011.

⁵ http://www.qualeg.eupm.net/my_spip/index.php. Accessed 20 Sep 2011.

⁶ <http://www.webocrat.sk/webocrat/index.jsp?id=2>. Accessed 20 Sep 2011.

⁷ <http://www.demo-net.org/>. Accessed 20 Sep 2011.

eParticipation levels (eInforming, eConsulting, eInvolving, eCollaborating, eEmpowerment);

- stages in the policymaking process: stages in the policy life cycle that the tool is associated with are recorded;
- technology categories used: e-mail, instant messaging, file sharing, RSS syndication, streaming media technologies, semantic Web technology, security protocols, data mining, etc.;
- actors: both actors that benefit from using the tool and those that are responsible or moderating/administrating the tool (expert administrators, elected representatives, professional stakeholders, lay stakeholders, randomly selected recruits, non-randomly selected recruits, self-selected participants);
- rules of usage: information on what personal information will be gathered as well as to what citizens are allowed to do while using each tool.

The early results of the assessment showed that research projects are currently more focused on one-way information provision and opinion polling. In addition, it is shown that certain participation aspects (community building, campaigning, electioneering, etc.) seem to be neglected.

As far as the framework itself is concerned, the assessment starts at the project level and mainly investigates the participation area supported, the participation methods employed and the ICT areas that are used within the project. Using the proposed framework, any project that has a strong eParticipation angle can be assessed.

3.2.1.4 MOMENTUM eParticipation Projects Evaluation Methodology

MOMENTUM⁸ aimed to coordinate and support the existing and ongoing eParticipation projects co-funded by the European Commission (EC) under the eParticipation Preparatory Action. The main aims of MOMENTUM were to consolidate the results of the monitored eParticipation projects, to provide feedback to these projects and to the respective EC bodies, and to disseminate results to other designated stakeholders, in order to advance high-level political and institutional engagement. MOMENTUM's evaluation methodology aims at answering the evaluation question of its contractor, the European Commission, as explicit and comprehensible as possible.

First step was to identify commonalities of the eParticipation projects. Second step was to define the assets to be assessed. The four assets identified were tools and technologies, the process supported, topics discussed and policies supported.

The assets of the platform and their interrelations built the framework of MOMENTUM's evaluation methodology. For the development of the evaluation method, a two-part approach was chosen: a self-assessment by people engaged in the projects who will assess the impact of the project they are involved in and an external evaluation by target users and experts in the field. Besides the self-assessment part of the MOMENTUM evaluation methodology, the evaluation

⁸ <http://www.ep-momentum.eu/>. Accessed 10 Sep 2011.

methodology for external assessment was also two-parted—one questionnaire that addresses the end user and another questionnaire for experts that work on the field of eParticipation. In addition, the hypotheses test for reaching out widely and keeping sustainable interest of the end users in order to assess the general impact of the eParticipation projects. Then the hypotheses were more precisely directed to the key criteria identified: tools and technology: ICT deployed in the field of and used for participation; processes supported: different stages within the legislation process; topic tackled: different topics processed in the legislation process; and policy supported: different policies in the field of and addressed to participation.

In view of the fact that the trial projects started at different points in time, an exhaustive impact evaluation was not possible. In the centre of the impact analysis was sustainability. An agreement among the actors in the field of eParticipation about the prioritised directions in which it is important to move to ensure sustainability is needed. Democracy in Europe is dealing with increasing amounts of complexity. Besides, the occurrences of new working fields, as well as the progressive enlargement of the European Union and its institutions, challenge democracy and give evidence to the need for new approaches and channels to democracy and participation. Governments must deal with these kinds of complexity by understanding its own issues of complexity thereby improving the overall efficiency and effectiveness of democracy and participation, as well as satisfaction of all parties concerned and affected.

3.2.2 Tools and Models for Technology Adoption

3.2.2.1 Tools

Some of the most popular tools used in collecting data for eParticipation evaluation methodologies are the following:

- Web analytics: Web analytics tools provide measurement, collection, analysis and reporting of Internet data.⁹ Web log analysis software parses a log file from a Web server and extracts indicators about the Web server traffic.
- Usability testing: Usability testing¹⁰ is a technique that performs evaluation of product/system through testing it on users. The indicators measured and tested are mostly the following: goals performance, which includes time and stages required by users in order to perform some tasks in the evaluated system; accuracy, which refers to the number of errors that users make and whether they are recoverable with the right information; recall, which measures the amount of knowledge concerning system use that a person remembers after a period of non-use and emotional response, which focuses on person feelings about completed tasks and whether he would recommend the system to a friend.

⁹ http://en.wikipedia.org/wiki/Web_analytics. Accessed 10 Sep 2011.

¹⁰ http://en.wikipedia.org/wiki/Usability_testing. Accessed 10 Sep 2011.

- **Structured questionnaires:** They include a list of standard questions, and they constitute means of collecting data for statistical surveys. They are used mostly in quantitative research, and they include a standard set of questions in a standard order.
- **Interviews:** This technique is used to collect qualitative data by setting up an interview that provides the respondent time to talk about his point of view on a particular issue. The focus of the interview is determined by the interviewer, and the objective is to understand the respondent's point of view rather than make generalisations about behaviour.

3.2.2.2 Models for Technology Adoption

A crucial issue arising in the field of information system technology adoption is to determine people's attitude (whether they will accept and use it or not) towards the system. Some of the models that have been conceptualised in order to address this issue are outlined below: the theory of reasoned action (TRA), developed by Martin Fishbein and Icek Ajzen (Fishbein and Ajzen 1975; Ajzen and Fishbein 1980; Hale et al. 2003; Fishbein 1967); the theory of planned behaviour (TPB),¹¹ proposed by Icek Ajzen as an extension of the theory of reasoned action (Eagly and Chaiken 1993; Ajzen 1991); the technology acceptance model (TAM), developed by Fred Davis and Richard Bagozzi (Davis 1989; Davis et al. 1989, Bagozzi et al. 1992); diffusion of innovations (DOI), a theory that investigates the adaptation of an innovation (Rogers 1995; Oldenburg and Glanz 2008); unified theory of acceptance and use of technology (UTAUT), a technology acceptance model developed by Venkatesh and others (Venkatesh et al. 2003; Davis 1989); and the SERVQUAL approach,¹² an evaluation method that focuses at the quality of services in regard to user satisfaction (Buttle 1996).

3.3 The Proposed Methodology for the Evaluation of ePetitions

The new evaluation framework formulated combines many aspects of well-known theories, methodologies and approaches of eParticipation evaluation techniques and adds some important elements to them, in order to formulate a more complete ePetition evaluation methodology. The use of properly formulated tools (that will be presented later on) referring to the ePetition procedure [e.g. questionnaires for ePetitions, usability assessment of the ePetitioning platform, properly selected key performance indicators (KPIs)] forms an ePetition specialised evaluation methodology.

¹¹ http://en.wikipedia.org/wiki/Theory_of_planned_behavior. Accessed 10 Sep 2011.

¹² <http://en.wikipedia.org/wiki/SERVQUAL>. Accessed 10 Sep 2011.

This evaluation methodology makes use of both qualitative and quantified criteria and indicators in order to end up to the final assessment of an ePetitioning platform. Interrelations between these indicators are created so as to provide an in-depth picture and analysis of the project outcomes, through a suitably customised instance of UTAUT model. The latter could include the following components: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioural intention, previous experience, educational level and occupation relevance.

A main characteristic of the methodology is that it involves the majority of all possible stakeholders that may participate in an ePetition process and platform implementation, ranging from the ones that contributed to the specification of the platform's requirements to those that were the real users and contributors to the platform.

Based on the information presented above, the methodology takes advantage of a set of tools for gathering the appropriate and necessary data and approaching the various stakeholders that are external to the project team. For this purpose, specific ways are used, either structured questionnaires and interviews or Web analytics and usability tests. Thus, the methodology investigates and evaluates the several outcomes and results of the possible ePetition in a threefold way: political, social and technical. In addition, the evaluation is accompanied with the overall ePetition assessment which is an internal procedure among the ePetition's stakeholders and will conclude on important conclusions concerning the success of the initiative in terms of results vs. initial ePetition objectives.

Figure 3.1 presents in a graphical way the evaluation methodology, which is analysed in the following lines:

Step 1. The methodology requires important amount of data that is going to be gathered in two distinct phases, externally and internally, according to the nature of the involved stakeholders. External stakeholders can be constituted by members of the target groups that will be approached in order to participate in the ePetition process. This group of stakeholders may indicatively include citizens (the most populated and directly interested stakeholder group); MPs, MEPs and other governmental officials (this group is important due to the fact that they will possibly implement the ePetition request); NGOs (these organisations have to power to influence officials, so they are considered as important); journalists (this target group can disseminate and bring to the front any social, environmental or political issue); experts from the scientific community (experts' opinion are given particular attention in most of the cases, as they build on their experience); and representatives of the Web community (especially Web 2.0 technologies' practitioners, as Web 2.0 gains strength nowadays).

Concerning the tools that are going to be used in order for the necessary data to be gathered, the following methods have been chosen.

Web log files: The main indicators that will be used as evaluation data from the Web log files are number of visits identifying the most 'popular' days and rush hours, most viewed pages and visitors' countries.

General questionnaire: A questionnaire should be suitably formulated in order to fulfil the needs of the technology acceptance model of the evaluation methodology.

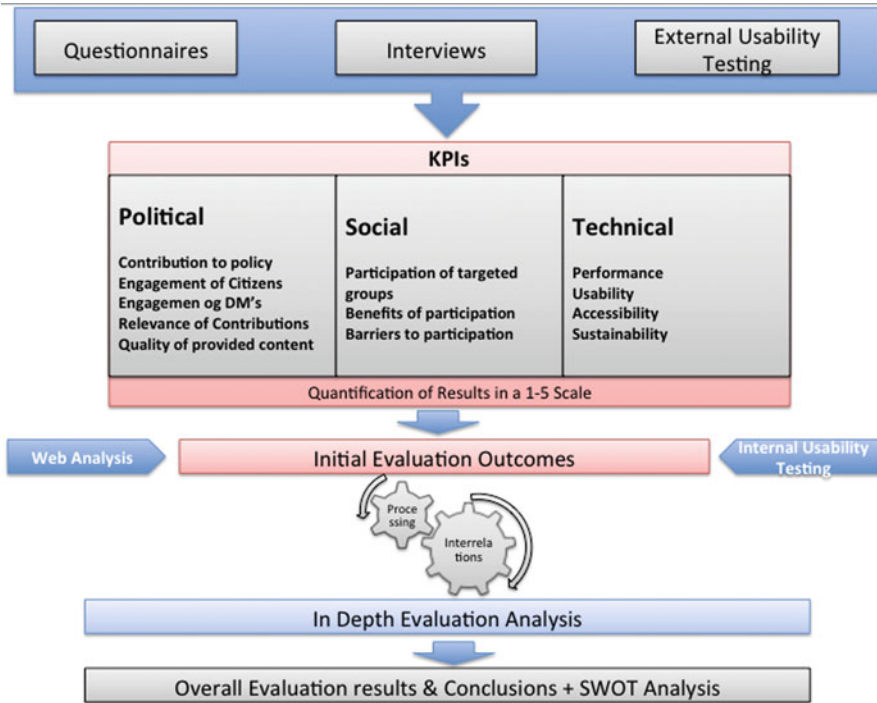


Fig. 3.1 Evaluation framework

It should indicatively include three sections: the first one focusing on personal questions dealing with users' background, the second section including the main constructs of the acceptance model adopted in the evaluation methodology and the last one leaving an open question which provides respondents space to state and underline any weakness of the platform. The questionnaire should be available online throughout the whole duration of the ePetitioning process and will be the final step of the ePetitioning process (Table 3.1).

Interviews: Interviews aim at identifying and evaluating the outcome of platform operation via political perspective, as the interviewees can be properly selected for this reason (e.g. decision-/policymakers). The interviews will focus on the strong and weak points of the eParticipation process followed, the impact of the ePetitioning platform operation to the policymaking procedure, and on supplementary actions that will improve the whole process.

Questionnaire for stakeholders: During the execution phase, a proper questionnaire should be created in order to refer to the stakeholders involved to the ePetition process. Thus, properly selected domain experts will be asked to provide their opinions on issues that have to do with the contribution of the specific ePetition to the relevant policies; the added value that the specific ePetition has over the existing eParticipation initiatives; the technical characteristics of the platform; the benefits that spring out of

Table 3.1 Acceptance model questionnaire

Personal questions (scale 1–5)	
Previous experience (PRE)	Your level of experience in contributing in eParticipation platforms. 1. None, 2. Just a few times, 3. On a monthly basis, 4. On a weekly basis, 5. Very often—almost every day
Education level (E)	1. None, 2. Primary, 3. Secondary, 4. Degree, 5. Post-graduate
Occupation relevance (O)	At which grade is your occupation related to the subject of the ePetition?
Structured questions on eMPOWER platform (scale 1–5)	
Performance expectancy (PE)	Do you prefer to use this platform over other electronic or not ways of submitting petitions?
Effort expectancy (EE)	Did you find it easy to register, use the platform and contact with the administration team for any error occurring?
Social influence (SI)	Do you think that the society will benefit in terms of facing the problems set for ePetitioning?
Facilitating conditions (FC)	Do you consider the provided material enough in order to be able to contribute in the discussions and the petitions and compatible with the local legislations?
Behavioural intention (BI)	Do you intend to submit petitions in the future through this specific platform?
Open question	
Do you have any suggestion in order to improve the services provided?	

the process; the barriers against a successful decision-making process through ePetitioning; etc. The questionnaire should be available online and should be used either for direct filling-in or as a plan for interviews.

Usability testing: Usability testing is a complex process that is going to be conducted through a two-way approach: external usability testing that will take place either through direct tests conducted by experts that will be approached in order to participate in the ePetitioning process or through the answers given by citizens in the online questionnaires, concerning the platform's performance, usability and ease of use, and internal usability testing, conducted by the ePetition platform administrators/owners with the use of supportive tools for the assessment of the platform's performance, usability, accessibility and service suitability.

Table 3.2 correlates the possible stakeholders involved in the overall evaluation, with the instruments that will be used for gathering the required data.

Step 2. Estimation of KPIs for evaluation following an in-depth analysis of KPIs for the evaluation of the ePetitioning platform and project, and based on the aforementioned categorisation of evaluation aspects, the methodology defines a set of indicators that are presented in Table 3.3.

Some of the indicators, due to their nature, offer directly quantitative data that can be easily processed within the evaluation methodology. On the other hand, the methodology can use an assessment scoring scale (e.g. from 1 to 5) in order to quantify the qualitative data that will come up from interviews or questionnaires for the stakeholders. The proposed scale is presented in Table 3.4.

Table 3.2 Correlation between stakeholders and instruments

Stakeholder	Data gathering instrument
Journalists	Questionnaire for stakeholders, interviews
MPs, MEPs, governmental officials	Interviews
NGOs	Questionnaire for stakeholders, interviews
Domain experts—scientific community	Structured questionnaire, external usability testing
Web community	Structured questionnaire, external usability testing
Citizens	Structured questionnaire, external usability testing
Administrators/owners	Internal usability testing, Web log files

Table 3.3 Indicators

Evaluation aspect	Issue addressed	Indicators
Political	Effective and transparent contribution to decision-making	Added value in comparison with existing initiatives in the domain of eParticipation
	Engagement of the community affected	Policies that are affected
	Engagement of the responsible decision-makers	Engagement of citizens
	Relevance of contributions	Level of engagement of decision-makers
	Added value for the eParticipation domain	Quality of the provided content Level of feedback received after signing a petition Number of signatures collected Importance of the issue
Social	Engagement of target groups	Level of participation of target groups
	Factors that help or hinder realistic contribution	Benefits springing out of the process
	Sustainability in terms of reusing the platform	Barriers to contribute Sustainability of ePetition
Technical	Usability	Performance expectancy
	Accessibility	Effort expectancy
	Performance	WCAG compliance
	Service suitability	Demographic data

As stated above, the methodology investigates and evaluates the several outcomes and results of an ePetition initiative, taking into consideration three perspectives: political, social and technical. Thus, there is a strong need for the development of evaluation indicators or KPIs that can make use of the data gathered in previous stages and provide answers to the following issues, in a quantified way (Whyte and Macintosh 2003) (Fig. 3.2).

Table 3.4 Quantification of quantitative data

Score	Qualitative
1	Fail—very low
2	Poor—low
3	Good—medium (average)
4	Very good—high
5	Excellent—outstanding

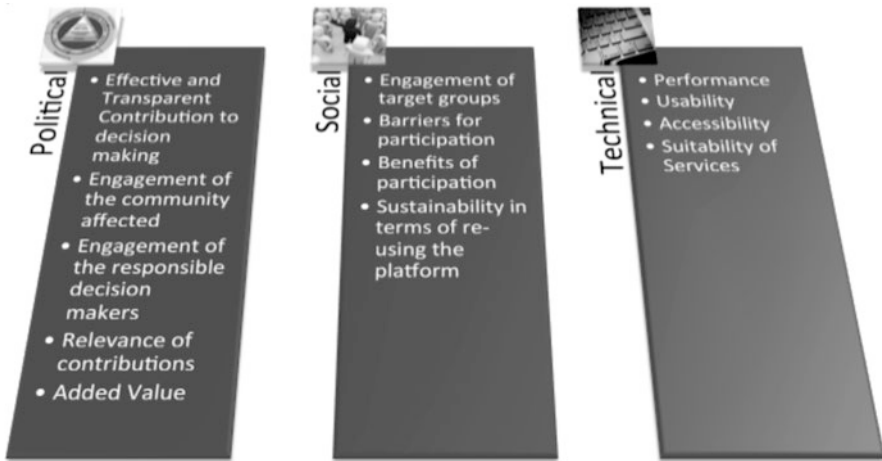


Fig. 3.2 Evaluation aspects

Step 3. Following the analysis of the gathered data, the evaluation methodology intends to investigate the progress of the ePetition against its initial objectives. For this reason, the quantified and qualitative metrics that have been set and presented in the ePetition’s initial steps are used. The comparison that takes place concludes to the grade that these objectives have been fulfilled. The analysis interrelates the ePetition’s progress with the contribution of the ePetition’s administrators in the work performed during the implementation of the initiative as well as with the resources spent throughout the duration of it.

Step 4. The pre-final step of the methodology includes the creation of correlations between the results that have sprung out of the structured online questionnaire, as these are the only elements that can be interrelated between each other. The results for each one of the questions (constructs) of the online questionnaire are presented through visualisation tools (graphs, charts) in order to depict the distribution of respondents’ replies. Then, the data collected are statistically processed so as to provide at first a correlation matrix that portrays the correlation (through Pearson’s coefficient) among all constructs of acceptance model. Several authors have offered guidelines for the interpretation of a correlation coefficient. Cohen (1988) has observed, however, that all such criteria are in some ways arbitrary and should not be observed too strictly. The interpretation of a correlation coefficient depends on the context and purposes.

Next step includes testing of the properly formulated hypotheses, with respect to the ePetition issue. Indicative hypotheses could be the following: performance expectancy affects positively behavioural intention towards the system; social influence affects positively behavioural intention towards the system; educational level affects positively social influence towards the system; etc.

Step 5. The final step of the proposed evaluation methodology is the presentation of the overall evaluation analysis results and the conclusions deriving from it.

3.4 Application of the Proposed Methodology in an FP7 Project

The previously described methodology was applied for the first time in the eMPOWER project.¹³ It aimed to motivate and strengthen the involvement of NGOs and citizens in the decision-making process on environmental issues at a national and European level by providing method and tools for supporting citizens' participation and collection of signatures to promote relevant public initiatives and demands of civil society. The project started on January 1, 2009 and finished on January 2011. Up to January 19, 2011, there were a total of 2,769 signatures gathered in Greece, a total of 2,042 signatures were gathered in Italy and 913 signatures were in Portugal. Additionally, 543 online questionnaires were filled. The answers came mostly from Italy (175 questionnaires), Greece (178 questionnaires) and Portugal (185 questionnaires). The questionnaire consisted of eight quantitative and one open question. The quantitative questions were ranked in a scale from 1 to 5. The results are represented in the following lines (Fig. 3.3).

eMPOWER had to face the small eParticipation systems penetration to the corresponding audience. It can be supported that the project achieved one of its fundamental scopes: inexperienced people were attracted by the eMPOWER initiative and platform and took place in the whole procedure.

Education seems to be considered as a factor that hinders participation. The vast majority of eMPOWER users have obtained university degrees or further education. Thus, the orientation of eParticipation system has to move from complex systems and huge quantity of provided information to more citizen-friendly platforms that are independent from their educational level. The results regarding occupation relevance indicated that in most cases, the occupations of the contributors had nothing to do with policy formation. Environmental issues are of general interest, and citizens of all occupations were engaged in the ePetitioning procedure, even though they might not be domain experts. A high percentage acceptance of the platform was indicated from the indicator performance expectancy. eMPOWER took advantage of its user-friendly platform and, by the combination of massive dissemination effort, achieved high participation figures during the main period of

¹³ <http://www.ep-empower.eu/>. Accessed 5 Sep 2011.

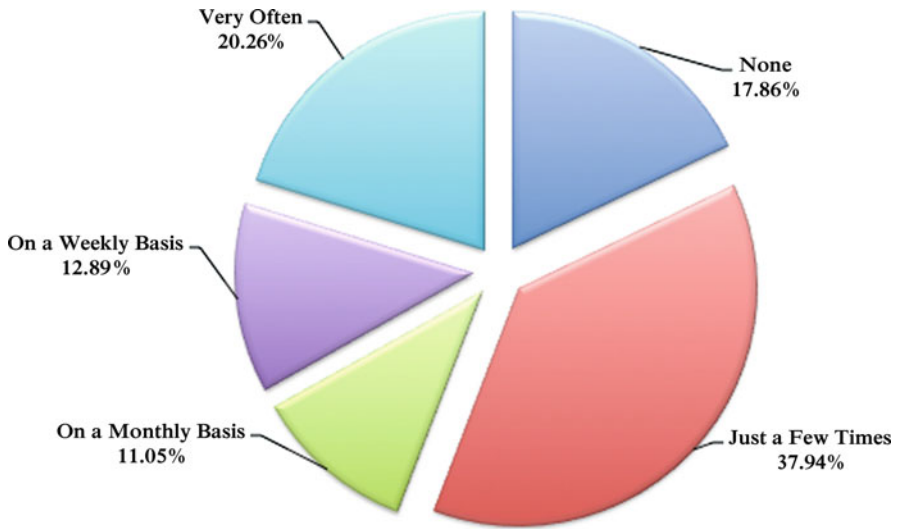


Fig. 3.3 Previous experience

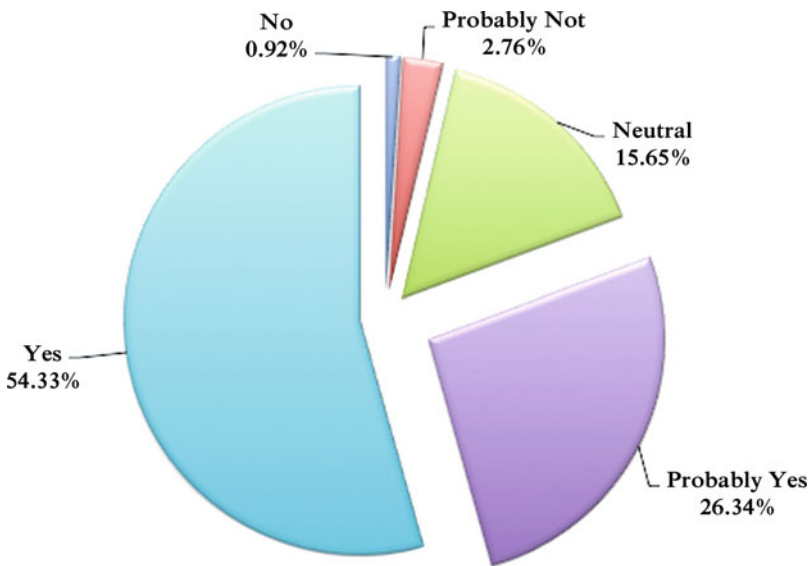


Fig. 3.4 Social influence

its pilot execution phase. Contributors found it easy to register, use and report problems as far as the eMPOWER platform is concerned. Almost half of them rated the indicator effort expectancy with the highest possible rating (5) (Fig. 3.4).

It was highly optimistic that the majority of contributors believe that society in general will benefit in terms of facing the problems set for ePetitioning. The diagram

depicts clearly the attitude and desire of public for more democratic and transparent processes regarding decision-making and politics. Participants believed that the project's Web site provided adequate material in order to be able to contribute in the discussions and the petitions, based on the indicator facilitating conditions. It is also important to mention that participants believed that the ePetitions are compatible with the legislation of their countries. A clearer ePetitioning framework could give further motivation to citizens' participation. Probably, one of the most optimistic results was the fact that 44.94% of the people that answered the questionnaire intended to submit more petitions in the future, through the eMPOWER platform. This result depicts the success of eMPOWER to preserve its engaged users and target the increase of them by approaching the ones that are not yet convinced to participate. These results can also be considered as major contribution for the sustainability of the project. In addition, they can be considered a great success for the eParticipation initiative.

3.4.1 Correlation Among Constructs

As a first step, the gathered data from the questionnaires were processed in order to extract the Pearson's correlations between the constructs. As a second step, linear regression analysis was performed in order to test the following hypotheses (Table 3.5).

The model indicated a strong positive relation between performance expectancy and behavioural intention. On the other hand, hypothesis H1 a, b, c could not be supported. Secondly, the model indicated a positive relation between social influence and behavioural intention. Hypothesis H2 a, b, c could not be supported.

Table 3.5 Hypotheses to be tested

H1	Performance expectancy affects positively behavioural intention towards the system
H1 a, b, c	The above relationship is positively affected by experience, educational level and occupation relevance
H2	Social influence affects positively behavioural intention towards the system
H2 a, b, c	The above relationship is positively affected by experience, educational level and occupation relevance
H3	Effort expectancy affects positively behavioural intention towards the system
H3 a, b, c	The above relationship is positively affected by experience, educational level and occupation relevance
H4	Facilitating conditions affect positively behavioural intention towards the system
H4 a, b, c	The above relationship is positively affected by experience, educational level and occupation relevance
H5	Effort expectancy affects positively social influence towards the system
H5 a, b, c	The above relationship is positively affected by experience, educational level and occupation relevance
H6	Educational level affects positively social influence towards the system
H7	Occupation relevance affects positively social influence towards the system
H8	Previous experience affects positively social influence towards the system

Table 3.6 Results on the support of the hypotheses made

H1	Supported
H1 a, b, c	Not supported
H2	Supported
H2 a, b, c	Not supported
H3	Supported
H3 a, b, c	Not supported
H4	Supported
H4 a, b, c	Not supported
H5	Supported
H5 a, b, c	Not supported
H6	Not supported
H7	Not supported
H8	Supported

As it was shown on the statistical analysis, a strong positive relation between effort expectancy and behavioural intention existed.

The model also indicated a positive relation between occupation and behavioural intention, which supports hypothesis H7. A negative relation between education and behavioural intention and between previous experience and behavioural intention could also be supposed. As a result of this, hypothesis H3 a, b, c could not be supported. In addition, the model indicated a strong positive relation between facilitating conditions and behavioural intention. Hypothesis H4 was supported. On the other hand, hypothesis H4 a, b, c could not be supported. Moreover, it was shown that effort expectancy has a positive effect on social influence.

The model indicated a strong positive relation between previous experience and social influence. Moreover, a positive relation between effort expectancy and social influence is supported. On the other hand, we could not suppose anything on the relation between educational level and social influence and between occupation relevance and social influence. Table 3.6 summarises the results on the support of the abovementioned hypotheses.

3.4.2 Analysis of the KPIs

This section provides an analysis of the KPIs, as they result from the work carried out in the previous steps.

Engagement of citizens: Up to January 20, 2011, there were 11,594 recorded visitors of the project's Web site (8,900 of them unique visitors). The majority of the visitors came from Italy (24.01%) and Greece (58.29%). Almost the total of the visitors (87.55%) came from the three participating countries.

Level of engagement of decision-makers: In Greece, more than 300 decision-makers were contacted. Answered questionnaires were received, and interest was shown to the initiative. Moreover, many decision-makers signed the petitions.

In the same time, members of the European Parliament in Athens, as well as representatives of Greek MPs and MEPs, participated in workshops and events. In Portugal, three representatives of the European Commission office were contacted and answered the eMPOWER questionnaire. In addition, a MEP signed two of the petitions. Finally, in Italy, MPs and MEPs fulfilled the questionnaire and answered to the interviews, and in addition, interviews were conducted.

Quality of the provided content: The majority of the participants thought that the provided content was of a high level (ratings of 4 and 5 were over 68%).

Level of feedback received: After signing a petition, sustainability of the project could be considered as the first type of feedback received. The comments received were mostly positive and indicated that the visitors are highly interested in the project and the way ePetitions were set up and handled.

Number of signatures collected. About 5,750 signatures have been collected in total. Almost 2,800 signatures were gathered in Greece, more than 2,000 in Italy and in Portugal little less than 1,000. Out of every 100 people informed, only three finally sign more than one ePetitions.

Importance of the issue: Taking all the aforementioned input as granted (Web site visits, signatures, press releases, etc.), we could opine that the issue is encountered as important.

Policies that are affected: The results of the project indicated that such an approach could affect policies on eParticipation, human rights and, of course, environmental purposes. Moreover, it was stated that eMPOWER could also contribute in the field of human rights.

Added value in comparison with existing initiatives in the domain of eParticipation: What was well accepted regarding eMPOWER in comparison to other, already implemented, eParticipation initiatives was the interactive nature of the platform, based on blogs, forum and social media and the ease of use (implied by the nature of simple petitions) that resulted in high numbers of participation.

Level of participation of target groups: The participation of the decision-makers as already been evaluated earlier. Secondly, citizens regardless of their occupation, with medium or high educational level, participated in a higher numbers compared to citizens with primary or no education.

Benefits springing out of the process: The large number of citizens (more than 200,000) and decision-makers informed about critical environmental issues and about the capability they have to state their opinion and raise their voice through eParticipation in general and the eMPOWER platform in particular, as well as technological proposals, constituted benefits coming out of the process.

Barriers to contribute: There were a significant number of citizens that found the whole registration process time-consuming and deterrent. In addition, visitors asked for wider and direct dissemination of the project. Finally, some language issues were met. As far as the second visual of this KPI is concerned, initiatives like ePetitions have to be particularly specific and provide all the needed technical aspects in order to be able to directly address to the policymaking procedure. In addition, initiatives in general and petitions in particular have to be in some

way compatible with the general guidelines of national or European administrations.

Sustainability of project: This percentage and respective number indicated that there was a significant number of visitors that are loyal to the Web site and, therefore, the eMPOWER initiative. Nevertheless, the percentage of unique visitors was higher than targeted and expected.

Performance expectancy: A high satisfaction of the users of the platform indicated an optimistic future for the platform was indicated.

Effort expectancy: A percentage of 41.62% have rated this indicator as outstanding, 32.41% have rated the effort expectancy as very good, 18.78% have rated the indicator as average and only 7.19% have rated the indicator with one of the two possible low rates. This fact indicates a highly satisfactory result regarding the effort expectancy of the platform.

WCAG compliance: A number of minor compliance errors appear at the eMPOWER Web site, most of them regarding the presence of flash objects and pop-up windows. Nevertheless, pop-up windows that are mentioned as a minor error are utilised for the dissemination of the project in social media (e.g. Twitter) and are considered valuable to the project.

Demographic data: Most of the visitors came from the three countries that performed the dissemination activities (Italy, Greece, Portugal), as well as almost all of the fulfilled questionnaires.

3.5 Conclusions and Future Research Challenges

After a thorough investigation of already developed eParticipation and ePetition evaluation frameworks, we can conclude that there is a lack of a universal methodology that could be used to assess any ePetition process. Although the current research was carried out in the framework of the eMPOWER project, what was achieved is the development of an evaluation methodology that could be implemented in any ePetition case. The existence of specific and carefully selected KPIs, the use of up-to-date tools for data gathering and the further statistical elaboration of the initial outcomes constitute an approach that could be used to assess almost any ePetition process, regarding the possible pilots, user engagement and dissemination perspective. Although the developed methodology can be used to evaluate a wide range of ePetition cases (as stated above), further elaboration and amelioration of the methodology could be possible, in order to achieve a universal and commonly accepted methodology. As far as the project is concerned, the results of the final evaluation can be considered highly optimistic and encouraging when speaking about the satisfaction of the users of the eMPOWER platform. Citizens and stakeholders in general seem to have a high appreciation of the eMPOWER Web site. Decision-makers have indicated their interest on the project, while dissemination events have a positive effect on the usage of the Web site. Signatures on the open ePetitions seem to have an augmentative tend.

Acknowledgements eMPOWER ‘Empowering citizens to influence the decision making and policy formulation on environmental issues’ was an eParticipation trial project co-funded by the European Commission under the EU eParticipation Preparatory Action. The authors would like to thank the whole eMPOWER consortium for their work and collaboration.

References

- Ajzen I (1991) The theory of planned behavior. *Organ Behav Hum Decis Process* 50:179–211
- Ajzen I, Fishbein M (1980) *Understanding attitudes and predicting social behavior*. Prentice-Hall, Englewood Cliffs, NJ
- Bagozzi RP, Davis FD, Warshaw PR (1992) Development and test of a theory of technological learning and usage. *Hum Relat* 45(7):660–686
- Baringhorst S (2009) Political campaigning in changing media cultures—typological and historical approaches. In: Baringhorst S, Kneip V, Niesyto J (eds) *Political campaigning on the web*. Transaction Publishers, New Brunswick, NJ/London, UK
- Berman J, Mulligan DK (2003) Digital grass roots. Issue advocacy in the age of the internet. In: Anderson DM, Cornfield M (eds) *The civic web, online politics and democratic value*. Rowman & Littlefield, Lanham, MD, pp 77–93
- Buttle F (1996) SERVQUAL: review, critique, research agenda. *Eur J Mark* 30(1):8–31
- Carroll WK, Hackett RA (2006) Democratic media activism through the lens of social movement theory. *Media Cult Soc* 28:83–104
- Cohen J (1988) *Statistical power analysis for the behavioral sciences*, 2nd edn. Lawrence Erlbaum, Hillsdale, NJ
- Dahlberg L, Siapera S (eds) (2006) *Radical democracy and the internet: interrogating theory and practice*. Palgrave Macmillan, New York, NY
- Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q* 13(3):319–340
- Davis FD, Bagozzi RP, Warshaw PR (1989) User acceptance of computer technology: a comparison of two theoretical models. *Manag Sci* 35:982–1003
- Downey J, Fenton N (2003) New media, counter publicity and the public sphere. *New Media Soc* 5:185–202
- Eagly AH, Chaiken S (1993) *The psychology of attitudes*. Harcourt Brace Jovanovich College Publishers, Fort Worth, TX
- Fishbein M (1967) Attitude and the prediction of behavior. In: Fishbein M (ed) *Readings in attitude theory and measurement*. Wiley, New York, pp 477–492
- Fishbein M, Ajzen I (1975) *Belief, attitude, intention, and behavior: an introduction to theory and research*. Addison-Wesley, Reading, MA
- Graber DA (2002) The internet and politics. Emerging perspectives. In: Price ME, Nissenbau HF (eds) *Academy and the internet. Digital formations*, vol 12. Peter Lang, New York, NY, pp 90–119
- Hale JL, Householder BJ, Greene KL (2003) The theory of reasoned action. In: Dillard JP, Pfau M (eds) *The persuasion handbook: developments in theory and practice*. Sage, Thousand Oaks, CA, pp 259–286
- Holtz-Bacha C (2004) Political communication research abroad: Europe. In: Kaid LL (ed) *Handbook of political communication research*. Lawrence Erlbaum, Mahwah, NJ, pp 463–477
- ICELE (2008) *Effective petitioning – the Internet way*, 3rd edn. International Centre of Excellence for Local e-Democracy, Bristol, UK
- Lusoli W, Jankowski NW (eds) (2005) *The World Wide Web and the 2004 European parliament election*. Special Issue, *Information policy*, vol 10
- Macintosh A, Whyte A (2008) Towards an evaluation framework for eParticipation. *Transforming Government People Process Policy* 2(1):16–30

- Mosca L, Santucci D (2009) Petitioning online. The role of e-petitions in web campaigning. In: Baringhorst S, Kneip V, Niesyto J (eds) Political campaigning on the web. Transaction Publishers, New Brunswick, NJ/London, UK
- Oldenburg B, Glanz K (2008) Diffusion of innovations. In: Glanz K, Lewis FM, Rimer B (eds) Health behaviour and health education: theory, research and practice, 4th edn. Jossey-Bass Publishers, San Francisco, CA, pp 313–330
- Rogers EM (1995) Diffusion of innovations, 4th edn. The Free Press, New York
- Seaton J (2005) The Scottish parliament and e-democracy. *Aslib Proc New Inform Perspect* 57(4):333–337
- Tait E (2008) Mapping and evaluating eparticipation in Scottish local authorities. Political Studies Association Conference, Swansea
- Tambouris E, Liotas N, Tarabanis K (2007) Framework for assessing eparticipation projects and tools. In: Proceedings of the 40th Hawaii international conference on system sciences
- Venkatesh V, Morris MG, Davis GB, Davis FD (2003) User acceptance of information technology: toward a unified view. *MIS Q* 27:425–478
- Whyte A, Macintosh A (2003) Analysis and evaluation of e-consultations. *e Serv J* 2(1). e-democracy in practice, Indiana University Press
- Whyte A, Renton A, Macintosh A (2005) e-Petitioning in Kingston and Bristol, evaluation of e-petitioning in the local e-democracy national project. International Teledemocracy Centre, Napier University, Edinburgh

Assessing a Measurement Model for Digital Political Participation: A Multidisciplinary Point of View

4

Stefano De Marco, Mirko Antino, and José Manuel Robles Morales

Abstract

The events of the past year have drawn the attention of public opinion to the importance that the Internet can have for political and social change. Both the so-called Arab Spring and the Icelandic and Spanish new social movements were born and developed on the Internet. These movements are raising questions and arousing interest in the new type of political participation that is emerging through this tool: digital political participation (DPP). Our starting point is that we do not consider DPP as part of the broader concept of traditional political participation, but we consider it as a form of participation in itself. So, it is necessary to create a tool that would allow its measurement in order to understand what the limits and potential of this new phenomenon are. Thus, the objective of this study is to build a statistical tool to measure DPP together with the constructs that influence its implementation.

4.1 Introduction

In the last few years, the Western world has come to know a decline in interest and implication in traditional political participation (Pharr and Putnam 2000). Consequently, academics have tried to figure out if digital political participation (DPP) represents an innovative element, capable of energising and revitalising political space. In general terms, the concept of DPP refers to the political activity which citizens carry out through Internet use (Robles 2008).

S. De Marco (✉) • M. Antino • J.M.R. Morales
Complutense University of Madrid, Campus de Somosaguas, Pozuelo de Alarcón,
28223 Madrid, Spain
e-mail: stefanodemarco@estumail.ucm.es; mirko.antino@estumail.ucm.es;
jmrobles@estumail.ucm.es

The theory that has most influenced academic research in this field is the theory of normalisation, according to which the standard characteristics of the socio-economic and political relations of the real world are moving into the digital field. Therefore, the authors have tried to understand whether or not the Internet opens political space to individuals, collectives and political parties that have traditionally remained on the margin or if, on the contrary, it is just another tool at the disposition of those who already play an active part in the political scene. In this way, the DPP has been considered exclusively as a potential facilitatory element of traditional participation. In this study, we propose a different perspective for the study of DPP: We do not consider this construct as part of traditional political participation, but as a form of participation in itself. The evidence which allows us to develop this perspective is historical, empirical and theoretic.

On a historical level, it is important to note how the recent political events in different European countries, for example, Iceland or Spain, and also countries in Northern Africa attract attention regarding the importance of DPP as a way of promoting social and political change through new forms of participation. In this way, the act of writing commentaries in a political blog or putting photos and video with political content online begins to manifest themselves as actions which could have direct repercussions in the public opinion and in the political agenda of the country (Anduiza et al. 2010).

From an empirical point of view, moreover, the authors have not managed to demonstrate the existence of a convincing relation of influence, neither positive nor negative, between the DPP and traditional participation (Boulianne 2009).

Finally, on a theoretical level, the authors have started to consider the existence of factors that have an exclusive and particular influence on online political participation (Livingstone and Helsper 2007). Among them, for example, are resources of an electronic kind, such as moving electronic stimulants (Best and Krueger 2005). In short, DPP gains importance as a dependent variable, freeing itself from the concept as a facilitating element in traditional political participation.

In the present study, we share this perspective. Our starting point is that DPP represents a type of political participation in itself. Seen this way, research on DPP should be oriented towards the study of who participates in these activities, according to a psycho-sociological focus, or towards the impact of DPP on the political system and media, thus entering a field of research more congenial to political science.

We are interested in the first of these two empirical questions: What values, beliefs, attitudes and political conduct characterise citizens who adopt practices of DPP? For this, we have decided to formulate a measurement model for DPP which also includes the principal factors which influence its functioning. Among them, the typologies of traditional political participation adopted by the subject, their Internet skills, their political attitudes and, finally, the consumption of political information and the reception of mobilising stimuli. First and foremost, we have set out to define, and put into operation to an exhaustive extent, DPP. Secondly, a model has been created which relates this construct with the factors mentioned above. For this,

we have referred to the Spanish case study and the research of the survey ‘Internet and political participation’ (CIS 2007).

4.2 Definition and Operationalisation of the DPP

Recently, the scientific community has paid a lot of attention to the effects of the new information and communication technologies (ICT), mostly, to the Internet in a political context (Castells 2010). We emphasise two important tendencies in the study of this phenomenon in the realm of the social sciences: one is theoretical and the other empirical.

From a theoretical point of view, a number of authors have dealt with the effects of political usage of the Internet in the representative democratic system. It is a ‘top-down’ perspective that has generated considerations on the possible models of eDemocracy that might emerge from the application of the Internet in politics. The above-mentioned models have been organised on the basis of different taxonomies (van Dijk 2000; Hagen 2000). The most important is based on a continuum whose extreme points are, from one hand, actual models that have been implemented in many Western democracies, for example, eGovernment or eAdministration, and, from other hand, more hypothetical models that have not been implemented yet as, for example, direct democracy (Subirats 2002).

The study of different forms of DPP represents the empirical counterpart of this research field. It draws attention to the participative behaviour initiated by the user, also known as ‘digital citizen’, (Robles 2008) online. It is the primary focus of our investigation.

We define DPP as the different types of actions that the digital citizen can take/ implement (Robles 2008). As we lack a theoretical definition of this concept, we will use operational categories to achieve our measurement objectives. The first category includes the defence of political and social rights in relation to public administration or enterprises, together with the carrying out of administrative or bureaucratic procedures (Moon 2002). These two initial elements pertain to the eAdministration and are strictly related to the legislation of the government that implements it (van Dijk et al. 2007). In this concrete case, we will stick to the Spanish legislation, which, in 2009, witnessed the promulgation of the Citizens Electronic Access to the Public Services Law (CEAPSL). The chosen items are displayed in Table 4.1. A Likert scale has been used from 0 to 7, 0 being ‘never’ and 7—the other extreme—‘very often’. This arrangement allows us to guarantee a near normal distribution of the results, which turns out to be useful when the implementation of different psychometric analyses is considered. In order to avoid the participants’ memory problems related to the retrieval of information, the question refers to the last 12 months (Zammuner 1998).

Another category of political action includes the forms of DPP that have an offline equivalent, as is the case of political party or association donations, signing petition or contacting representative or political party (Anduiza et al. 2010).

Table 4.1 Digital political participation: construction of the variable

Could you, please, indicate on a scale from 0 to 7 where 0 is 'never' and 7 is 'very often' how many times you have used the Internet in order to do the following in the last 12 months	
Items pertaining to eAdministration	Items related to political actions
Request information from public administration	Contact a political party
Request an appointment at any public administration office	Contact a political representative
Download public administration service applications	Contact an association (NGO, human rights association, fair trade, religious, etc.)
Request documentation (ID card, social security number, labour and birth certificates, change of residence, etc.) from public administration	Donate money to a political party
Send public administration service applications	Donate money to an association (NGO, human rights association, fair trade, religious, etc.)
Request resources (scholarships, financial support, etc.)	Sign a petition online
Administer a public employment call	Disseminate social/political information among your e-mail/social network contacts
Statements of income	Disseminate information about a company/enterprise among your e-mail/social network contacts
Complain to the public administration	Disseminate boycott intentions against a company/enterprise among your e-mail/social network contacts
Initiate an appeal against the public administration	Disseminate information about a manifestation among your e-mail/social network contacts
–	Disseminate the link for online petition signing among your e-mail/social network contacts
–	Disseminate or upload a Web page/blog/videos with social/political content
–	Write commentaries in blogs with social/political content
–	Write social/political commentaries in the social network user profile
–	Write commentaries in blogs and Web pages of representatives or political parties
–	Maintain a blog with social/political content
–	Maintain a Web page with social/political content

The third category has to do with the generation or broadcasting of electronic mobilisation stimuli. These can coincide with a call to protest (Nah et al. 2006), giving information about companies or enterprises to be boycotted (Micheletti 2003) or about any other political or social issue (Best and Krueger 2005). Both citizens' organisations and the new social movements use the ICT to boost and amplify their mobilisation potential and resource management (Margolis and Moreno-Riaño 2009).

Finally, the fourth category concerns political interaction among citizens. This facilitates the participation in the process of political decision-making and agenda setting of the government (Meijer et al. 2009). In this sense, Gil de Zúñiga et al. (2010) stress the importance of the specifically communicative nature of the Internet which supports DPP. It allows us to write commentaries online in political blogs, upload videos, maintain a personal Web page with political content or upload political content into the personal pages of social network software. Along the same lines, the blogs of political representatives, as well as the Web sites of political parties, are becoming a place for information and political representation (Farrell and Drezner 2008). These last three categories refer to the most innovative core of DPP (Schlozman et al. 2010). Table 4.1 shows the selected items for the measurement of these three digital political actions. The measurement model coincides with the one of eAdministration.

4.3 Explicative Model of the DPP: Factors of Influence

Although we have defined the variable DPP and given an operational definition, it cannot be fully understood unless we take into account the factors that can influence its undertaking by digital citizens. We will highlight the most relevant factors described in scientific literature in this section.

We will base this work on psycho-sociological models (Valencia 1990; Cohen et al. 2001) which allow us to predict DPP considering both individual and macro and micro social factors.

On an individual level, the primary role of personal attitudes stands out as an explanation of complex behaviour, including political participation (Ajzen 2001). According to Ajzen and Fishbein (2000), we consider attitudes to be an overall evaluation of a psychological object. The evaluation of a determinate object originates in the beliefs we possess about a determinate object (Fishbein and Ajzen 1975). Attitudes can also be political and thus influence the political behaviour of citizens (Crano 1997). Political self-efficacy, trust in institutions, citizenship norms and, finally, psychological implication stand out among the traditionally most investigated political attitudes (Niemi et al. 1991; Sniderman and Grob 1996). It has been demonstrated that all of them have a considerable effect on political participation (Abramson and Aldrich 1982; Verba et al. 1995).

Another individual element is the individual's previous experiences, which is to say, with the subject's previous participation in political activities. This relation is coherent with a new line of investigation which considers DPP something different from traditional participation; thus, it can be influenced by it (Jensen et al. 2007). In fact, different authors are working on this relation, trying to discover how the political atmosphere offline influences the initiation of digital participation practices (Borge and Cardenal 2011). We have considered fairly broad and representative practices of offline political participation. Therefore, we have included traditional practices (Lane 1959) and new forms of political participation (Micheletti 2003).

The third individual element that may possibly have some influence on DPP is political information and media exposure. Various authors stress the importance of the media in their functions as information generators and encouragers of political action (Norris 2001). The use of information on the Internet might have relevant effects on DPP too. According to de Zúñiga et al. (2007), use of the news, together with participation in political discussions, foments diverse ways of digital participation like the use of political blogs. The reception of electronic mobilising stimuli is also important. They facilitate the acquisition of information and the initiation of DPP practices (Best and Krueger 2005).

The fourth individual element we have to consider is the user's digital skills. Said skills can be described in terms of abilities, resources and the level of acceptance of the Internet (Freese et al. 2006; Gurstein 2003; Hoff 2008). Scholars of second-level digital divide have measured the above-mentioned aspects of digital skills in an indirect way through uses and contexts of usage of the Internet (Hargittai and Walejko 2008). The experts in digital skills, among others, have centred their attention on the influence of this variable on the adoption of beneficial advanced Internet uses (BAIU)¹ for net users (Livingstone and Helsper 2007). We will focus our attention on the effects that digital skills have on a concrete type of BAIU: the DPP.

Finally, it is important to analyse the influence on DPP of variables related to micro and macro social levels of interaction of net users. On a micro social level, we are interested in studying the influence of the subject's ideology on DPP (van der Meer et al. 2009). Finally, on a macro social level, we include the resources of the subject (Tilly 1978). In this sense, the variables that have been most popular among researchers are 'socio-economic status' and 'educational level' (Lijphart 1997). The latest studies on DPP expect to find a relation among the individual elements, the micro and macro ones, and this type of political participation too (Tolbert and McNeal 2003; Anduiza et al. 2010). This relation, together with the classical studies on political participation, justifies the incorporation of all those elements in our measurement model.

4.4 Empirical Section: The Construction and Measurement of the Model

In this section, we will present our proposal for the measurement model of DPP. Before doing this, we have checked empirically the suitability of the indicators proposed in the literature. In order to fulfil this task, we have implemented four different factor analyses by using the indicators proposed in the literature for each

¹ When we refer to beneficial advanced Internet uses, we mean the ones that allow us to satisfy concrete individual needs by means of the consecution of concrete 'digital' objectives, offering higher quality of life, preferences and expectation fulfilment to the Internet user (Stafford et al. 2004; Min 2010).

of the aforementioned dimensions. Our aim is to analyse the distribution in underlying categories of the four constructs emphasised by scientific literature. We have chosen the Spanish case for this purpose, accomplishing the task based on data supplied by the study 'Internet and political participation' (CIS 2007).

4.4.1 The Data

The survey 'Internet and political participation' is the first that has collected information on the diffusion and different uses of the Internet in Spain, including the political ones. It also gathered information on traditional political participation. Three thousand seven hundred sixteen participants took part in the study, which constitutes a representative sample of the Spanish society, with adequate representation of both sexes in the age span 18–44.² We reduced the sample to the Internet users, so basing our analysis on 2,169 subjects. Our decision was motivated by the intention to control the effect of the access to technology on the factors related to DPP (DiMaggio et al. 2001).

4.4.2 Analysis

Four exploratory factor analyses have been applied including all the variables in the 2,736 study (CIS 2007) pertaining to political participation offline, use of political information, political attitude and digital skills. This procedure has allowed us to condense the information about the variables that contribute to these constructs and, on the other hand, to understand which are dimensions that compose them.

This allows us to define with more precision the items that should be included in our measurement tool. In order to make the understanding of the results more straightforward, we will present the results separately for each of the four dimensions. First, we will discuss each of the analysed variables. Then, we will see how they are distributed among the different factors, allowing us to discuss the similarities and the differences compared to previous studies. The results of the factor analysis represent our proposal for a measurement tool.

Before we proceed, we should warn the reader that due to the nature of the phenomena being researched, some of the variables included in the 2,736 survey are dichotomous or categorical. This might generate problems when factor analysis is applied (Lewis-Beck 1994); thus, we have decided to use only those methods of factor extraction that do not require multinormal data distribution, for example, the

²Multiphase cluster sampling. Non-stratified sample. The use of the sample has required weighting. There are three reference populations: national, Andalusia and youth between the ages of 18 and 44. For a 95.5% statistical level of confidence (two sigmas), and $P = Q$, the real error is $\pm 1.64\%$ for the whole sample and on the assumption of simple random sampling (CIS 2007).

principal components method (Lawley and Maxwell 1962) and the unweighted least square. The chosen rotation method was Varimax.³ The criterion we used to select the factors was the parallel test, a little bit more parsimonious than the Keiser rule (Browne 1968; Cliff 1988; Linn 1968).

4.4.3 Results

4.4.3.1 Traditional Participation

We have collected the 12 variables of the 2,736 study (CIS 2007) that measure different aspects of participation offline. These variables are related to four main types of participation offline described in the literature on the topic.

Firstly, there are indicators of the activities related to the election process. These are voting, attending political meetings or political party membership (Lane 1959; Milbrath 1977). The second group of indicators has to do with the citizens' institutionalised activities that are not directly related to the right to vote (Verba et al. 1987). Examples of these types of activities which form part of the 2,736 study (CIS 2007) are active participation in a labour union, active participation in a business association, being a member of a pacifist or environmental organisation and being a member of an association on a volunteer basis, for example, an owners' association. Thirdly, we have collected the data on the indicators that have to do with 'traditional' non-conventional political practices such as protests or boycotts (Barnes et al. 1979). Finally, we have collected the data on the indicators pertaining to non-conventional activities apart from globalisation, for example, consumerism (Micheletti 2003).

The results from the factor analysis indicate that the four dimensions described in literature on the subject are reduced to three. The first one has been interpreted as new forms of non-conventional offline political participation due to the fact that this factor includes consumerism practices (Micheletti 2003) as well as practices of new social movements (Laraña et al. 1994). The second factor has been named non-conventional offline political participation because it includes all the political activities unrelated to institutional processes (Barnes et al. 1979).⁴ Political practices related to election campaigns, or to some kind of institution or political, social or economic organisation, have influenced the third factor

³ In each of the analyses, the sample adjustment index KMO has a near one value. This shows us that the partial correlations among the variables are small enough to allow for the factor analysis. Moreover, the determinants of the matrix correlations are low enough to be able to indicate intercorrelation among the variables introduced in the analysis. Finally, all Bartlett's sphericity tests were significant. This fact excludes the possibility to have correlation matrixes similar to the identity matrix among the variables.

⁴ Labour union membership as a promoter of protest activities is compatible with the construct. Moreover, its weight in the second factor is very low.

Table 4.2 Loadings of the items of offline political participation factor analysis

Variables	Component		
	1	2	3
Purchasing certain products for political reasons	0.822	–	–
Ceasing to purchase or boycotting certain products for political reasons	0.821	–	–
Membership/participation in a pacifist, environmental, fair trade, human rights association	0.479	–	–
Taking part in a strike	–	0.759	–
Taking part in illegal protest activities (squatting)	–	0.669	–
Attending a demonstration	–	0.636	–
Membership/active participation in a trade union	–	0.403	–
Membership/active participation in a political party	–	–	0.636
Membership/active participation in another type of voluntary association (owners' association)	–	–	0.540
Attending a political meeting	–	–	0.523
Membership/active participation in a professional society or business association	–	–	0.520
Participation in the last elections	–	–	0.478
Abstention as means of protest	–	–	–0.293

(Verba and Nie 1972). This is the reason why it has been named conventional offline political participation (Table 4.2).

4.4.3.2 Digital Skills

Scientific literature recommends indirect indexes that measure the uses and the contexts of usage of the Internet as part of the construct of digital skills (Hargittai and Walejko 2008). The variety of uses of the Internet has been interpreted by some authors as an indicator of Internet proficiency (Krueger 2002; Best and Krueger 2005). Therefore, Krueger (2002) created an index composed of six items that measured six different actions that could be performed online: creating a Web page, bookmarking a Web page, searching for news on the Internet, sending an attachment by e-mail, sending a secure e-mail and using electronic signature by e-mail. Subsequently, Best and Krueger (2005) synthesised this index, abbreviating it to four items. We added two additional Internet uses that are not included in the Krueger index (2002), which are eCommerce and eBanking.

The context of Internet usage would allow measuring the level of appropriation of this tool by the users (Hargittai 2010). According to the authors, the more you use the Internet, the better you use this tool (Howard et al. 2001). In the same line of reasoning, the more frequent the connection, the more versatile the use (Peter and Valkenburg 2006). It has also been demonstrated that using a large number of connection locations, not only the one at work, is related to higher levels of autonomous usage (Hassani 2006). Finally, according to Goss and Phillips (2002), the need to use Internet at work positively affects the level of competency of users.

Table 4.3 Factor analysis loading for the items of the digital skills

Variables	Component	
	1	2
How long you have been using the Internet	0.696	–
Computer knowledge necessary to work	0.690	–
Financial tasks	0.629	–
Number of connection locations	0.575	–
Connection frequency	0.558	–
Buying a product or a service	0.505	–
Participation in chats	–	0.652
Downloading files	–	0.636
Browsing the net without an objective	–	0.613
Using e-mail	–	0.456
Maintaining a blog or Web page	–	0.413
Phone calling via Internet	–	0.354
Looking for information	–	0.195

The results derived from the factor analysis are presented in Table 4.3. The analysis has preserved the two dimension division of the construct of digital skills. The first factor binds together the variables that measure the contexts of usage and indicate high levels of acceptance of the tool by the Internet users, autonomy of use and, finally, versatile use.

‘Financial tasks’ and ‘buying a product or a service’ are also part of this factor, even if they refer to Internet uses. This is due to the fact that these types of uses indicate a high level of trust in the Internet (Udo 2001; Mutz 2005). According to Howard et al. (2001), all these indicators, the contexts of use together with eBanking and eCommerce, allow us to create a typology of Internet users, called Netizens, based on their expertise. They have been using the Internet for more than 3 years. They connect daily from different places, not only from their workplace. This is the reason why we called this factor Internet expertise.

The second factor includes the rest of the indicators of a variety of Internet uses. As we mentioned earlier, these represent a measure of Internet proficiency. No distinction has been observed between information uses and recreation uses due to the different levels of proficiency (van Dijk 2006). Thus, the second factor has been called Internet proficiency. Due to the same reasons as the ones exposed when the first factor was being described, we consider that the absence of eBanking and eCommerce among the variety of uses is coherent with the factor interpretation as ‘Internet proficiency’.

4.4.3.3 Attitudes

Trust in the institutions has been defined as the citizens’ belief that political institutions will fulfil their function correctly even when their performance is not permanently controlled (Citrin and Muste 1999). Therefore, this theoretical construct would be a mirror image of the general feelings of the citizens for the

institutions of their country (Newton and Norris 2000), furthermore, a question of trust. In different empirical works (Bonet et al. 2006; Montero et al. 2008), the trust in the political institutions is associated with the attitudes towards the democratic regime. The latter is composed by indicators of the level of satisfaction with democracy and the central government.

Dalton defines citizenship norms as ‘the whole number of shared expectations for the role of citizens in politics’ (2008, p 78). Three different types of citizenship norms are described in scientific literature. The first one is based on the elitist model and corresponds to law abidingness (Almond and Verba 1963). The second one is based on deliberation and criticism (Kymlicka and Norman 2000) and the third one on solidarity (Conover et al. 2002). Nevertheless, according to Denters et al. (2007), on an individual level, all these dimensions do not generate divisions in the general construct of citizenship norms.

The last series of political attitudes described in scientific literature has to do with citizens’ personal implication or psychological involvement. It coincides with the citizens’ interest in politics and public issues (Milbrath 1977). It also has to do with the involvement of the citizens in conversations about politics or political issues, as well as their efforts to convince the rest, to make them share their personal point of view on politics (Verba et al. 1995). According to Ferrer et al. (2006), this construct is related to the dimension ‘internal political efficiency’. By all means, empirical literature highlights that this attitude is the one that most influences active political participation (Orum 1989).

All these variables have been included in the factor analysis. The results indicate the presence of three factors. The first factor includes all the above-mentioned variables described as part of the construct institutional confidence. All the variables that measure citizenship norms contribute to the second factor without further division among sub-dimensions, as Denters et al. (2007) argued. Finally, the third factor is a result of a combination of the typical implication variables and the internal self-efficiency, this is to say ‘Politics is difficult to understand’ and ‘I am better informed than the rest’. These results go in line with the hypothesis of Ferrer et al. (2006). As a consequence, this factor has been interpreted as psychological implication in politics. The factor analysis has excluded the extreme self-efficiency items because they were not sufficiently informative (Table 4.4).

4.4.3.4 Media and Political Information Exposure

We decided to include, apart from examples of traditional media like newspapers, radio or TV, the political information that citizens receive through e-mails. The relevance of these sources of information becomes evident if we consider that they include electronic mobilising stimuli. As we have mentioned before, it has been demonstrated that a clear bond exists between them and the DPP (Best and Krueger 2005; Gibson et al. 2005). We have also considered the Internet as a political information tool, either by using the Web sites of political parties or by looking for information through other channels. This type of information is essential to achieve a complete and plural vision of how Internet users get information on

Table 4.4 Factor analysis loading for the attitudes items

Variables	Component		
	1	2	3
How much do you trust the central government	0.840	–	–
How much do you trust political parties	0.716	–	–
How much do you trust labour unions	0.682	–	–
How much do you trust councils	0.645	–	–
Level of satisfaction with the labour of the central government	0.619	–	–
Level of satisfaction with the democratic functioning in Spain	0.569	–	–
How much do you trust the media	0.515	–	–
How much do you trust NGOs	0.421	–	–
How important it is to abide law in order to be a good citizen	–	0.790	–
How important it is to avoid taxes in order to be a good citizen	–	0.755	–
How important it is to vote in order to be a good citizen	–	0.511	–
How important it is to think about the rest in order to be a good citizen	–	0.393	–
How important it is to have a personal opinion in order to be a good citizen	–	0.391	–
Interest in politics	–	–	0.833
How often you talk about politics	–	–	0.808
Trying to convince the rest/make them share your personal point of view	–	–	0.558
I am better informed about politics than the rest	–	–	0.514
Politics is difficult to understand	–	–	–0.470

Table 4.5 Factor analysis loadings for media and political information exposure

Variables	Component	
	1	2
Have received an e-mail inviting you to attend a manifestation/sitting/or another activity of protest	0.780	–
Have received an e-mail with a manifest/electronic petition	0.777	–
Have received an e-mail on any current issue or call	0.744	–
Have received an e-mail with some criticism on a political party or a politician	0.738	–
Have received an e-mail in support to a candidate or a party	0.612	–
Have visited a political party/candidate Web page	0.514	–
Have signed up for a newsletter on a current political issue	0.379	–
Use and frequency of national press	–	0.723
Use and frequency of local press	–	0.692
Use and frequency of free press	–	0.620
Radio/TV news listening/watching	–	0.556
Frequent use of the Internet to get information on current political issues	–	0.490
Use and frequency of international press	–	0.471
Listening/watching programmes that delve deeper into current political issues	–	0.431

political issues (Shah et al. 2005). The results of the factor analysis demonstrate the presence of two main factors, as shown in Table 4.5.

All the variables that influence the first factor are variables related to the political information that the Internet users receive from social groups or from individuals

interested in political questions through e-mail, SMS, etc. Keeping in mind the non-institutional character of this type of information, we call this factor ‘informal sources of political information’.

The second factor combines traditional information habits that imply an active disposition towards information and the use of traditional channels of information. We call this factor, in contrast to the first one, ‘formal sources of political information’. Using the Internet to be informed about political issues also stands out.

Additionally, we propose to add two more variables to the constructs described. Firstly, using the ideological self-positioning (van der Meer et al. 2009) as an indicator of the micro social resources (Tajfel et al. 1984) and, secondly, the socio-economic status (Cohen et al. 2001) as an indicator of the macro social resources.

4.4.4 The Items

As shown in previous subsections, we have used the Spanish case study to check the appropriateness of the indicators that measure the constructs that influence DPP proposed in the literature. We propose to measure each dimension on the basis of the items described in the chapter that deals with the results of the factor analysis. We also propose the introduction of the variable ‘ideological self-positioning’ and ‘socio-economic status’ (Valencia 1990). Those two variables that measure the micro and macro elements, respectively, will turn out to be useful in the segmentation of the results obtained by the application of the model of measurement.

Departing from this point, we would like to add some methodological remarks. In order to measure these constructs and their different composing elements, we suggest the employment of scales with a gradual format. The limits usually vary between 3 and 9, but we suggest a minimum of 5 to guarantee a near normal distribution of the obtained data, a requirement for the application of the extraction methods based on the maximum likelihood (Finney and DiStefano 2006). It is fundamental to count with at least seven items (preferably 10–15). It allows us to consider our tool a measurement scale with various statistical advantages. For example, it allows us to apply methods based on the confirmatory factorial analysis (Brown 2006), as well as item response theory methods, for example, the graded response model (Samejima 1995), which facilitates the study of the probability to obtain a conditional answer in the different categories according to the different grades of DPP (for a deeper insight on the topic, see Martínez Arias et al. 2006).

4.4.5 The Method

The last step in the completion of our trial to measure DPP is to build a final model of measurement that would take into account all the constructs that influence our variable and their interrelations. As it is obvious, our proposal takes into

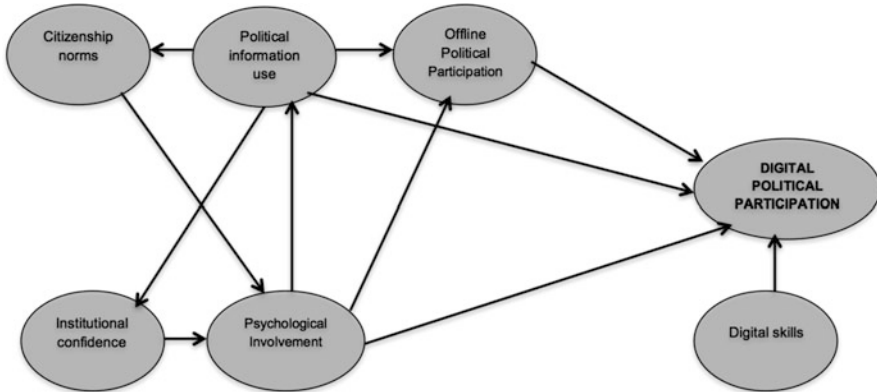


Fig. 4.1 Graphical representation of the investigation model

consideration, apart from the direct relations between each construct and the DPP, the existence of other influential relations.

Firstly, one can see how the variables ‘institutional confidence’ and ‘citizenship norms’ maintain a mediated influence on DPP. Both can be defined in terms of beliefs more than attitudes (Ajzen 2001); thus, it can be deduced that they will have some influence on psychological implications in politics that might be considered an attitude in a stricter sense (Cohen et al. 2001). This one, on the other hand, would influence DPP directly.

Secondly, we propose to study the influence of political attitudes over political participation offline as indicated in scientific literature (Verba and Nie 1972). A mediated relation is also expected in this case.

Finally, we would like to stress the influence of the attitudes on the use of political information and the use of political information on the beliefs that compose the political attitudes, which is to say, the variables institutional confidence and citizenship norms (Bimber et al. 2005) (Fig. 4.1).

Conclusions

In accordance with the recommendations of Martínez Arias et al. (2006), it is important to follow the final steps in order to complete the construction of our tool. Therefore, a pilot study is necessary. A first draft of the instrument to a sample that is similar to the target sample must be applied. It is important to acquire all the information about the cognitive difficulties of the subjects in the process as well as the time spent in order to facilitate the correction of the scale in the next stage.

At a later stage, it is advisable to go through the items. Experts in this field of study should be present, as well as the participants in the pilot study and experts in measurement methods. Statistical analyses to check the item functioning are due in this phase. The objective is to include only the items that guarantee the measurement of the construct in all the sample levels. Then, a second field study

should be implemented. It is necessary to guarantee the equal functioning of the measurement instrument in the different sub-populations where the test would be applied. That is why it is important to study the differential functioning of the items and to maintain only those that have passed different trials successfully.

Finally, it is important to create a test manual. It is essential to explain all the previously described actions, clearly delimiting the theoretical base of the construct, its potential uses, the target population, the application instructions, the index of reliability, the data concerning its fit and validity, suggestions on the possible interpretations of the obtained punctuation and, finally, the calculus and the interpretation of the final score.

In this chapter, we constructed a theoretical model and a measurement instrument for DPP. Our starting point was to consider DPP as a new kind of political participation, not included in the concept of traditional participation. In this sense, we were interested in analysing the determinant factors of DPP. These might allow us to investigate who engages in activities of DPP, what the attitudes are and what opinions and beliefs characterise the online citizen. This kind of research question is more compatible within the psycho-sociological tradition.

On the other hand, our model and our measurement model may also be used for political science studies for understanding the effects on the political system and institutions of this kind of participation. The main aim of this chapter was not to directly deal with these issues; rather, we aim to understand the conduct of the digital citizen. Moreover, we strongly believe that, in order to fully understand the complexity of these phenomena, the integration of both perspectives is highly recommended. In this way, we hope that this work will serve as a stimulus.

References

- Abramson PR, Aldrich JH (1982) The decline of electoral participation in America. *Am Polit Sci Rev* 76(3):502–521
- Ajzen I (2001) Nature and operation of attitudes. *Annu Rev Psychol* 52(1):27–58
- Ajzen I, Fishbein M (2000) Attitudes and the attitude-behavior relation: reasoned and automatic processes. *Eur Rev Soc Psychol* 11(1):1–33
- Almond G, Verba S (1963) *The civic culture: political attitudes and democracy in five countries*. Princeton University Press, Princeton, NJ
- Anduiza E, Cantijoch M, Colombo C, Gallego A, Salcedo J (2010) Los usos políticos de Internet en España. *Revista española de investigaciones Sociológicas* 129(1):133–146
- Barnes SH, Kaase M, Allerbeck KR (1979) *Political action: mass participation in five Western democracies*. Sage, Thousand Oaks, CA
- Best SJ, Krueger BS (2005) Analyzing the representativeness of internet political participation. *Polit Behav* 27(2):183–216
- Bimber B, Flanagin AJ, Stohl C (2005) Reconceptualizing collective action in the contemporary media environment. *Commun Theory* 15(4):365–388
- Bonet E, Martín I, Montero JRG (2006) Las actitudes políticas de los españoles. In: Montero JRG, Font J, Torcal Oriente ME (eds) *Ciudadanos, asociaciones y participación en España*. Centro de Investigaciones Sociológicas, Madrid, pp 105–132

- Borge R, Cardenal AS (2011) Surfing the net: a pathway to participation for the politically uninterested? *Policy Internet* 3(1)
- Boulianne S (2009) Does Internet use affect engagement? A meta-analysis of research. *Polit Commun* 26(2):193–211
- Brown T (2006) *Confirmatory factor analysis for applied research*. The Guilford Press, New York
- Browne M (1968) A comparison of factor analytic techniques. *Psychometrika* 33:267–334
- Castells M (2010) *The rise of the network society: the information age: economy, society, and culture*. Wiley-Blackwell, London
- Centro de Investigaciones Sociológicas (CIS) (2007) Study 2736: Internet y Participación Política. http://www.cis.es/cis/opencv/ES/L_encuestas/estudios/ver.jsp?estudio=8760&cuestionario=10114&muestra=15545. Accessed 05 Oct 2011
- Citrin J, Muste C (1999) Trust in government. Measures of political attitudes. In: Robinson J, Phillip S, Wrightsman L (eds) *Measures of personality and social psychological attitudes*. Academic, San Diego, CA, pp 465–532
- Cliff N (1988) The eigenvalues-greater-than-one rule and the reliability of components. *Psychol Bull* 103:276–279
- Cohen A, Vigoda E, Samorly A (2001) Analysis of the mediating effect of personal-psychological variables on the relationship between socioeconomic status and political participation: a structural equations framework. *Polit Psychol* 22(4):727–757
- Conover PJ, Searing DD, Crewe IM (2002) The deliberative potential of political discussion. *Br J Polit Sci* 32(1):21–62
- Crano WD (1997) Vested interest, symbolic politics, and attitude-behavior consistency. *J Personal Soc Psychol* 72(3):485–491
- Dalton RJ (2008) Citizenship norms and the expansion of political participation. *Polit Stud* 56(1):76–98
- de Zúñiga HG, Veenstra A, Vraga E, Wang M, DeShano C, Perlmutter D, Shah D (2007) Online and offline activism: communication mediation and political messaging among blog readers. Annual Convention of the Association for Education in Journalism and Mass Communication, Washington, DC
- Denters B, Gabriel O, Torcal M (2007) Norms of good citizenship. In: van Deth JW, Montero JRG, Westholm A (eds) *Citizenship and involvement in European democracies: a comparative analysis*. Routledge, New York, pp 88–108
- Dimaggio P, Hargittai E, Neuman RW, Robinson JP (2001) Social implications of the Internet. *Annu Rev Sociol* 27:307–336
- Farrell H, Drezner D (2008) The power and politics of blogs. *Public Choice* 134(1):15–30
- Ferrer M, Medina L, Torcal M (2006) La participación política: factores explicativos. In: Montero JR, Font J, Torcal M (eds) *Ciudadanos, asociaciones y participación en España*. Centro de Investigaciones Sociológicas, Madrid
- Finney S, DiStefano C (2006) Non-normal and categorical data in structural equation modeling. In: Hancock GR, Mueller RO (eds) *A second course in structural equation modeling*. Information Age, Greenwich, CT, pp 269–314
- Fishbein M, Ajzen I (1975) *Belief, attitude, intention and behavior*. Addison-Wesley, Boston
- Freese J, Rivas S, Hargittai E (2006) Cognitive ability and Internet use among older adults. *Poetics* 34(4–5):236–249
- Gibson RK, Lusoli W, Ward S (2005) Online participation in the UK: testing a ‘contextualised’ model of internet effects. *Br J Polit Int Relat* 7(4):561–583
- Gil de Zúñiga H, Veenstra A, Vraga E, Shah D (2010) Digital democracy: reimagining pathways to political participation. *J Inf Technol Polit* 7(1):36–51
- Goss E, Phillips J (2002) How information technology affects wages: evidence using internet usage as a proxy for IT skills. *J Lab Res* 23(3):463–474
- Gurstein M (2003) Effective use: a community informatics strategy beyond the digital divide. *First Monday* 8(12)

- Hagen M (2000) Digital democracy and political systems. In: Hacker K, Van Dijk J (eds) *Digital democracy: issues of theory and practice*. Sage, London, pp 54–69
- Hargittai E (2010) Digital Na(t)ives? Variation in Internet skills and uses among members of the “net generation”. *Sociol Inq* 80(1):92–113
- Hargittai E, Walejko G (2008) The participation divide: content creation and sharing in the digital age. *Inf Commun Soc* 11(2):239–256
- Hassani SN (2006) Locating digital divides at home, work, and everywhere else. *Poetics* 34(4–5):250–272
- Hoff J (2008) Virtual capital? Internet competence and political participation in Denmark. *MedieKultur J Media Commun Res* 40:83–92
- Howard PEN, Rainie L, Jones S (2001) Days and nights on the Internet. *Am Behav Sci* 45(3):383–404
- Jensen MJ, Danziger JN, Venkatesh A (2007) Civil society and cyber society: the role of the Internet in community associations and democratic politics. *Inf Soc Int J* 23(1):39–50
- Krueger BS (2002) Assessing the potential of Internet political participation in the United States. *Am Polit Res* 30(5):476–498
- Kymlicka W, Norman W (2000) *Citizenship in culturally diverse societies: issues, contexts, concepts*. Oxford University Press, Oxford
- Lane R (1959) *Political life. Why and how the people get involved in politics*. Free Press, New York
- Laraña E, Johnston H, Gusfield JR (1994) *New social movements: from ideology to identity*. Temple University Press, Philadelphia, PA
- Lawley DN, Maxwell AE (1962) Factor analysis as a statistical method. *Statistician* 12:209–229
- Lewis-Beck MS (1994) *Factor analysis and related techniques*. Sage, London
- Lijphart A (1997) Unequal participation: democracy’s unresolved dilemma. *Am Polit Sci Rev* 91(1):1–14
- Linn RL (1968) A Monte Carlo approach to the number of factor problem. *Psychometrika* 33:37–71
- Livingstone S, Helsper E (2007) Gradations in digital inclusion: children, young people and the digital divide. *New Media Soc* 9(4):671–696
- Margolis M, Moreno-Riaño G (2009) *The prospect of Internet democracy*. Ashgate Publishing, Burlington, VT
- Martínez Arias M, Hernández-Lloreda M, Hernández-Lloreda M (2006) *Psicometría*. Alianza Editorial, Madrid
- Meijer AJ, Burger N, Ebbers W (2009) Citizens4Citizens: mapping participatory practices on the Internet. *Electron J E Gov* 7(1):99–112
- Micheletti M (2003) Political virtue and shopping: individuals, consumerism, and collective action. Palgrave Macmillan, New York, NY
- Milbrath L (1977) *Political participation: how and why do people get involved in politics*. Rand McNally, Chicago, IL
- Min SJ (2010) From the digital divide to the democratic divide: Internet skills, political interest, and the second-level digital divide in political internet use. *J Inf Technol Polit* 7:22–35
- Montero JR, Zmerli S, Newton K (2008) Confianza social, confianza política y satisfacción con la democracia. *Revista española de investigaciones Sociológicas* 122(1):11–54
- Moon MJ (2002) The evolution of e-government among municipalities: rhetoric or reality? *Public Adm Rev* 62(4):424–433
- Mutz DC (2005) Social trust and e-commerce. *Public Opin Q* 69(3):393–416
- Nah S, Veenstra AS, Shah D (2006) The Internet and Anti-war activism: a case study of information, expression, and action. *J Comput Mediat Commun* 12(1):230–247
- Newton K, Norris P (2000) Confidence in public institutions. In: Parr SJ, Putnam RDE (eds) *Disaffected democracies. What’s troubling the trilateral countries*. Princeton University Press, Princeton, NJ

- Niemi RG, Craig SC, Mattei F (1991) Measuring internal political efficacy in the 1988 national election study. *Am Polit Sci Rev* 85(4):1407–1413
- Norris P (2001) *Digital divide: civic engagement, information poverty, and the Internet worldwide*. Cambridge University Press, Cambridge
- Orum AM (1989) *Introduction to political sociology: the social anatomy of the body politic*. Prentice Hall, Englewood Cliffs, NJ
- Peter J, Valkenburg PM (2006) Adolescents' internet use: testing the “disappearing digital divide” versus the “emerging digital differentiation” approach. *Poetics* 34(4–5):293–305
- Pharr SJ, Putnam RD (2000) *Disaffected democracies: what's troubling the trilateral countries?* Princeton University Press, Princeton, NJ
- Robles JM (2008) *Ciudadanía digital: una introducción a un nuevo concepto de ciudadano*. Editorial UOC, Barcelona
- Samejima F (1995) Acceleration model in the heterogeneous case of the general graded response model. *Psychometrika* 60(4):549–572
- Schlozman KL, Verba S, Brady HE (2010) Weapon of the strong? Participatory inequality and the Internet. *Perspect Polit* 8(2):487–509
- Shah DV, Cho J, Eveland WP, Kwak N (2005) Information and expression in a digital age. *Commun Res* 32(5):531–565
- Sniderman PM, Grob DB (1996) Innovations in experimental design in attitude surveys. *Annu Rev Sociol* 22:377–399
- Stafford TF, Stafford RM, Schkade LL (2004) Determining uses and gratifications for the Internet. *Decis Sci* 35(2):259–288
- Subirats J (2002) Los dilemas de una relación inevitable. *Innovación democrática y tecnologías de la información y de la comunicación*. In: Cairo Carou H (ed) *Democracia Digital. Límites y oportunidades*. Trotta, Madrid, pp 89–111
- Tajfel H, Fraser C, Jaspars JMF (1984) *The social dimension: European studies in social psychology*. Cambridge University Press, Cambridge
- Tilly C (1978) *From mobilization to revolution*. Addison-Wesley, Boston, MA
- Tolbert CJ, McNeal RS (2003) Unraveling the effects of the Internet on political participation? *Polit Res Q* 56(2):175–185
- Udo GJ (2001) Privacy and security concerns as major barriers for e-commerce: a survey study. *Inf Manag Comput Secur* 9(4):165–174
- Valencia JF (1990) La lógica de la acción colectiva: tres modelos de análisis de la participación política no institucional. *Revista de psicología social* 5(2):185–214
- van der Meer T, van Deth J, Scheepers P (2009) The politicized participant. *Ideology and Political Action in 20 Democracies*. *Comp Polit Stud* 42(11):1426–1457
- van Dijk J (2000) Models of democracy and concepts of communication. In: Hacker KL, van Dijk J (eds) *Digital democracy: issues of theory and practice*. Sage, Thousand Oaks, CA, pp 30–53
- van Dijk J (2006) Digital divide research, achievements and shortcomings. *Poetics* 34(4–5):221–235
- van Dijk J, Pieterse W, van Deuren A, Ebberts W (2007) E-services for citizens: the Dutch usage case. In: Wimmer M, Scholl J, Grönlund Å (eds) *Electronic government*, vol 4656, Lecture notes in computer science. Springer, Berlin, pp 155–166
- Verba S, Nie NH (1972) *Participation in America*. Harper & Row, New York
- Verba S, Nie NH, Kim J (1987) *Participation and political equality: a seven-nation comparison*. University of Chicago Press, Chicago, IL
- Verba S, Schlozman K, Brady HE (1995) *Voice and equality: civic voluntarism in American politics*. Harvard University Press, Harvard
- Zammuner V (1998) *Tecniche dell'intervista e del questionario*. Il Mulino, Bologna

Online Engagement from the Grassroots: Reflecting on over a Decade of ePetitioning Experience in Europe and the UK

5

Panagiotis Panagiotopoulos and Tony Elliman

Abstract

Extensive debate on Internet and formal politics has concentrated on whether authorities should focus their efforts on high-volume activities such as petitioning or crowdsourcing. Those engagement tools seem to be consistent with the ambition of many networked citizens to influence policymaking through ad hoc and mostly single-issue movements. Therefore, certain interesting questions emerge: can authorities organise their engagement activities to respond and act upon this call? Can citizens indeed influence policymaking in a few clicks? This chapter draws together material from different uses of ePetitioning tools in Europe, mainly focusing on the integrated UK experience at national and local level. The analysis suggests that those initiatives can provide valuable feedback to authorities and be effectively complemented by other forms of deeper engagement. Yet, political organisations should pay close attention on how the public views such exercises and be prepared to support participants in different ways and on a regular basis.

5.1 Introduction

Both citizens and public institutions have seen web technologies and their widespread adoption as a means to enfranchise political participation activities. In doing so, networked citizens have attempted to transcend the boundaries of existing policymaking and put pressure on public bodies to recognise and respond to their bottom-up involvement efforts (Dutton and Eynon 2009). Scenarios describing the future of public engagement have even introduced concepts such as self-service

P. Panagiotopoulos (✉) • T. Elliman
Department of Information Systems and Computing, Brunel University, West London
UB8 3PH, UK
e-mail: panagiotis.panagiotopoulos@brunel.ac.uk; tony.elliman@brunel.ac.uk

governance where empowered community groups will organise around their own topics of interest and directly determine government actions (Misuraca et al. 2011). For example, the Big Society agenda of the new British government elected in 2010 seems to be an illustration of such community empowerment plans (Cabinet Office 2011).

Nevertheless, the ambition of citizens to determine policy implies overturning the historical development of representative democracy. Despite the few exceptions, such as California's ballot proposition or the Swiss referendum system, citizens' legitimacy to set the public agenda seems to be either openly contested or silently resisted. Instead, authorities select engagement activities aimed at promoting massive dissemination of public material or targeted involvement in a manageable way (Saebo et al. 2008). Even when it comes to high-volume tools such as social networking groups, petitioning or crowdsourcing, it is actually still the authority that controls the process and decides on the actual influence achieved. However, such forms of participation do not seem to meet with unqualified public approval. As Miller (2009, p 165) notes: "most people prefer to get involved in single-issue politics, ignoring institutional agendas that often seem alien, time-consuming and irrelevant".

Criticism of citizen participation in high-volume and low-commitment actions, especially by elected representatives, has sought to undermine them with pejorative terms like "clicktivism" (Karpf 2010), "point and click democracy" (Dutton 2009) or even political graffiti (Miller 2009). Hence, there seems to be a misalignment between: (1) citizens' efforts to influence policymaking through online ad hoc movements and (2) authorities' claims to recognise and act upon those bottom-up initiatives. Since this problematic alignment seem to be one of the main elements limiting the impact of ICTs in governance, an interesting question emerges: "Can high-volume activities be organised in ways that will widen the scope of traditional politics and enable citizens to achieve engagement influence?"

The chapter addresses this question by focusing on ePetitions which is the most developed experience with high-volume tools by authorities at different levels: parliaments, national and local governments. In Europe, and particularly in the UK, there is long history of grassroots petitioning initiatives as a valid political activity long before experimentations with the online part of this process. Experiences with different uses of ePetitioning systems during the last decade are drawn together in Sect. 5.2. Going on to synthesise and compare their different aspects in Sect. 5.3 provides certain useful insights on high-volume engagement.

5.2 Online Petitioning in Europe and the UK

The concept behind petitioning is simple: a group of citizens place a single-issue request before an authority or organisation asking it to undertake or impede certain actions or public policies. The weight of public sentiment behind the request is indicated simply by the number of signatories to the petition. The effects of moving from traditional petitioning to online technology are significant: the Internet

centralises and accelerates the process while offering a wide range of support mechanisms. Placing petitions on a centrally visible website decreases the requirement of organising massive dissemination activities by a group of dedicated volunteers. This enables individuals to create their own petitions and promote them through conventional Internet tools such as mailing lists, social networking or newsletters.

Inevitably, online petitioning also raises issues of authentication since the identity of petitioners cannot be fully verified; in most cases, protection is provided only against massive frauds. In the UK, even with paper petitioning, full identification has not been a barrier. For example, in many local authorities, it is achieved by verifying a random number of signatures up to the required threshold for a petition to be officially considered.

Despite such limitations, according to the Oxford Internet Survey (Dutton and Helsper 2007; Dutton et al. 2009), petitions are the most popular online civic participation activity in the UK. As an easy and convenient form of political engagement, ePetitioning has been very popular amongst individual Internet users, NGOs and even commercial organisations. For example, international political groups are using petitioning tools as part of their mass email campaigns (Karpf 2010; Shulman 2009). Such mobilisation efforts belong to the sphere of digital activism and protesting which is arguably a completely different set of activities from participation organised by political institutions (Garrett 2006).

When it comes to institutional policymaking, ePetitions seem to be one of the most important areas and they are gaining maturity even at the regulatory level (see Sect. 5.3.2). As Lindner and Riehm (2011) explain, ePetitioning clearly seems to be at the forefront of official, all-inclusive and non-experimental eParticipation opportunities being made available to the public. The following review of current experiences with ePetitioning tools progresses from parliaments to national and local governments.

5.2.1 Petitioning the Parliament

Many parliaments have been historically accepting paper petitions by citizens or groups of citizens who wish to influence their agenda. The types of petitions and the way those petitions are handled vary greatly (e.g. Lindner and Riehm 2009). The Scottish Parliament (SP) was the first political institution to implement an ePetitioning initiative. Since its institutional origins in 1999, the SP has been designed to be compatible with web technologies in different activities (e.g. interactive forums, webcasting) (Seaton 2005). As informed by Seaton (2005, p. 336), ePetitions “have encouraged participation in real politics by people who might otherwise have felt that there was no opportunity to participate”.

In March 2000, the *ePetitioner* system, developed by Napier University, was open for the public in a pioneer moment for the emerging concept of eDemocracy. Macintosh et al. (2002) illustrate the details of this system and the ways in which the SP handles petitions through a dedicated Public Petitions Committee which

considers submitted petitions and consults on possible actions. The SP puts no restrictions on minimum numbers of signatures for a petition to be considered (threshold), has an embedded discussion forum and also accepts signatures from non-Scottish citizens. The system was further developed and formally re-launched in 2004. The official website lists about 1,400 open and closed petitions (Scottish Parliament 2011). It also informs on the international interest of this initiative and a number of other authorities which have sought advice from the SP.

One of the first to do so was the German federal parliament. In pilot operation since 2005 and at regular service from 2007, the German Bundestag has a well-developed experience with ePetitions (Lindner and Riehm 2009, 2011; Jungherr and Jürgens 2010). The German parliament receives paper and online petitions and discusses in public those supported by a minimum of 50,000 signatures regardless of the submission channel.

Lindner and Riehm (2011) provide a detailed description of how the ePetitioning concept evolved in the German parliament, for example, in terms of technical and organisational barriers. The introduction of ePetitions came along with procedural innovations. Before 2005, the parliamentary petition process was not public. Since 2005, ePetitions of general political interest are accepted as public. The website was associated with a significant increase in the number of petitions until 2009, after which only the number of signatures increased considerably. Interestingly, since 2006, the percentage of petitions made electronic, as well as the use of discussion forums, has increased, but the acceptance rate of ePetitions has decreased. Acceptance is decided by an office of 80 full-time staff which seems to hold considerable power over the process. So far, popular ePetitions have received more than 100,000 signatures; for example, the most popular was the one opposing legislation related to Internet regulation (134,000 signatures). In the period 2006–2009, the petitions committee held 11 public meetings in which 81 petitions were discussed.

Another European parliamentary institution to implement an ePetitioning initiative, since 2008, is the Welsh Assembly which was created in 1998. According to the official report from the Petitions Committee, in the period 2008–2011, 215 petitions were discussed in 64 meetings; 95 of those petitions were submitted online (National Assembly for Wales 2011). As with the Scottish Parliament, petitions can be submitted from outside Wales. An interesting point is that only 56% of petitions were initiated by individual citizens; the rest 44% came from organisations or groups. The report explores some examples of petitions received and mentions certain negative points brought up by petitioners; for example, the process being too slow, not all petitioners being invited for public hearings and no significant impact achieved in some cases.

Furthermore, although not using ePetitions yet, some interesting information about the British Parliament comes from Miller's (2009) illuminating article. The description of Westminster's internal debates illustrates the dilemmas involved when ICTs attempt to merge with formal political processes. In this case, the process was petitioning via a member of the parliament. At the first level, the parliament had to decide whether it would replicate or take over the popular but controversial UK government's system (see next section). Next, it had to consider a petitioning process

that would be meaningful both for the public and parliamentarians and also compatible with the parliament structures and capacities. Barriers to introducing the system could be summarised as follows: public distrust in procedural fairness, populist petitions gaining wide media attention, high running cost, significant workload increase, considerable response delays and negative opinions by parliamentarians.

An interesting attempt to transfer the ePetitioning idea at the European Parliament is the EuroPetition project (Cruikshank and Smith 2011a, b). This cross-border and multi-lingual initiative included a mixture of local authorities in Europe with various experiences: from the UK to Italy, the Netherlands, Sweden and Spain where the concept was new but generated interest. In total, 63 petitions were signed by almost 1,400 users in different topics and useful recommendations were drawn on how to make the initiative sustainable at European level.

Outside Europe, online petitions have been used by the Queensland Parliament in Australia since 2002 (Lindner and Riehm 2009). As currently with the British Parliament, petitions in either paper or electronic form can only be introduced by an elected representative. An important difference with other parliament petitions is that responses are officially generated by responsible ministers within 30 days and published on the website for both online and paper petitions.

Finally, in addition to our knowledge on how parliaments explored the ePetitioning idea, certain evaluation studies have uncovered interesting facts about citizens' responses and patterns of use. Those are presented along the following lines.

Carman (2010) analysed the results of a postal survey which in June 2006 was sent to 722 Scottish Parliament petitioners and completed by approximately half of them (we are not sure if they are online or paper petitioners). The results show that petitioners had high expectations of the process with about 90% anticipating that their petition would be handled "fairly". However, about half of those actually thought that their petition was indeed handled "fairly" and only about 17% were generally satisfied with the outcome. The statistical analysis also revealed that the evaluation of procedural fairness clearly influences trust in the Scottish political system as a whole.

Jungherr and Jürgens (2010) analysed a large dataset of public ePetitions to the German Parliament between 2008 and 2010 which included 886 petitions from about 495,000 users. Only 4 of those petitions passed the 50,000 threshold and only 14 exceeded 10,000. The authors found evidence of an overspill from successful petitions to less successful ones; a positive fact which suggests that system use is reinforced. Starting from the observation that few users signed more than one or two petitions, the analysis of co-signing patterns can classify users into four types:

- "New Lobbyists" who consistently sign petitions in the same topics (less than 1%).
- "Hit and Run Activists" who sign multiple non-related petitions in short periods of time (less than 1%).
- "Activism Consumers" who over time sign multiple non-related petitions (about 16%).
- "Single-Issue Stakeholders" who signed maximum two petitions in non-related categories (almost 84%).

Lindner and Riehm (2011) presented the findings of a dual evaluation survey of 350 online and 571 traditional petitioners to the German Parliament. Existing bias in gender and socio-economic status was even amplified with online petitioners. In both groups, well-educated males are dominant and, furthermore, ePetitioners tend to be younger than traditional petitioners. Digital divide was not the reason why traditional petitioners did not select the online route: only 17% of them were aware of the option and 70% of them thought of this option as appealing. Both traditional and online petitioners are more politically engaged than the average population. Interestingly, while 76% of traditional petitioners were satisfied about the process, this drops to 42% for online petitioners, possibly due to the high rejection rates for publishing ePetitions.

5.2.2 Petitioning the Government

While many parliaments are receiving or are considering receiving ePetitions, national governments have not been equally enthusiastic. A prominent exception is the UK Prime Minister's ePetitioning website which, since its launch in 2006, managed to attract millions of signatures in thousands of different topics. Citizens could traditionally petition the government through the Prime Minister's office, but the online system came along with diverse opinions even within the Labour government. The government's ePetitions were terminated in 2010 by the newly elected government.

Prior to this, the website managed to collect over 12,000,000 signatures in 33,058 different petitions; unarguably an indication of immense public interest which was enhanced by the initiative's location within the Prime Minister's website. Another 38,263 petitions were rejected, most of them because they were duplicating existing ones or asking for an action outside the government's authority. The website was developed by mySociety (2011), a non-profit organisation which has launched many popular UK eDemocracy initiatives such as the TheyWorkForYou.com.

Petitions covered a great variety of topics, some of the most popular being: foreign affairs (e.g. European related topics or the Iraq war), fuel prices, public expenses and honours suggestions. The website guaranteed a formal response to petitions gathering more than 200 signatures. How petitions were handled was not visible to the public in detail. Miller (2009) provides examples of petitions received by the website and the types of answers generated by the government's officials. In most cases, the response was a link to policy developments in progress. In other cases, the government responded positively to petitioners' suggestions or clearly explained why those suggestions could not be considered.

There are many examples of noteworthy petitions, such as the one asking the Prime minister to resign (over 72,000 signatures), the one to create a new public holiday (over 530,000 signatures) and the one to reduce fuel prices (over 304,000 signatures). The most remarkable case is the petition to "Scrap the planned vehicle tracking and road pricing policy" started by a citizen named Peter

Roberts in early 2007 and signed by 1,811,423 others. Naturally, the petition found the government in an uncomfortable position, drew substantial media attention and came with debates over the broader relationship between Internet and politics.

This petition highlighted more any other the effects of technology on traditional participation activities. As Navarra (2010, p 18) comments: "In a short period of time, with as little organisational effort as possible and no financial commitment, a citizen with no previous experience in either politics or petitioning managed to achieve something unthinkable for any traditional petitioner in the same conditions". Furthermore, he informs that the government initially tried to minimise the petition's importance, but finally had to withdraw the road pricing proposal. The response by the Prime Minister, Blair (2008), emphasised that despite not sharing the views of petitioners himself, the web indeed offered people the opportunity to generate a national debate in a few mouse clicks. Nevertheless, controversy over the usefulness and impact of ePetitions was intense even within the government (e.g. Navarra 2010).

This is probably one of the reasons why the coalition government decided to terminate the Prime Minister's ePetitions prior to its re-launch on the main governmental portal Direct.gov in the summer of 2011. The re-launch plan was part of the Conservative party 2010 elections manifesto and is based on a completely different concept which resembles the German Bundestag's paradigm (House of Commons 2011): only online petitions having 100,000 or more signatures are eligible for debate in the British Parliament.

Apparently, this change differs from the former Labour government's intention to provide an inclusive channel easily accessible by citizens and respond to petitions on a regular basis. On the other hand, it also hints that petitions which will collect that many signatures can actually receive considerable attention within the formal parliamentary processes. The re-launch plan estimates that the opportunity to debate a petition with the Westminster Parliament will draw considerable public attention even compared to the previous system (Skunkwork 2011). Administration to the new system will be flexible with a small team facilitating the connection between petitioners and government departments responding to petitions. Due to the high cost, no discussion forums or commenting facilities will be provided, but connections with social media are part of the official system's requirements (Skunkwork 2011).

This final aspect is quite motivating because, although there is no formal evaluation of citizens' views on government's ePetitions, some interesting observations have been made on how some those petitions were promoted through social networking groups. Panagiotopoulos et al. (2011b) collected and analysed more than 500 Facebook groups created for this purpose. The comparison between groups' memberships and the number of official signatures on the government's website revealed unpredictable relationships. There were many cases where popular issues generated significant activity in the social networking sphere which did not necessarily translate into petition signatures. It would be interesting to examine whether such patterns will occur with the new system where the high

threshold requires substantial campaigning probably in both offline and online media.

5.2.3 Petitioning Local Authorities

Participation in local government politics usually concerns everyday issues which are more easily understood by the public compared to more complicated national government affairs. This is a characteristic that potentially encourages people to petition local authorities, although it might also make such an activity unnecessary or too formal for some localised topics. In the UK, the increasing interest in local government ePetitioning led to a regulatory arrangement that eventually resulted in the implementation of more than 280 English local ePetitioning websites as of March 2011 (Panagiotopoulos et al. 2011a). Before elaborating on this, it is useful to trace the history of those efforts.

In 2004, the London Royal Borough of Kingston upon Thames and the Bristol City Council were the first to use online petitioning in parallel to their paper petitioning structures. Their pilot application was organised through their involvement with the Local eDemocracy National Project (2005) which examined a whole range of local eDemocracy tools (e.g. forums, citizen panels). The initial software adopted was the ePetitioner (as in the Scottish Parliament). Petitioning in Kingston and Bristol was already established since those two authorities belonged to the ones guarantying a response to petitions; according to a 2007 national survey less than a third of local authorities did so (Communities and Local Government 2008). More information about the Local eDemocracy National Project and the pilot evaluation of the two ePetitioning systems can be found in Whyte et al. (2005a, b).

Hilton (2006) outlines the Bristol experience and particularly explains the transition from information and consultation to providing spaces for bottom-up participation such as ePetitions. According to the official statistics, since 2004, the Bristol system has handled more than 200 petitions which accumulated a total of almost 75,000 signatures in a population of about 433,000 (Bristol City Council 2011). A very influential example is a January 2008 petition that eventually managed to save a railway path from becoming a bus route. It was supported by more than 10,000 Bristol citizens.

Aiming to examine the impact of the initiative in local democratic processes, a detailed case study investigation was conducted with Kingston in the first 6 months of 2010 (Panagiotopoulos and Al-Debei 2010; Panagiotopoulos et al. *in press*). The positive impact of ePetitions was thought to be an outcome of two main facts: (1) the leading involvement by key stakeholders (councillors, local officers, community organisations) and (2) the application of a coherent response process to petitions regardless of their submission channel. Particularly the later linked the online space with existing decision-making structures; those being the specialised council committees where petitions were debated and decided at the presence of petitioners. Furthermore, the system was beneficial in coordinating and enhancing

the process, for example, in terms of supporting petitioners at the drafting stage, making all stages visible and adding background information on petitioning topics.

Following the positive experiences and widespread interest with the two pilot cases, more UK local authorities started experimenting with ePetitioning tools; to name a few: Lambeth, Birmingham, and Brighton & Hove. Quite a few UK companies started offering ePetitioning solutions to local authorities along with other democratic support systems (e.g. consultation portals, content management). Within this climate of general interest, in November 2009, the Labour government created a new legislation on a diverse set of issues around local government: the Local Democracy, Economic Development and Construction Act (2009).

According to the Act's second chapter, every authority in England "must provide a facility for making petitions in electronic form to the authority". It also had to decide on and apply an explicit response process for both paper and online petitions. Authorities were additionally required to clarify a series of issues such as what they consider as a valid petition, what kind of actions a valid petition might trigger, how appeals to the process can be handled and so on. A more elaborate set of directions on implementing this duty was provided by consultation organised by the Communities and Local Government (2008). It is reasonable to note that certain details of this regulation were based on the experiences of early adopters and mainly Kingston and Bristol. The legislation was also inspired by the popularity of the government's petitioning system.

Certainly, the 2009 Act has been one of the very few cases where a particular eParticipation tool was regulatory enforced from the national to the local government. The deadline for the ePetitioning implementation was middle December 2010. Nevertheless, the new government was not equally enthusiastic about the concept and the way it fitted into its Big Society agenda (see Sect. 5.1). This broader citizen empowerment plan sought to provide autonomy to local communities instead of directing them to specific decision-making activities such as petitions. Effectively, in September 2010, the new government withdrew the guidance on the implementation of ePetitions and directed authorities' attention to the forthcoming Localism Bill (2010) for future plans. Yet, local authorities were asked to comply with the minimum legislative requirements for ePetitions. At that time, most authorities had already decided on the details of how to address them and, despite the political uncertainty, it is likely that most proceeded with their initial plans.

In March 2011, Panagiotopoulos et al. (2011a) visited all the 353 English local government websites and located an ePetitioning facility in over 280 of them. Although most authorities did launch ePetitions, only in limited cases they seemed to be promoting the initiative or having implemented innovative characteristics to their systems (e.g. connections to social networks, discussion forums). Another general observation was that those performing better in other eParticipation activities (e.g. consultations, webcasting) placed more effort to implement ePetitions and their systems were more used.

About 37% of those facilities were not easily visible within the councils' websites and, in about half, the levels of assistance and instructions to prospective users were more or less inadequate. Evidence of early adoption (systems in

operation before December 2010) was found in less than 10% of the cases. The level of systems' use was not encouraging either: in more than 75% of local authorities there was not a single open or closed petition. The study also found that authorities did not attempt to set high signature thresholds for petitions to be considered. Many of them stated that they would consider petitions regardless of their signature volume or that they require up to 50 signatures. Finally, in line with the Act, authorities introduced different kinds of petitions: those asking for a full council debate on a topic or those to hold a public officer accountable. Different thresholds were set for those kinds of petitions (not investigated in the study).

Local government in the UK presents an interesting application field to examine the relationship between grassroots tools and institutional processes. Outside the UK, there are few developed experiences with local government petitioning. As informed by Lindner and Riehm (2009), in the period 2005–2007, 14 Norwegian municipalities participated in a pilot ePetitioning project. Public responses were not encouraging since a required 300 signature threshold proved to be a real barrier to the process (only two petitions met the requirement).

Figure 5.1 above summarises this review in the form of a timeline while Table 5.1 groups some addresses of ePetitioning websites.

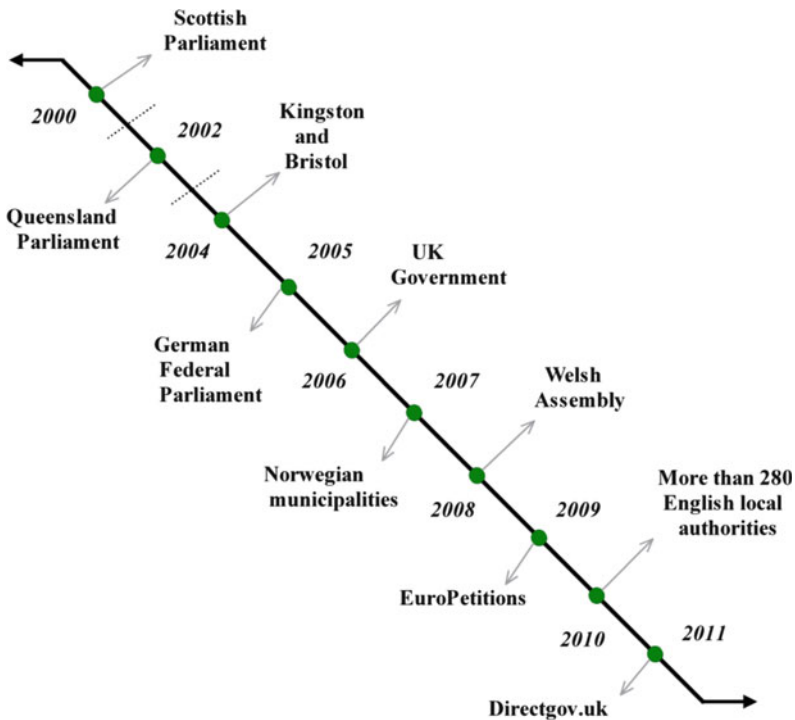


Fig. 5.1 Timeline summarising the introduction of ePetitioning systems

Table 5.1 Examples of ePetitioning websites used by authorities (accessed 25th May 2011)

Authority	Website
Scottish parliament	http://epetitions.scottish.parliament.uk/
German parliament	https://epetitionen.bundestag.de/
UK government	http://petitions.number10.gov.uk/
Welsh assembly	http://www.assemblywales.org/gethome/e-petitions.htm
Queensland parliament	http://www.parliament.qld.gov.au/view/EPetitions_QLD/
EuroPetitions in Spain	http://www.europetitionandalucia.es/epetition_core/
EuroPetitions in Sweden	http://europaforslag.se/epetition_core/
Kingston upon Thames	http://epetition.kingston.public-i.tv/epetition_core/
Bristol City Council	http://epetitions.bristol.gov.uk/epetition_core/

5.3 On Engagement from the Grassroots

Going back to the chapter's main question, the ePetitioning experiences reveal interesting characteristics about the proposition of high-volume participation activities and their use as paths to influence policymaking. The discussion first comments on public expectations with respect to traditional politics and then focuses on what we have learned about configuring such tools.

5.3.1 Balancing Expectations and Widening the Scope

ePetitions seem to adapt quite well to the main challenges of online engagement as outlined by Macintosh (2004).¹ First of all, they are not usually affected by the participation scale. With the exception of the different thresholds applied in the English local government, in the other cases all petitions collecting a certain minimum of signatures trigger the same response process. Next, ePetitions can be combined with many additional tools to support and contextualise the participation process, for example, social networks, links to support material and discussion forums. Furthermore, ePetitions have a clear position in the policy-making life cycle: they address the agenda setting and evaluation stages. Finally, they can be evaluated from different qualitative and quantitative perspectives; the studies presented at the end of Sect. 5.2.1 are indicative of how informative such evaluations can be.

However, it seems that good fit with fundamental challenges does not guarantee either public acceptance or sustainable participation. Reflecting on the ePetitioning experiences, it is useful to see if high-volume tools can indeed increase and widen the scope of traditional participation. Where online and paper petitions were introduced at the same time (e.g. Welsh Assembly and Scottish Parliament), it is

¹In brief, those are (1) handling the engagement scale, (2) enhancing citizens' capacity to contextualise their participation, (3) ensuring coherence within the policy making lifecycles, (4) understanding the role of evaluation and (5) demonstrating commitment by involved actors.

difficult to explore the differences. In the German Parliament, ePetitions did contribute to increasing the total number of petitions and signatures. Yet, in that case, there also was a parallel element of procedural innovation since petitions were not discussed in public at all before 2005. In the UK local authorities, the long-term experiences of Kingston and Bristol do not show a considerable increase in the number of petitions. In fact, paper petitions have always remained the majority in Kingston, especially the ones about more localised topics.

Paradoxically, the UK government's system seems to be the only case where, compared to the traditional process, the online activity came along with an indisputable increase in the number of petitions and their signature volumes. From this point of view, this ambiguous and very popular initiative can be considered the flagship of high-volume engagement. Surprisingly, its popularity resulted in neither the government nor the public being absolutely satisfied by its existence. The topics and unexpected use of petitions imply that in some cases the website was used more to provoke the government than to achieve genuine participation.

For example, in many cases debate about the system evolved around the question of whether the government is actually listening or at least appears to be listening. Normally, within the government they gradually felt that they had more to lose than gain from engaging with the public in this way; such conclusions for elected representatives are not novel in digital governance research (e.g. Mahrer and Krimmer 2005). Hence, as Navarria (2010) explains, high-volume tools present remarkable opportunities to enhance representative relationships, but can also threaten the representative system if used in populist ways.

There are two possible reasons why only the UK government's ePetitions so intensively reached that point. The first is the expected high visibility and wider media attention of an initiative organised by the Prime Minister's office. Traditionally, UK national petitions have been delivered to the Government at 10 Downing Street rather than the Speaker at the Houses of Parliament. The second is that participation required the least possible effort: users just added their name on a single declaration issue summarised in a few lines to receive an answer from the government's officials some days or even hours later. In contrast, most petitions in local authorities such as Kingston and Bristol came along with wider debates and were publicly discussed and decided in specialised council committees.

Overall, in the ePetitioning cases, we have no evidence that citizens felt that their experience influenced their perceptions of politics positively. In contrast, Carman's (2010) study revealed a negative relationship between perceptions of procedural fairness and opinions about the political system itself. It is not surprising to see that matching the experimental use of those tools with considerable public expectations is inevitably challenging and more process-oriented. As stated by Seaton (2005, p 337): "not every petitioner is satisfied by the outcome of their petition, but people appreciate that it has been given serious consideration".

Furthermore, from the ePetitioning experiences, it is difficult to notice that the scope of politics was expanded with citizens who are traditionally disengaged. The analysis by Jungherr and Jürgens (2010) provides evidence that popular petitions attract wider system use, but very few users exhibit patterns of informed political

behaviour, for example, by signing petitions around the same topic(s) over time. The survey by Lindner and Riehm (2011) further shows that, with the exception of younger citizens, participation biases were amplified with the online process. This survey seems to confirm other studies which highlight the dominance of Internet skills in online participation activities and eventually the socio-economic factors that determine them (e.g. gender, education and income) (Krueger 2006; Best and Krueger 2005).

Therefore, it is difficult to conclude that high-volume tools can widen the scope of traditional participation. However, the richness of petitioning topics and the public support attracted in all cases is certainly promising. The different ways in which those ePetitions have been integrated in political contexts provides useful lessons about the configuration of high-volume tools.

5.3.2 Integrating High-Volume Tools

High-volume tools such as petitions are useful for authorities as assistance for prioritising actions, consulting a wide spectrum of stakeholders and identifying citizen feedback on key policy issues. Integration into an engagement strategy can be the guiding principle for configuring their proposition. The ePetitioning review confirms that those tools are of little value as isolated systems and need to be complemented by other forms of deeper engagement. In general, government-driven deliberation activities on the web tend to be disconnected with political processes (Rose and Saebo 2010). This is not unexpected for many reasons; some of which might be the rapid pace of technological change and the limited knowledge of citizens' expectations which hinder the adaptation of formal politics.

Even with activities such as petitions where the topics are clearly decided by citizens, it is still the authority that determines the quality of the process by supporting its strategy for informed engagement. For example, authorities could look at the experiences of political mobilisation groups which combine petitions with more targeted activities (Karpf 2010). Their advanced and combinatory tactics in many cases go beyond the phenomenon of political "clicktivism" where massive engagement tools are used to educate the public about issues of interest, encourage them to take easy and small steps and then try to engage them in more significant follow-up tasks. There is little evidence that authorities have managed to connect their engagement efforts in similar escalating logics that can reach people according to their availability and willingness to participate.

In turn, the limited integration of high-volume activities often results in them being criticised for their inherent deliberation gap which one way or another needs to be taken into account when planning their use. For example, the Scottish and the German Parliament are trying to cover this gap by operating discussion forums for petitions. Other examples observed in the English local government include mailing lists, commenting facilities and even voting options (Panagiotopoulos et al. 2011a). Providing spaces for discussion is also related to enhancing petitioners' dissemination ability. Petition campaigning is not the authority's responsibility, but

is certainly an element that cannot be overlooked in order to build a sustainable participation process inclusive to normal citizens who do not possess organised promotion mechanisms.

Apart from campaigning, supporting petitioners is necessary at all stages and should be provided on a regular basis. For example, in the Kingston case study, it was obvious that proactiveness in drafting petitions helped to address topics within the authority's power and also accelerated the process. Emphasis on the clarity of the process seems to be an important element of all the systems used by parliaments and local authorities. Petitioning stages are published on the web including the petition response. Apart from transparency, this element increases the visibility of the process and its comprehension by the public. It also facilitates connections with other online material which enhance integration.

In any case, it should not be taken for granted that existing mechanisms for participation can integrate high-volume activities. For example, petitions require that authorities are able to regularly respond to all policy-making topics and organise a fair and coherent response process. Carman's (2010) study, apart from highlighting the importance of perceptions of political fairness, also brings to attention the fragile balance between the public and those administering the public's input. In many cases and especially in the German one, it was evident that the Petitions Committee has significant influence over the process as it could decide on which petitions were suitable enough to become public. The public's disapproval of this administrative power was reflected in the evaluation results (Lindner and Riehm 2011).

Therefore, the ePetitioning experiences indicate that, apart from the technical issues, how the process is communicated to the public matters and bears attention. It is critical to establish the political and support structure behind the website so that processes are transparent, easy to understand and use and citizens feel they get a fair hearing. Furthermore, technical issues cannot be overlooked, with authentication of signatures being a matter of increasing concern, especially in cases where different signature thresholds can trigger different actions.

Conclusions

This chapter discussed the extent to which high-volume engagement tools can be consistently used by public authorities as a response to citizens' preference for bottom-up participation. The integrated ePetitioning experiences with parliaments, national and local governments are mostly positive, but do not seem to provide solid evidence about significant impact achieved. Yet, they do point that such activities are popular among Internet users and some of those systems can now be considered institutionalised forms of politics instead of 'innovation in progress'. For example, the Scottish Parliament has completed over a decade of ePetitioning and many other authorities have exceeded 5 years.

Undoubtedly, the uptake of high-volume tools is not yet massive and there is long way for contemporary politics to become more compatible with the Internet philosophy of open collaboration. New activities such as crowdsourcing and social networking offer noteworthy participation opportunities and open

unexplored directions for authorities that seek to improve feedback from their public. Nevertheless, citizens' use of networking tools for political mobilisation outside the boundaries of existing institutions should not assume that they will be equally keen to contribute to formal politics. There is certainly debate to come about the implications of those new phenomena and the challenge of enacting engagement from the grassroots.

References

- Best SJ, Krueger BS (2005) Analyzing the representativeness of internet political participation. *Polit Behav* 27:183–216
- Blair T (2008) The e-Petition shows that my government is listening. Homepage of guardian.co.uk. <http://www.guardian.co.uk/commentisfree/2007/feb/18/uk.transport>. Accessed 20 Aug 2011
- Bristol City Council (2011). Bristol petitions. <http://www.bristol.gov.uk/ccm/navigation/council-and-democracy/consultations/petitions/>. Accessed 15 May 2011
- Cabinet Office (2011). Big Society—overview. <http://www.cabinetoffice.gov.uk/content/big-society-overview>. Accessed 15 May 2011
- Carman C (2010) The process is the reality: perceptions of procedural fairness and participatory democracy. *Polit Stud* 58:731–751
- Communities and Local Government (2008) Local petitions and calls for action consultation: government response. Homepage of department for communities and local government. <http://www.communities.gov.uk/documents/localgovernment/pdf/906840.pdf>. Accessed 20 Feb 2011
- Cruikshank P, Smith C (2011a) EuroPetition monitoring and evaluation report. EuroPetition project
- Cruikshank P, Smith C (2011b) Understanding the e-Petitioner. *Transforming Government People Process Policy* 5(4):319–329
- Dutton WH (2009) The fifth estate emerging through the network of networks. *Prometheus* 27:1–15
- Dutton WH, Eynon R (2009) Networked individuals and institutions: a cross-sector comparative perspective on patterns and strategies in government and research. *Inform Soc* 25:198–207
- Dutton W, Helsper EJ (2007) *The internet in Britain: 2007*. Oxford Internet Institute, University of Oxford, Oxford
- Dutton WH, Helsper EJ, Gerber MM (2009) *The internet in Britain: 2009*. Oxford Internet Institute, University of Oxford, Oxford
- Garrett RK (2006) Protest in an information society: a review of literature on social movements and new ICTs. *Inform Commun Soc* 9:202–224
- Hilton S (2006) Developing local e-democracy in Bristol: from information to consultation to participation and beyond. *Aslib Proc* 58:416–428
- House of Commons (2011) Proposals for debating petitions and for a public reading stage for bills. Homepage of House of Commons. <http://www.parliament.uk/briefing-papers/SN05884.pdf>. Accessed 25 May 2011
- Jungherr A, Jürgens P (2010) The political click: political participation through e-Petitions in Germany. *Pol Internet* 2:131–165
- Karpf D (2010) Online political mobilization from the advocacy group's perspective: looking beyond clicktivism. *Pol Internet* 2:7–41
- Krueger BS (2006) A comparison of conventional and internet political mobilization. *Am Polit Res* 34:759–776

- Lindner R, Riehm U (2009) Electronic petitions and institutional modernization. *International parliamentary e-Petition systems in comparative perspective*. *eJournal eDemocracy Open Government* 1:1–11
- Lindner R, Riehm U (2011) Broadening participation through e-Petitions? An empirical study of petitions to the German parliament. *Pol Internet* 3:1–23
- Local Democracy, Economic Development and Construction Act (2009), Homepage of office of public sector information. http://www.opsi.gov.uk/acts/acts2009/ukpga_20090020_en_1. Accessed 15 Sep 2011
- Localism Bill (2010) Localism Bill starts a new era of people power. Homepage of communities and local government. <http://www.communities.gov.uk/news/newsroom/1794971>. Accessed 29 Dec 2010
- Macintosh A (2004) Using information and communication technologies to enhance citizen engagement in the policy process. In: Caddy J, Vergez C (eds) *Promise and problems of edemocracy: challenges of online citizen engagement*. OECD, Paris, pp 19–142
- Macintosh A, Malina A, Farrell S (2002) Digital democracy through electronic petitioning. In: McIver WJ, Elmagarmid AK (eds) *Advances in digital government*. Springer, New York, pp 137–148
- Mahrer H, Krimmer R (2005) Towards the enhancement of e-democracy: identifying the notion of the middleman paradox. *Inform Syst J* 15:27–42
- Miller L (2009) E-petitions at Westminster: the way forward for democracy? *Parliam Aff* 62:162–178
- Misuraca G, Broster D, Centeno C, Punie Y, Lampathaki F, Charalabidis Y, Askounis D, Osimo D, Skuta K, Bicking M (2011) *Envisioning digital Europe 2030: scenarios for ICT in future governance and policy modelling*. European Commission, JRC, Spain
- mySociety (2011) mySociety. <http://www.mysociety.org/about/>. Accessed 15 May 2011
- National Assembly for Wales (2011) *Petitioning: bringing your issues to light*, National Assembly for Wales, Petitions Committee
- Local e-Democracy National Project (2005) *Barriers to e-democracy: local government experiences and responses*
- Navarria G (2010) *The internet and representative democracy: a doomed marriage? Internet, policy and politics 2010: an impact assessment*. St. Anne's College, University of Oxford, UK
- Panagiotopoulos P, Al-Debei MM (2010) *Engaging with citizens online: understanding the role of ePetitioning in local government democracy*. Internet, politics, policy, 2010: an impact assessment. St. Anne's College, University of Oxford, UK
- Panagiotopoulos P, Moody C, Elliman T (2011a) An overview assessment of ePetitioning tools in the English Local Government. In: Tambouris E, Macintosh A, de Bruijn H (eds) *3rd international conference on eParticipation, LNCS 6847*, pp 204–215
- Panagiotopoulos P, Sams S, Elliman T, Fitzgerald G (2011b) Do social networking groups support online petitions? *Transforming Government People Process Policy* 5:20–31
- Panagiotopoulos P, Al-Debei MM, Fitzgerald G, Elliman T (in press) A business model thinking perspective for ICTs in public engagement. *Gov. Inf. Q.*
- Rose J, Saebo O (2010) Designing deliberation systems. *Inform Soc* 26:228–240
- Saebo O, Rose J, Flak LS (2008) The shape of eParticipation: characterizing an emerging research area. *Govern Inform Q* 25:400–428
- Scottish Parliament (2011) *The Scottish Parliament ePetitions*. <http://epetitions.scottishparliament.uk/>. Accessed 15 May 2011
- Seaton J (2005) The Scottish parliament and e-democracy. *Aslib Proc* 57:333–337
- Shulman SW (2009) The case against mass e-mails: perverse incentives and low quality public participation in U.S. federal rulemaking. *Pol Internet* 1:111–145
- Skunkwork (2011) *E-petitions revised proposal for Directgov*, Skunkwork HM Government
- Whyte A, Renton A, Macintosh A (2005a) *eDemocracy from the top down: an evaluation of eDemocracy activities initiated by councils and government*. Bristol City Council for The Local eDemocracy National Project, Bristol, UK
- Whyte A, Renton A, Macintosh A (2005b) *e-Petitioning in Kingston and Bristol: evaluation of e-petitioning in the local e-democracy national project*. Napier University, Edinburgh

Euripidis Loukis

Abstract

Local, regional and national governments of many countries invest significant amounts of money in various types of eParticipation projects, aiming to engage citizens in public policymaking and decision-making exploiting the information and communication technologies (ICT). However, they do not pay sufficient attention to evaluating these efforts, while a widely accepted methodology for this purpose is missing. This chapter initially reviews the frameworks and methodologies that have been developed from previous research for the evaluation of information systems (IS), traditional offline public participation and also eParticipation. Then, based on them, a synthetic methodology has been developed for evaluating eParticipation projects. Furthermore, an alternative simpler methodology is presented for the same purpose, in order to be used in cases of limited resources and big time pressure. Also, a methodology for conducting more focused evaluations of significant innovative components, such as the 'structured eForum' that enables a more structured electronic discussion on a public policy or decision, is presented. Finally, the conclusions and lessons learnt are outlined.

6.1 Introduction

The high potential of modern information and communication technologies (ICT) for supporting citizens' engagement in the democratic processes of modern representative democracy has been for long time recognised by academics and practitioners (OECD 2001a, b, 2003a, b, 2004, 2005, 2009; Macintosh et al. 2002; Timmers 2007).

E. Loukis (✉)

Department of Information and Communication Systems Engineering, University of the Aegean, Gorgyras and Palama Str., Karlovassi 83200, Samos, Greece
e-mail: eloukis@aegean.gr

The high diffusion of ICT and especially the Internet, which offer a new interactive, cheap, inclusive and unconstrained by time and distance environment for public political communication, and at the same time the trend towards more participation of citizens in the processes of public decision-making and policymaking, and in general towards the establishment of stronger relations between citizens and institutions of governance, have been the main drivers of the emergence and development of eParticipation (Coleman and Gotze 2002). A recent relevant report of OECD (2009) argues that ICT-supported public engagement of citizens can improve not only governments' 'democratic performance' (i.e. the degree to which government decision-making processes live up to democratic principles) but also their 'policy performance' (their ability to deliver tangible positive outcomes for the society) as well. For these reasons, local, regional and national governments of many countries invest significant amounts of money in various types of eParticipation projects, aiming to engage citizens in public policymaking and decision-making using ICT (OECD 2003a, 2004, 2009; Macintosh 2004; European Commission 2006; Timmers 2007). In this way, they try to extend citizens' public participation with the establishment of an additional effective channel of communication with civil society based on innovative usage of ICT for supporting open and transparent democratic processes.

However, it is widely accepted that despite the significant investments made in eParticipation, there has been limited attention to the systematic evaluation of these efforts. OECD (2004) concludes that "there is a striking imbalance between the amount of time, money and energy that governments in OECD countries invest in engaging citizens and civil society in public decision-making and the amount of attention they pay to evaluating the effectiveness of such efforts". OECD (2003a) calls for more activity in the area of eParticipation evaluation arguing that "as governments increasingly support the development of ICTs to enable citizen engagement on policy-related matters, there is a corresponding need to know whether online engagement meets both citizens' and governments' objectives" since "...the benefits and impacts of applying technology in opening up the policy process to wider public input have yet to be evaluated and articulated". More recently, OECD (2009) based on surveys of its member countries drew similar conclusions and stated that "we have established rights, we have active citizens and a commitment to engage them in policy making but we face challenges of resources, time and a lack of evaluation". At the same time, Aichholzer and Westholm (2009) acknowledge that it is necessary to close the existing "evaluation gap" in eParticipation by analysing its processes and outcomes against predefined criteria.

Taking into account that eParticipation is a relatively new approach, so its practices and processes have not reached high levels of maturity yet, it is necessary to evaluate it carefully, in order to understand it better, acquire more knowledge about it and identify both the advantages and benefits it offers, and also at the same time its disadvantages, shortcomings and problems. The evaluation of eParticipation efforts and pilots is of critical importance for identifying successful eParticipation practices, processes and systems, which are appropriate for achieving

specific participation objectives in specific situations and contexts, and also for improving eParticipation practices, processes and systems, and in general for achieving a higher maturity of it. The knowledge acquired through evaluation will be very useful for eParticipation sponsors, organisers and participants.

However, a widely accepted practical methodology to be used by government organisations for evaluating eParticipation projects, which would allow the evaluation of large numbers of eParticipation efforts in a similar manner using the same criteria, and therefore the systematic generation of a significant amount of knowledge in this area, is missing. Such a methodology on the one hand should provide rich information on various important aspects of eParticipation, but on the other hand should not be too complicated, impractical and costly. This chapter initially reviews in Sect. 6.2 the frameworks and methodologies that have been developed from previous research for the practical evaluation of information systems, traditional offline public participation in Sect. 6.3 and also eParticipation in Sect. 6.4. Section 6.5 builds on the previous sections to present synthetic methodology which is developed for evaluating eParticipation projects, while another simpler and more rapid methodology is presented in Sect. 6.6. Section 6.7 includes a methodology for conducting a more focused evaluation concerning a significant innovative part of several advanced eParticipation projects, the ‘structured eForum’, and finally lessons learnt and conclusions are outlined in Sect. 6.8. We believe that this chapter, both the review of existing evaluation frameworks and methodologies and the ones we have synthetically developed, will be highly useful to eParticipation practitioners, and also to researchers and ICT and consulting firms active in the area of eParticipation.

6.2 Information Systems Evaluation

Taking into account that eParticipation is public participation based on ICT, it is useful initially to review previous research on information systems (IS) evaluation (discussed in current section) and public participation evaluation (discussed in Sect 6.3). Extensive research has been conducted over the last 30 years concerning the methodology of IS evaluation (Land 1976; Hirschheim and Smithson 1988; Farbey et al. 1995, 1999; Smithson and Hirschheim 1998; Irani 2002; Irani and Love 2001; Irani et al. 2006, 2008; Love et al. 2005), motivated by the big investments being made by private and public organisations, which necessitate an investigation of the value they produce. This research concluded that IS evaluation is characterised by a number of inherent difficulties and complexities:

1. The benefits and in general the value created by most categories of IS are complex and multidimensional, both tangible and intangible, so it is difficult to decide ‘what to measure’ for the evaluation and ‘how’.
2. Different IS categories have quite different objectives and produce different types of benefits and value, so they require different kinds of ‘measurements’ and evaluation methods. For this reason, it is not possible to develop a generic ‘best IS evaluation method’ suitable for all IS categories; so the optimal

approach is to develop specialised IS evaluation frameworks for particular types and categories of IS reflecting, which can be customised and elaborated for each particular IS evaluation we have to perform.

3. As IS usually affect multiple stakeholders, with different concerns, value systems and agendas, IS evaluation has to take into account all these different perspectives, and examine both the positive and the negative impact of IS on each group of stakeholders.

There are many IS evaluation methods proposed by the relevant literature, which can be divided into two basic categories (Smithson and Hirschheim 1998). The first category consists of ‘efficiency-oriented’ methods, which have been influenced mainly by engineering approaches, and evaluate the performance of an IS with respect to some detailed specifications, being concerned mainly with the question “is it doing things right?”. The second category consists of ‘effectiveness-oriented’ methods, which have been influenced mainly by management science approaches, and evaluate how much an IS supports the execution of business-level tasks or the achievement of business-level objectives, being concerned with the question “is it doing the right things?” as well. Farbey et al. (1999) provide a framework, named the ‘benefits evaluation ladder’, for classifying IS according to the method required for evaluating the benefits they offer. It consists of the following eight categories of IS, named ‘ladder rungs’: mandatory IS, automation IS, direct value added IS, management information and decision support systems (MIS–DSS), infrastructure IS, inter-organisational IS, strategic IS and business transformation enabling IS. Moving up the ladder the potential benefits increase, but at the same time increase the uncertainty of outcomes, the risk of failure and the difficulty–complexity of benefits evaluation. For each of the above rungs, a different evaluation method is proposed: while in the lower rungs (e.g. for mandatory or automation IS), the evaluation is based on the precise quantification of benefits and costs, in the higher rungs (e.g. for strategic or business transformation enabling IS), the evaluation is mainly judgemental. Subsequent research literature in this area (Irani 2002; Irani et al. 2006; Love et al. 2005) emphasises the need for IS evaluation methods specialised to specific types of IS, which take into account their particular objectives and characteristics.

Also, extensive research has been conducted on IS acceptance by users, regarding it as a major measure of IS value, and aiming to identify the characteristics and factors that affect the attitude towards using an IS, the intention to use it and finally the extent of its actual usage. It is based on the technology acceptance model (TAM) and its various subsequent extensions (Davis 1989; Venkatesh and Davis 2000; Venkatesh et al. 2003). According to the initial TAM, the attitude towards using an IS, which finally determines the intention to use it and its actual use, is determined mainly by two characteristics of it: its perceived ‘ease of use’ and ‘usefulness’ (Davis 1989); each of these two factors can be elaborated into a detailed set of variables for each particular type of IS we want to study. Based on this framework, extensive research has been conducted for understanding better and predicting user acceptance of various types of IS (e.g. see Schepers and Wetzels 2007; Hsiao and Yang 2010).

At the same time, considerable research has been conducted on IS success, leading to the development of IS success models; the most widely used of them is DeLone and McLean model of IS success (1992, 2003). It proposes seven IS success measures, which are structured in three layers: ‘information quality’, ‘system quality’ and ‘service quality’ (at the first layer), which affect “user satisfaction” and also the ‘actual use’ of the IS (at the second level); finally these two variables determine the ‘individual impact’ and the ‘organisational impact’ of the IS. Seddon (1997) proposed a re-specification and extension of this model, which includes the ‘perceived usefulness’ instead of ‘actual use’.

Therefore, based on the conclusions of this research stream, for evaluating eParticipation projects, it is necessary to include their ‘efficiency’ and ‘effectiveness’, both properly defined and adapted to the generic objectives of public participation and eParticipation, and also to the particular objectives and characteristics of the eParticipation project under evaluation. Also, it is necessary to examine the ease of use and the usefulness of the technological platforms and tools employed, focusing on information, system and service quality.

6.3 Public Participation Evaluation

Rowe and Frewer (2004) define public participation as “the practice of consulting and involving members of the public in the agenda-setting, decision-making and policy forming activities of organisations or institutions responsible for policy development”. They view it as a move away from an ‘elitist model’, in which managers and experts are the basic source of regulations and public policies, to a new model, in which citizens have a more active role and voice. Participatory democracy attempts to give a solution in the so-called deficit of democracy and the abstention and disengagement of citizens from politics. From several OECD studies (OECD 2001a, b, 2004, 2005, 2009), it has been consistently stated that governments of many countries make considerable efforts in order to apply and realise the above ideas in practice, promote public participation and strengthen their relations with the citizens, regarding them as sound investments in better policymaking and as a core element of good governance. For achieving these objectives, governments use several mechanisms designed to inform, consult and involve those affected by particular decisions and public policies (Rowe and Frewer 2000); the most widely used of them are public hearings/inquiries, public opinion surveys, citizens’ juries/panels, focus groups, citizen/public advisory committees, consensus conferences, negotiated rule making and referenda.

It has been recognised that the evaluation of public participation projects is important for all involved parties: the sponsors that initiate them, the organisers running them, the participants and also the uninvolved but affected public. For these reasons, there are many previous studies that report evaluations of public participation in various public policy domains (e.g. environment, transport, biotechnology, services for ageing population) using various criteria; comprehensive reviews of these studies are provided by Chess and Purcell (1999), Rowe and Frewer (2004) and

Laurian and Shaw (2009). However, beyond the research world, in government practice, limited evaluation of public participation projects is conducted. OECD (2005) identifies an 'evaluation gap' in the area of public participation and proposes various directions for this purpose; also, Laurian and Shaw (2009) more recently stated that "despite considerable attention given to public participation in planning practice and research, the field of participation evaluation lags behind". Furthermore, although there have been some attempts for specifying complete sets of criteria for evaluating public participation, it is acknowledged that there are no established evaluation methods and criteria in this area (Rowe and Frewer 2000, 2004).

It is interesting and useful to review the most important public participation evaluation frameworks reported in the previous literature, as they include elements that can be useful for the development of eParticipation evaluation frameworks and methods. Webler (1995) proposes a public participation evaluation framework consisting of criteria along two basic dimensions: 'fairness' (assessing to what extent it is perceived by the public as fair and democratic) and 'competence' (assessing to what extent the conclusions have been drawn in an effective manner). Petts (1995) evaluates community involvement and consensus building concerning waste management based on five criteria: impact on decision process, knowledge achieved, compatibility with participants' objectives, representativeness and effectiveness of method and process. The study of Coglianese (1997) should also be mentioned, which compares the negotiated rulemaking to the 'traditional' rulemaking process, using two criteria: (1) the decreased time to develop regulations (calculating the number of days for completion of rules for negotiated rulemaking and traditionally derived rules) (i.e. an 'efficiency' measure) and (2) the reduction or elimination of subsequent judicial challenges (collecting data on litigation of negotiated and traditionally derived rules) (i.e. an 'effectiveness' measure).

Moreover, it is worth describing in more detail the generic framework for evaluating public participation developed by Rowe and Frewer (2000) taking into account previous research in this area. It includes two categories of evaluation criteria: the 'acceptance' criteria, which are related to the public acceptance of the procedure, and 'process' criteria, which are related to the implementation and effectiveness of the procedure. The particular criteria of each category are as follows:

1. Acceptance criteria

- Criterion of representativeness (the public participants should comprise a broadly representative sample of the affected population)
- Criterion of independence (the participation process should be conducted in an independent and unbiased way)
- Criterion of early involvement (the public should be involved as early as possible in the process as soon as value judgements become salient)
- Criterion of influence (the output of the procedure should have a genuine impact on decisions and policy)
- Criterion of transparency (the participation process should be transparent, so that the public can see what is going on and how decisions are being made)

2. Process criteria

- Criterion of resource accessibility [public participants should have access to the appropriate resources to enable them to successfully achieve their objectives (information resources, human resources, material resources and time resources)]
- Criterion of task definition (the nature and scope of the participation task should be clearly defined, so that there is no confusion or dispute concerning the scope of the participation, the expected output and the procedure)
- Criterion of structured decision-making (the participation procedure should include appropriate mechanisms for structuring and displaying the decision-making process)
- Criterion of cost-effectiveness (the participation procedure should in some sense be cost-effective)

An improved version of this evaluation framework has been used by Rowe et al. (2004), for assessing 'process' and 'outcome' of citizens' participation in a deliberative conference on sponsor's policy concerning radiation doses in food.

Laurian and Shaw (2009), adopting a different perspective of process than Rowe and Frewer (2000) and based on previous literature on the goals of public participation, developed an evaluation framework focusing on the degree of achievement of three types of goals: 'process-based', 'outcome-based' and 'user-based' goals. In particular, the evaluation criteria it proposes per category are as follows:

(a) Process-based goals achievement criteria:

- Increase of public awareness about the issue under discussion, the stakes and the decision-making processes
- Increase of government agency awareness of public views, concerns and preferences
- Transparency concerning the decision-making process and the issue under discussion.
- Inclusiveness, so that all stakeholders and views are given standing, expressed, heard, respected and considered
- Fairness (concerning ground rules, decision-making, decisions and implementation) and power sharing (no dominating group-shared decision-making power)

(b) Outcome-based goals achievement criteria:

- Meeting statutory requirements
- Finding an acceptable solution and reaching consensus
- Reaching a high-quality decision that integrates broad knowledge base and public input
- Increase of government agency legitimacy
- Increase of legitimacy and acceptability of decision
- Avoidance or mitigation of conflict
- Facilitation of solution implementation
- Building of institutional capacity to participate and act in the future

- Building of social networks, mutual understanding among participants, trust and lasting relationships, social capital, sense of citizenship (among citizens and with administrators)
 - Improvement of outcomes for the most disenfranchised groups
- (c) User-based goals achievement criteria:
- Overall satisfaction of participants with process and outcomes
 - Degree of achievement of other goals defined by participants

This stream of research on the evaluation of public participation has created significant foundations for evaluating public participation projects, both ‘offline’ and ‘online’, and can provide useful evaluation dimensions and criteria.

6.4 eParticipation Evaluation

It is widely acknowledged that there are no established complete methodologies for the evaluation of eParticipation (e.g. see Rose and Sanford 2007; Saebo et al. 2008). However, there are some frameworks suggesting dimensions and criteria that should be taken into account for evaluating eParticipation; they are combining evaluation dimensions and criteria from previous research on public participation evaluation and on IS evaluation. In this section, the most important of them are briefly reviewed.

Whyte and Macintosh (2003) proposed a framework for evaluating eConsultation from three perspectives: political, technical and social. In particular:

- The political evaluation is based on the following criteria: clarity concerning the eConsultation objectives, the roles and responsibilities of both the participating citizens and the competent government organisations, the extent of influence of participating citizens, the owners and the actors; also to what extent the targeted participant groups have actually participated, how accessible and understandable was the information provided to the participants before entering the eConsultation, and whether the eConsultation took place early enough in the policy life cycle so that it can influence decisions; and finally adequacy of time, adequacy of financial, human and technical resources and extent of giving feedback to the participants during and after the eConsultation.
- The technical evaluation assesses whether the ICT system that has been used was easy-to-use and appropriate for the targeted participants groups; it is based on software usability and accessibility frameworks, and its main criteria are as follows: clarity, organisation and consistency of screens, informative feedback, simple error handling, easy reversal of actions, appropriate language, user control of the pace of interaction, adequate shortcuts for the frequent users, accessibility by people with disabilities, etc.
- The social evaluation assesses to what extent the social practices and capabilities of the participants have affected the consultation outcomes.

OECD (2003a, 2004) has developed a framework consisting of seven ‘issues for the evaluation of online engagement’, each of them having the form of a basic question further analysed into a number of sub-issues/sub-questions:

1. Was the eConsultation process conducted in line with best practice? (Ask stakeholders if they are satisfied with the process, assess whether adequate resources were in place to conduct the consultation, check whether process followed best practice guidelines, and assess whether the choice of an online tool was appropriate for the consultation.)
2. Were the consultation objectives and what was expected of the citizens made clear? (Ask stakeholders if they understand what is being asked and assess whether the participants' contributions were appropriate.)
3. Did the consultation reach the target audience? (Assess the adequacy of the promotion of the eConsultation and identify who and where potential participants are, in terms of demographic and geographic characteristics.)
4. Was the information provided appropriate and relevant? (Assess how easily the participants can access the information and assess whether the participants' contributions were informed by it.)
5. Were the contributions informed and appropriate? (Assess to what extent the contributions address the consultation issue, assess how easily the participants can access contributions from others, classify contributions according to whether they provide information, ask questions or make suggestions, and assess to what depth contributions respond to other contributions.)
6. Was feedback provided both during and after the consultation? (Assess whether questions are answered by government during the consultation and assess the extent to which the government feedback relates to the contributions.)
7. Was there an impact on policy content? (Check to what extent a change of policy is possible given the stage in the decision-making the consultation occurred and assess to what extent contributions are reflected in the revised or newly formulated policy.)

Henderson (2005) also provides an 'eDemocracy evaluation framework', which consists of a set of key evaluation dimensions that address the issues of:

- Effectiveness (Do the initiatives deliver intended outcomes? To what extent are designated objectives met?)
- Equity (Is there equitable access to the benefits of the initiatives?)
- Quality (What is the level of user and stakeholder satisfaction? Are relevant benchmark standards met?)
- Efficiency (Do the initiatives provide value for money?)
- Appropriateness (Are the eDemocracy initiatives appropriate for the particular context at this time? Do they provide a relevant response to identified needs and/or opportunities in this area?)
- Sustainability (Do the initiatives provide a durable and generalisable approach to achieving the desired outcomes?)
- Process (How can the current initiatives be enhanced to provide better outcomes?)

Another framework for the evaluation of eParticipation initiatives, focused mainly on local government, has been developed by Macintosh and Whyte (2006, 2008). It includes three evaluation perspectives: democratic, project and socio-technical. In particular:

1. The democratic perspective includes criteria associated with the effect of the initiative on the involved representative institutions (supporting, complementing and enhancing them, and not undermining them), the transparency of the decision-making processes, the political equality and inclusiveness, the community control by the citizens and on consensus building (among divergent views and opinions).
2. The project perspective concerns the extent of accomplishment of the aims and objectives of each particular eParticipation initiative, as set by its project management team. Criteria of this perspective can be the extent of engaging with a wider audience, obtaining better informed opinions, enabling more in-depth consultation, providing feedback to citizens and cost-effectiveness of contributions' analysis.
3. The socio-technical perspective includes criteria of usability, usefulness and acceptability of the employed ICT tools. The usability criteria are related to the navigation capabilities and the whole organisation of them, their efficiency and flexibility from the user's viewpoint, and also the error recover capabilities they provide. The usefulness criteria are related to their accessibility [level of compliance with Web accessibility initiative (WAI) guidelines], appeal, content clarity and responsiveness. Finally the social acceptability criteria are related to the accuracy, completeness and reliability of information provided to the citizens, and their trust that the information they provide is handled securely; also, they are related to the relevance and legitimacy of the employed ICT tools. A more detailed and elaborated version of this framework is presented by Aichholzer and Westholm (2009).

Also, Bicking and Wimmer (2009) developed a framework for assessing the impact of eParticipation projects. The main focus of this methodology is to investigate how much sustainable interest of end users has been achieved through the project; this is measured in a scale including the following five levels:

- Level 4—Very high impact: End users actively participate, and it is likely that they will sustainably use the eParticipation system provided.
- Level 3—High impact: Majority of the end users actively participate, while a minority just visit the eParticipation system.
- Level 2—Medium impact: End users are reached, but majority just visit the eParticipation system instead of actively participating.
- Level 1—Low impact: The project could raise public awareness. Majority of the end users know about the existence of the eParticipation system; however, end users are not visiting it.
- Level 0—No impact: The project could not raise awareness.

Additionally, four important dimensions of the project, which are regarded as main determinants of end users' sustainable interest, are evaluated as well:

- (a) Tools and technologies: The technology employed by the project is evaluated as to its suitability and relevance for the different citizens' groups addressed, and also its usability, appropriateness, appeal and attractiveness.
- (b) Processes supported: It is evaluated to what extent the project takes place in sufficiently early in the policy cycle (regarded as consisting of the following

five stages: agenda setting, policy formulation, decision-making, policy implementation and policy evaluation), so that it can have a considerable impact on the policy under discussion; also, it is evaluated to what extent the eParticipation processes adopted attract the respective target groups and meet their requirements and expectations with regard to course, development, progress and impact of target group's participation.

- (c) Topic discussed: It is evaluated to what extent the topic under discussion is important, interesting and appealing to the target groups.
- (d) Policies supported: It is evaluated to what extent the project addresses and supports existing policies, and to what extent it has been influenced by them (e.g. as to the choices made for the above three dimensions: tools and technologies, processes and topic).

6.5 A Synthetic Methodology for Evaluating eParticipation Projects

By combining elements from the above-mentioned frameworks and methodologies developed from previous research for the evaluation of IS, traditional offline public participation and eParticipation, a synthetic methodology for evaluating eParticipation projects was developed (Loukis et al. 2010a). It incorporates views and concerns of the three main groups of stakeholders of such a project: affected citizens, competent government agencies and politicians.

From the review of the previous research on the evaluation of public participation, it is concluded that the main evaluation dimensions are the process adopted and also the outcomes from various viewpoints (e.g. of the citizens, the involved government agencies, the politicians). Moreover, it revealed an additional evaluation dimension: the usability and technical quality of ICT platform employed. For these reasons, the proposed methodology is organised around three evaluation perspectives: process (PRO), system (SYS) and outcomes (OUT); each of them includes a number of evaluation criteria. It assesses all the three basic dimensions of both 'traditional public participation' and eParticipation according to OECD (information provision, consultation and active participation) (OECD 2001a, b, 2003a, b, 2004, 2005) in the legislation formation context. Furthermore, it assesses all the evaluation dimensions proposed by the model of information systems success of Delone and McLean (2003): information quality, systems quality, use, user satisfaction, individual impact and organisational impact, adapted to the context of eParticipation.

The process (PRO) perspective aims to evaluate the process that has been followed in the particular eParticipation project. It is based on the 'efficiency evaluation' proposed by Smithson and Hirschheim (1998) and the 'process'-related dimensions that most 'traditional' public participation and eParticipation evaluation frameworks include. Also, it incorporates part of the 'political evaluation' concept of the Whyte and Macintosh (2003) framework, and the 'information

quality' of the Delone and McLean (2003) information systems success model. The process perspective includes 16 criteria shown in Table 6.1.

The system (SYS) perspective aims to evaluate the ICT system that has been used in the particular eParticipation project. It is based on the 'ease of use' concept of the "TAM" (Davis 1989; Venkatesh and Davis 2000), which is an important determinant of IS acceptance and use, the 'system quality' dimension of the Delone and McLean information systems success model (2003), and the 'technical evaluation' concept of the Whyte and Macintosh (2003) framework; it constitutes another aspect of the 'efficiency evaluation' proposed by Smithson and Hirschheim (1998). This perspective includes 11 criteria shown below in Table 6.2.

Table 6.1 Evaluation criteria of the process perspective

PRO1: Clarity of objectives
PRO2: Clarity concerning the participants and the roles and responsibilities of each
PRO3: Clarity concerning the main political sponsor
PRO4: Adequacy of time
PRO5: Adequacy of resources (human, technical, financial)
PRO6: Appropriate promotion to potential participants
PRO7: Participants' personal data protection
PRO8: Quantity and quality of the background information provided to the participants (how complete, objective, correct, reliable, relevant, useful and clear/understandable this information was)
PRO9: Quality of the facilitator/moderator
PRO10: Analysis of contributions of participants
PRO11: Publication of the results and conclusions of the analysis of contributions
PRO12: Feedback to the participants concerning how their contributions will be (or have been) used and integrated in the government decision-making process
PRO13: Commitment of the competent politicians and public servants
PRO14: Adequacy of the whole eParticipation project design
PRO15: Time required to complete the process in relation to the time previously needed
PRO16: Multiplicity of channels for participation provided to stakeholders

Table 6.2 Evaluation criteria of the system perspective

SYS1: Appropriateness of the ICT system for engaging the targeted participants
SYS2: General ease of use of the ICT system by the participants
SYS3: Organisation, simplicity and clarity of screens
SYS4: Simple error handling
SYS5: User control of the pace of interaction
SYS6: Easy reversal of actions
SYS7: Accessibility by people with disabilities
SYS8: Ease of accessing the background information provided to the participants
SYS9: Ease of posting a contribution in the forum
SYS10: Ease of accessing the contributions of the other participants in the forum
SYS11: Technical quality (response time, downtime, etc.)

Finally the outcome (OUT) perspective aims to evaluate the outcomes from a political viewpoint of the particular eParticipation project, with main emphasis on stakeholders' extent of participation, contributions, interaction and satisfaction, and also on the impacts on the quality, the acceptance and the applicability of the legislation under development. It is based on the 'effectiveness evaluation' concept proposed by Smithson and Hirschheim (1998), the 'use', 'user satisfaction', 'individual impact' and 'organisational impact' dimensions of the Delone and McLean (2003) information systems success model, and the "usefulness" concept of the 'TAM' (Venkatesh et al. 2003), which is an important determinant of IS acceptance and use. It is also based on the objectives of the governments adopting public participation and eParticipation according to OECD 2001a, b, 2003a, b, 2004, 2005, the 'outcomes'-related dimensions that most public participation and eParticipation evaluation frameworks include and part of the 'political evaluation' concept of the Whyte and Macintosh (2003) framework. The outcomes perspective includes 18 criteria shown in Table 6.3.

For collecting data concerning the above evaluation perspectives and criteria, we should use both quantitative and qualitative techniques (e.g. both surveys and focus-group in-depth discussions). This methodology can provide rich information on a wide variety of aspects of the project under evaluation, which enables the formation of a rich picture concerning the value created by the project and also its

Table 6.3 Evaluation criteria of the outcome perspective

OUT1: Extent of participation of citizens affected by the policy/decision under discussion
OUT2: Extent of participation of the main interest groups affected by or associated with the policy/decision under discussion
OUT3: Extent of participation of less politically involved groups (e.g. young people, minorities, lower socio-economic classes) affected by the policy/decision under discussion
OUT4: Extent of participation of public servants from the competent government agency
OUT5: Extent of participation of independent experts
OUT6: Informed contributions
OUT7: Quality of contributions
OUT8: Pluralism of contributions
OUT9: Extent of interaction among participants' (number of contributions on other participants' contributions)
OUT10: Extent of conflict management and consensus building
OUT11: Generation of useful information, knowledge and views concerning the policy/decision under discussion, which can be useful for improving it
OUT12: Impact of citizens' contributions on the policy/decision under discussion
OUT13: Impact on acceptance and applicability of this policy/decision
OUT14: Impact on perceived transparency and trust to government
OUT15: Satisfaction of the citizens who participated
OUT16: Satisfaction of the public servants from the competent government agency who participated
OUT17: Satisfaction of the independent experts who participated
OUT18: Willingness of stakeholders to reuse the system

main strengths, weaknesses and improvement needs. However, its practical application requires much effort and considerable human and financial resources and time. So it is possible in cases of limited resources and/or time to focus for each perspective on a subset of the proposed evaluation criteria, which are more relevant and important for the particular project under evaluation. Also, an alternative simplified methodology was developed and is described in the following section.

6.6 A Simplified Methodology for Evaluating eParticipation Projects

A simplified methodology for evaluating eParticipation projects was developed for the evaluation of project FEED ‘Federated eParticipation Systems for Cross-Societal Deliberation on Environmental and Energy Issues’¹ (Loukis et al. 2009). The FEED project was based on an advanced eParticipation platform that allows citizens and government agencies to share quickly and easily multimedia content through a map interface (e.g. pictures or video, produced even through simple mobile phones, which show problems or document opinions/positions concerning particular geographical locations or areas). Every user of this platform (citizen or government agency) can upload a multimedia document on the topic under discussion and associate it with a particular geographical location or area, and also can search (based on the digital map or/and the semantic annotation of all documents) for content provided by other citizens or government agencies. Beyond this powerful interaction mechanism, the platform offers additional capabilities for interaction between citizens and government agencies, and also among citizens, through various forum and petition functionalities.

This simplified evaluation methodology [for more information about it, see Loukis et al. (2010b)] focuses on citizen’s viewpoint (but does not examine other stakeholders’ viewpoints) and is based on the TAM (Davis 1989; Venkatesh and Davis 2000), which is a mature and widely used framework for evaluating various types of IS. Therefore, the main evaluation dimensions are usage, ease of use and usefulness; each of them is further elaborated and adapted to the objectives and capabilities of the particular eParticipation platform. For the case of the above FEED project platform:

1. The usage of the platform was evaluated by assessing the extent of using it for getting information on the topic under discussion and for contributing postings about it in the forum.
2. The ease of use was evaluated by assessing how easy it was for users to use the platform in general and also its the main capabilities: to search for and find information using the map, to access the postings of the other users and to add a new multimedia posting.

¹ <http://www.feed-project.eu>. Accessed 14 Aug 2011.

3. The usefulness dimension, taking into account that a user of such a platform has both functional objectives (e.g. read information and postings on the topic under discussion, and enter his/her own contributions) and political objectives (influence decisions and public policies on the topic under discussion), was divided into sub-dimensions: the ‘functional usefulness’ and the ‘political usefulness’. The former was evaluated by assessing to what extent the users find that the map interface and the information uploaded on it enabled them to get better informed on the topic under discussion and to contribute more informed postings in the forum discussion, and also to what extent the forum postings of others increased their knowledge on the discussion topic. The latter was evaluated by assessing what level of eParticipation the users believe that has been achieved [information provision from government to citizens, consultation with citizens (aiming at simply collecting their opinions), engagement (meant as consultation affecting government decisions) or citizens’ empowerment], and whether they believe that the visions and ideas they entered in the forum will be further considered by the government, and also their general satisfaction.

Furthermore, taking into account that the value for the citizens of eParticipation conducted through such a platform depends also on the importance of the discussion topic, we used it as an additional evaluation sub-dimension. It was evaluated by assessing how important the users find the topics discussed, and also to what extent they attract the users to use the platform again in the future. Each of the above evaluation dimensions and criteria should be assessed using both quantitative and qualitative techniques. Table 6.4 illustrates the questionnaire used for the quantitative evaluation, which shows the evaluation dimensions and their corresponding evaluation criteria.

This methodology is applicable to all types of eParticipation projects by adapting the evaluation criteria of each of the above four dimensions (use, ease of use, usefulness, topic) to the particular objectives, capabilities and characteristics of the project under evaluation (i.e. use as main evaluation criteria the extent of use, the ease of use and the functional usefulness of the main capabilities provided to the user, and also the political usefulness of the whole system and process). Its main advantage is that it allows the assessment of the most important aspects of an eParticipation project from citizen’s viewpoint using a small number of evaluation criteria and therefore has low requirements for human and financial resources.

6.7 A Methodology for Focused Evaluations

Very often, in addition to the evaluation of a whole eParticipation project, there is a need to conduct more focused evaluations of significant innovative components, for which more knowledge has to be gained. In this section, an evaluation methodology for this purpose is described, which aims at the evaluation of a ‘structured eForum’ component, developed as part of the project LEXIS ‘Enabling Participation of the Youth in the Public Debate of Legislation among Parliaments, Citizens and

Table 6.4 Evaluation dimensions and criteria of the simplified methodology for evaluating eParticipation projects

1. Usage
U1. How often did you visit the platform in order to get information (e.g. search for documents)?
U2. How often did you contribute, e.g. by posting an opinion, by participating in an opinion poll?
2. Ease of use
EOU1. Do you think the platform (all tools and information provided online) is easy to use?
EOU2. Did you find the use of the maps provided in the platform helpful in order to find or add information regarding the topic under discussion?
EOU3. Did you find the use of the forum module of the platform easy to use in accessing the postings of other forum members (participants) or adding a posting of your own?
3. Usefulness
US1. What level of engagement with the topic under discussion did you reach through the online participation?
US2. To what extent did the map and the information appended (uploaded) on it help you to get better informed on the topic under discussion?
US3. To what extent did the map and the information appended on it help you to make a better and more informed posting and participation in the forum discussion?
US4. To what extent did you learn new things on the topic under discussion from the postings of other participants of the forum?
US5. Do you think your visions and ideas you expressed in the forum discussion will be further considered?
US6. How satisfied were you with the whole eConsultation/eParticipation process?
US7. Does this eConsultation/eParticipation process attract you to participate again
4. Topic
TO1. How would you judge the importance of the topics discussed?
TO2. Does the topic attract you to return to the portal and online participation/consultation?

Businesses in the European Union'² (Loukis 2011). The structured forum requires from the participants to annotate semantically each new posting as 'issue', 'alternative', 'pro-argument', 'contra-argument' or 'comment'; also, it requires each new posting to be associated with a previous one according to some predefined rules: for each issue, participants are allowed to enter other issues, alternatives or comments; for each alternative, they can enter pro-arguments, contra-argument or comments; for each argument (pro or contra), other arguments (pro or contra); and finally for each comment, other comments. This guides the participants to think in a more structured way about the topic under discussion (i.e. to think which are the main issues, what are the main alternatives for addressing each of them, which are the main advantages and disadvantages of each alternative, etc.), and to make more mentally processed and focused contributions; this increases the quality, focus and effectiveness of the discussion.

The proposed methodology for evaluating the structured forum also focuses on citizen's viewpoint, but, as it has to go into more depth, it includes not only subjective evaluation criteria (subjective measures), like the evaluation methodologies described

² <http://www.lex-is.eu>. Accessed 12 Aug 2011.

in Sects. 6.5 and 6.6, but also objective ones (objective measures) [for more information, refer to Xenakis and Loukis (2010) and Loukis (2011)]. In particular, it includes three evaluation stages:

1. Analysis of the discussion tree formed by the postings of the participants, which includes the calculation of the following objective metrics:
 - Number of postings entered by the participants in total
 - Number of postings per type, for each of the allowed types (i.e. key issues, comments, alternatives, pro-arguments, contra-arguments)
 - Number of postings per level of the discussion tree (for assessing the depth of the discussion)
 - Percentage of the postings assigned a mistaken type (as an objective indicator of the ease of use of the structured eForum)
2. Quantitative evaluation, based on the statistical processing of participants' responses to an evaluation questionnaire we formulated and distributed electronically to them, which included questions asking participants to assess two basic dimensions of the structured eForum, its perceived ease of use and usefulness, adopting TAM (Davis 1989; Venkatesh and Davis 2000).
3. Qualitative evaluation, based on a semi-structured focus-group discussion with typical participants in the eConsultation, aiming at a more deep understanding of the above two main aspects, ease of use and usefulness of the structured eForum, and identifying its main strengths and weaknesses.

Table 6.5 presents the questionnaire used for the quantitative evaluation, which shows the evaluation criteria for each of the above-mentioned two evaluation dimensions (ease of use and usefulness).

This methodology is applicable to various types of significant innovative components of eParticipation platforms that need a more focused in-depth evaluation, so that more knowledge can be generated, by adapting the evaluation criteria of each of the above two dimensions (ease of use and usefulness) to the objectives, capabilities and characteristics of the particular component. Such a focused and

Table 6.5 Evaluation dimensions/criteria of the methodology for focused evaluation of structured forum

1. Ease of use
EOU1. How easy it was to use the structured forum, i.e. to correctly characterise your idea as an issue, an alternative, a pro-argument, a contra-argument or a comment, and then correctly enter it in the structured eForum?
EOU2. How easy it was to access, read and understand the postings of the other participants (issues, alternatives, pro-arguments, contra-arguments, comments) and the connections among them in the structured eForum?
2. Usefulness
US1. Does the structured forum provide appropriate mechanisms for structuring the online discussions?
US2. How do you assess the quality of the contributions (postings) entered by the participants in the structured eForum?
US3. What is your general assessment of the structured eForum as a tool for important electronic discussions in comparison to the normal forum tools (where you do not have to characterise your posting as an issue, an alternative, a pro-argument, a contra-argument or a comment, and then enter it correctly)?

in-depth evaluation necessitates the use of both objective and subjective, and also quantitative and qualitative techniques, and a triangulation and combination of their findings.

Conclusions

Despite the growing investments of local, regional and central government organisations of many countries in various types of eParticipation projects, there is not similar attention to the evaluation of these efforts, so that knowledge can be systematically created on the value they generate to various stakeholders, their strengths and weaknesses, and also the required improvements. This 'evaluation gap' increases due to the lack of a widely accepted practical methodology to be used by government organisations for evaluating systematically and uniformly eParticipation projects. This chapter contributes to filling the above gap by initially presenting a review of frameworks and methodologies developed from previous research for the practical evaluation of IS, traditional offline public participation and also eParticipation, which propose evaluation dimensions and criteria. Based on them, a synthetic methodology is developed for evaluating eParticipation projects from three fundamental perspectives: process (assessing various aspects of the process that has been followed in the eParticipation project), system (assessing the usability and technical quality of the ICT platform that has been used in the project) and outcomes (assessing the outcomes from a political viewpoint concerning stakeholders' extent of participation, contribution, interaction and satisfaction, and also impacts on the quality, the acceptance and the applicability of the policy decision under discussion).

Also, an alternative simpler methodology for the same purpose is presented, in order to be used in cases of limited human and financial resources and big time pressure, based on the main dimensions proposed by the TAM (ease of use, usefulness and use). Furthermore, in addition to the evaluation of the whole eParticipation project, there is often a need to conduct more focused evaluations of significant innovative components, for which more knowledge has to be gained. In this direction, we developed a practical methodology for conducting a more focused evaluation concerning a significant innovative part of several advanced eParticipation projects, the 'structured eForum', which enables a more structured electronic discussion on a public policy or decision; it can be applied to various types of significant innovative components of eParticipation platforms with appropriate adaptation of the evaluation criteria.

From the review of existing frameworks and methodologies for the evaluation of information systems, offline public participation and eParticipation, and also from the above evaluation methodologies we developed and applied in various EU projects, useful lessons have been learnt.

A first lesson is that existing evaluation methodologies differ in the evaluation dimensions and criteria they propose, and also in the evaluation detail (some provide guidance only for high-level evaluation, while some others for more detailed evaluation as well). However, they converge in three main aspects that have to be investigated in the evaluation of an eParticipation project: the process

and the whole organisation of the project, the ICT platform used for it and the outcomes at various levels and for various stakeholders. Also, they converge in the need to investigate both the 'efficiency' and the 'effectiveness' level of the project. However, due to the heterogeneity of eParticipation projects as to their objectives and capabilities offered to participants, it is necessary to adapt the above evaluation dimensions to the particular objectives of the project under evaluation.

A second lesson is that for the above investigation information should be collected using multiple techniques, triangulated and combined. Due to the complexity of eParticipation, conducting only a survey of a small number of participants, asking them to express their perceptions (which is the usual practice in most eParticipation projects), is not sufficient. It is necessary to conduct qualitative discussions in focus groups as well, in order to get a deeper understanding of the findings from the survey. Furthermore, in addition to participants' perceptions, it is necessary to use objective measures as well as much as possible.

A third lesson is that an eParticipation project is a complex intervention, including many organisational, political and technological elements, and also having a wide range of impacts. Producing information on all these aspects of an eParticipation project during its evaluation might require too much effort and considerable human and financial resources and time; therefore, a trade-off is required between the richness of evaluation information to be produced and the resources to be consumed for this purpose.

Lastly, the fourth lesson is that all previous research on eParticipation evaluation concerns the dominant eParticipation paradigm, which is based on government initiated and operated 'official' eParticipation Web sites, that citizens have to visit in order to participate in government policy and decision-making. However, the emergence of the Web 2.0 social media gave rise to a new eParticipation paradigm that exploits these new powerful electronic communication channels (Charalabidis and Loukis 2011).

Therefore, it is necessary to develop methodologies for understanding and evaluating this new eParticipation paradigm.

References

- Aichholzer G, Westholm H (2009) Evaluating eParticipation projects: practical examples and outline of an evaluation framework. *Eur J ePract* 7:27–44
- Bicking M, Wimmer M (2009) Evaluation framework to assess e-participation projects in Europe. In: *Proceedings of electronic participation: first international conference on e-participation – ePart 2009*
- Charalabidis Y, Loukis E (2011) Transforming government agencies' approach to eParticipation through efficient exploitation of social media. In: *Proceedings of European conference on information systems (ECIS) 2011*
- Chess C, Purcell K (1999) Public participation and the environment: Do we know what works? *Environ Sci Technol* 33(16):2685–2692
- Coglianesi C (1997) Assessing consensus: the promise and performance of negotiated rulemaking. *Duke Law J* 46(6):1255–1349

- Coleman S, Gotze J (2002) Bowling together: online public engagement in policy deliberation. <http://bowlingtogether.net>. Accessed 12 Jun 2011
- Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q* 13(3):319–339
- DeLone DH, McLean ER (1992) Information systems success: the quest for the dependent variable. *Inf Syst Res* 3(1):60–95
- DeLone DH, McLean ER (2003) The DeLone and McLean model of information systems success: a ten-year update. *J Manag Inf Syst* 3(1):60–95
- European Commission (2006) i2010 eGovernment action plan: accelerating eGovernment in Europe for the benefit of all. COM(2006)173
- Farbey B, Land F, Targett C (1995) A taxonomy of information systems applications: the benefits' evaluation ladder. *Eur J Inf Syst* 4:41–50
- Farbey B, Land D, Targett D (1999) IS evaluation: a process of bringing together benefits, costs and risks. In: Currie W, Galliers R (eds) *Rethinking management information systems*. Oxford University Press, New York, NY
- Henderson MP (2005) E-democracy evaluation framework. http://www.getinvolved.qld.gov.au/share_your_knowledge/documents/pdf/eval_framework_summaryfinal_200506.pdf. Accessed 03 Jul 2011
- Hirschheim R, Smithson S (1988) A critical analysis of information systems evaluation. In: Bjorn-Andersen N, Davis G (eds) *Information systems assessment: issues and challenges*. North Holland, Amsterdam
- Hsiao HC, Yang C (2010) The intellectual development of the technology acceptance model: a co-citation analysis. *Int J Inf Manag* 31(2):128–136
- Irani Z (2002) Information systems evaluation: navigating through the problem domain. *Inf Manag* 40:11–24
- Irani Z, Love P (2001) Information systems evaluation: past, present and future—editorial. *Eur J Inf Syst* 10:183–188
- Irani Z, Gunasekaran A, Love P (2006) Quantitative and qualitative approaches to information systems evaluation. *Eur J Oper Res* 173(3):951–956
- Irani Z, Love P, Jones S (2008) Learning lessons from evaluating eGovernment: reflective case experiences that support transformational government. *J Strateg Inf Syst* 17(2):155–164
- Land F (1976) Evaluation of systems goals in determining a design strategy for a computer-based information system. *Comput J* 19(4):290–294
- Laurian L, Shaw MM (2009) Evaluation of public participation – the practices of certified planners. *J Plan Educ Res* 28:293–309
- Loukis E (2011) Using advanced information technologies for increasing public participation in the Greek Parliament. *J Balkan Near E Stud* 13(1):13–35
- Loukis E, Peters R, Charalabidis Y, Passas S, Howe C (2009) Enhancing deliberation for the formulation and application of public policy on the environment and energy using federated content, ontologies and maps. In: *Proceedings of electronic participation: first international conference on e-participation – ePart 2009*
- Loukis E, Xenakis A, Charalabidis Y (2010a) An evaluation framework for e-participation in parliaments. *Int J Electron Govern* 3(1):25–45
- Loukis E, Xenakis A, Peters R, Charalabidis Y (2010b) Using GIS tools to support e-participation – a systematic evaluation. In: *Proceedings of electronic participation: second international conference on e-participation – ePart 2010*
- Love P, Irani Z, Edwards D (2005) Researching the investment of information technology in construction: an examination of evaluation practices. *Autom Constr* 14:569–582
- Macintosh A (2004) Characterizing e-participation in policy making. In: *Proceedings of the 37th Hawaii international conference on system sciences*
- Macintosh A, Whyte A (2006) Evaluating how e-participation changes local participation. In: *Proceedings of eGovernment workshop '06 (eGOV06)*, Brunel University

- Macintosh A, Whyte A (2008) Towards an evaluation framework for eParticipation. *Transforming Government People Process Policy* 2(1):16–30
- Macintosh A, Malina A, Whyte A (2002) Designing e-participation in Scotland. *Communications* 27:261–278
- Organization for Economic Co-operation & Development (2001a) Citizens as partners – information, consultation and public participation in policy-making. OECD, Paris
- Organization for Economic Co-operation & Development (2001b) Engaging citizens in policy-making: information, consultation and public participation – policy brief. OECD, Paris
- Organization for Economic Co-operation & Development (2003a) Engaging citizens online for better policy-making – policy brief. OECD, Paris
- Organization for Economic Co-operation & Development (2003b) The e-government imperative. OECD, Paris
- Organization for Economic Co-operation & Development (2004) Promise and problems of e-democracy: challenges of online citizen engagement. OECD, Paris
- Organization for Economic Co-operation & Development (2005) Evaluating public participation in policy making. OECD, Paris
- Organization for Economic Co-operation & Development (2009) Focus on citizens: public engagement for better policy and services – policy brief. OECD, Paris
- Petts J (1995) Waste management strategy development: a case study of community involvement and consensus building in Hampshire. *J Environ Plan Manag* 38(4):519–536
- Rose J, Sanford C (2007) Mapping eParticipation research: four central challenges. *Commun Assoc Inf Syst* 20:909–943
- Rowe G, Frewer LJ (2000) Public participation methods: a framework for evaluation. *Sci Technol Hum Val* 25(1):3–29
- Rowe G, Frewer LJ (2004) Evaluating public-participation exercises: a research agenda. *Sci Technol Hum Val* 29(4):512–557
- Rowe G, Marsch R, Frewer LJ (2004) Evaluation of a deliberative conference using validated criteria. *Sci Technol Hum Val* 29(1):88–121
- Saebo O, Rose J, Flak LS (2008) The shape of eParticipation: characterizing an emerging research area. *Govern Inf Q* 25:400–428
- Schepers J, Wetzels M (2007) A meta-analysis of the technology acceptance model: investigating subjective norm and moderation effects. *Inf Manag* 44:90–103
- Seddon PB (1997) A respecification and extension of the DeLone and McLean model of IS success. *Inf Syst Res* 8(3):240–253
- Smithson S, Hirschheim R (1998) Analysing information systems evaluation: another look at an old problem. *Eur J Inf Syst* 7:158–174
- Timmers P (2007) Agenda for eDemocracy – an EU perspective. European Commission
- Venkatesh V, Davis FD (2000) A theoretical extension of the technology acceptance model: four longitudinal field studies. *Manag Sci* 45(2):186–204
- Venkatesh V, Morris MG, Davis GB, Davis FD (2003) User acceptance of information technology: toward a unified view. *MIS Q* 27(3):425–478
- Webler T (1995) Right discourse in citizen participation: an evaluative yardstick. In: Renn O, Webler T, Wiedermann P (eds) *Fairness and competence in citizen participation: evaluating models for environmental discourse*. Kluwer, Dordrecht
- Whyte A, Macintosh A (2003) Analysis and evaluation of e-consultations. *e Serv J* 2(1):9–34
- Xenakis A, Loukis E (2010) An Investigation of the use of structured e-forum for enhancing e-participation in parliaments. *Int J Electron Govern* 3(2):134–147

Part II

Information and Communication Technologies for Citizens' Participation

Knowing the Law as a Prerequisite to Participative eGovernment: The Role of Semantic Technologies

7

Daniela Tiscornia and Meritxell Fernández-Barrera

Abstract

Active participation of EU citizens to their national and local decision-making process can only occur once they have a full knowledge of the transnational and national regulatory and institutional context. Despite their actual right to access legal documents, several barriers still prevent citizen against getting a true understanding of the effects brought about by normative changes and regulatory innovations. Linguistic and conceptual complexity of the legal domain is combined with technical barriers, and the availability of satisfactory, complete and reliable information services for legal experts and non-experts has still to come. This chapter focuses on the role ICT and, more specifically, semantic technologies play in providing powerful tools for bridging the gap between the two layers, that is, the formal and the conceptual aspects of legal knowledge, by guaranteeing not only formal access to the sources of the law but substantial knowledge of its content as well.

7.1 Introduction

Internet has been universally celebrated as the most powerful instrument for enhancing democracy: not only was the Internet expected to establish innovative ways of participating in civil and political processes like online consultations, eVoting and new forms of enhancing policy-making, but also it would promote social equality and the integration of minorities.

D. Tiscornia (✉)

Istituto di Teoria e Tecniche per l'Informazione Giuridica (ITTIG-CNR), Via de' Barucci 20,
50127 Firenze, Italy

e-mail: tiscornia@ittig.cnr.it

M. Fernández-Barrera

CERSA, Université Panthéon Assas, rue Thénard 10, 75005 Paris, France

e-mail: meritxell.fernandez@eui.eu

Despite these expectations, electronic democracy, from the viewpoint of governments, has mainly been conceived to be a rationalisation and modernisation project rather than a democratisation process. This concept is now rapidly evolving towards building platforms enabling citizens to play a more active and incisive role. Moving on from a legal centralist assumption, where the process of participation is left to public institutions, ICT can promote a legal pluralist approach, by favouring a stronger interaction leading to democratisation: “democracy and the important process of democratisation include but go beyond the ambit of the state and state laws, [...] democracy and democratisation are both negotiated, contested, engaged with and made up by diverse state and non-state actors within plural legal orders and across multiple sites and transnational networks” (Dizon 2010).

However, within this complex framework of multilevel and distributed governance, EU citizens cannot hope to influence European, national and local decision-making unless they are fully aware of the normative environment they are living in; indeed, active participation can only occur once they have full information and knowledge of the transnational and national regulatory and institutional context.

This chapter focuses on the role ICT and, more specifically, semantic technologies play in providing powerful tools for bridging the gap between the two layers, that is, the formal and the conceptual aspects of legal knowledge; such tools are, therefore, aimed at guaranteeing not only formal access to the sources of the law but substantial knowledge of its content. The chapter is structured as follows: Sect 7.2 outlines the problems: the systematic complexity of the regulatory world, the gaps between common sense meanings in ordinary language and technical meanings in legal language, the challenge of multilingualism and the need for conceptual coherence at transnational level. Section 7.3 explains how semantic technologies can offer and propose solutions to many of the problems that have been outlined, and finally, Sect 7.4 gives a glance to the future, by showing how semantic web technologies combined with linked data standards contribute to a step forward to enhance real access to legal content.

7.2 Knowing the Law

In Europe, there is a *de facto* obligation for all Member States to provide citizens with a true opportunity of knowing the law. From the European legislator’s perspective, it is necessary to allow citizens to access ‘understandable’ legislative information; on the one hand, it is necessary to improve the quality and the readability of normative texts, thereby also contributing to the ‘certainty of law’. But, “Can we really say that the law is ‘accessible’ if citizens, when confronted by a text they have accessed, find it incomprehensible? What would be gained if citizens were to gain access to one “secret” only to be faced by another equally impenetrable one? [...] I am not suggesting that, under current conditions, we would make all our laws comprehensible to the man of the street. But should we not aim to achieve this at least for a core body of law and certain fundamental principles?” (Herberger 2006) Thus, there is an actual right of citizens to access legal documents (formal

knowledge) as well as a commitment of Member States towards them to adopt suitable means in order to allow them to know the law in terms of substantive norms, which means getting a true understanding of the effects brought about by normative changes and regulatory innovations.

7.2.1 The Complexity of Legal Systems

In computational applications, law is very often represented as a multilayered structure (Biasiotti and Tiscornia 2011) based on the levels of legal discourses (legislative, judicial and dogmatic), the hierarchical organisations of rule makers (supranational, national and local) and the systematic interconnection of normative sources. Instead, an alternative model sees law as a seamless net of knowledge units that are strongly interlinked in ‘small worlds’ (Pagallo 2007) or as in (Bommarito et al. 2009) like a web of citations and semantic interconnections. No matter how we want to represent them, legal systems have a complex structure whose internal consistency is guaranteed by metarules of recognition (Hart 1961) that regulate the dynamic evolution of the normative corpus (implicit and explicit rules of abrogation), its hierarchical organisation and interrelations within systems. This operation of recognition, collection and organisation relates to the structural aspects of normative systems and is only a first preliminary step with regard to interpretation.

The work of legal practitioners begins with the identification of the legal sources; attorneys look for the ‘backing’ (Toulmin 1958) on which to build their arguments in defence of the goal they wish to reach, judges evaluate the arguments in the light of the normative framework on which to found the decision, and public administrators are expected to deliver services to citizens based on a listing of rights and duties extracted from the norms. Even the legislator introduces changes to the regulation of a social environment based on an already regulated normative context, and he must be able to foresee the impact of innovation on the pre-existing situation in terms of social, economic and cultural feedback.

All these parties carry out an operation of conceptual and systematic reconstruction that goes beyond the identification of the single norm (or set of norms) relevant for resolving the individual case. Only in a few cases a norm can be conceived of as the interpreted meaning of written regulations that correspond to a partition in a legal text, like articles, subsections, etc.; in legal practise, the normative context is the product of a process of reconstruction based on the interpretation of a set of logically entailed linguistic expressions. The reasoning process of legal experts can be viewed as a path requiring multiple steps crossing recognition, reconstruction, organisation, literal interpretation and conceptual modelling.

Therefore, the first question to ask if we wish to understand the expression ‘knowing the law’ is the following: “can we say that legal knowledge coincides with access to the primary sources, or in other words, can public providers of normative data be considered to have respected the right of citizens to have knowledge of the norms that regulate them, by merely allowing free access to the legislation?” As cited in (Holmes 2011), one of the barriers to render the law

accessible is that “To a worryingly large extent, statutory law is not practically accessible today, even to the courts whose constitutional duty it is to interpret and enforce it. There are four principal reasons. . . . First, the majority of legislation is secondary legislation. . . . Secondly, the volume of legislation has increased very greatly over the last 40 years . . . Thirdly, on many subjects the legislation cannot be found in a single place, but in a patchwork of primary and secondary legislation. . . . Fourthly, there is no comprehensive statute law database with hyperlinks which would enable an intelligent person, by using a search engine, to find out all the legislation on a particular topic”.

7.2.2 Common Language and Legal Language

Legal knowledge strictly depends on its linguistic expression: the law has to be communicated, and social and legal rules are mainly transmitted through their oral and written expression. Even if strictly connected, law and language are two autonomous but structurally similar systems: both are endowed with rules that underlie the construction of the system itself, guide its evolution and guarantee its consistency. Both are conditioned by the social dimension in which they are placed, whereby they dynamically define and fix their object in relation to a continually evolving social context. Let us consider the creative power of the legislator in creating new legal entities: legislative definitions have a constitutive force, so we can assume that, for any new definition, a new concept is added in the legal system. To give an example, the corpus of EU legislation contains four definitions of the term ‘worker’ that constrain the common sense meaning (“a person who works at a specific occupation”).

As a consequence, legal concepts should be considered as a repository of meaning, whose content is dynamically modified by the influence of external factors. Changes in meaning of legal concepts occur within a diachronic process in relation to the cultural, political and social evolutions of the environment in which they are created. It is mainly through the work of the judiciary that the meaning of terms, like ‘public policy’ and ‘public morals’, can be dynamically modified and registered. From a strictly semantic point of view, we cannot expect to find any direct ‘referents’ in reality, contrary to what happens for concepts in natural sciences, but, instead, examples of factual situations denoted by such kind of concepts.

Although several approaches imported from linguistics have been applied to the language of law, measuring the comprehensibility of legal language is a problem in itself.¹ Studies and computational projects addressing the definition of rules for

¹ “What is needed in forensic linguistics’ comprehensibility research is the following: a. A method to model the meaning (the semantics) of a text [. . .] b. Text meaning representations must be automated. For practical reasons, we need a software tool, as lawyers and laymen shall also use comprehensibility tests. c. Inferences and interactions with connected pieces of knowledge must

achieving plain language in law (Allen and Engholm 1980; Biagioli et al. 1995) still focus on the syntactic aspects of legal texts and on the rhetorical structure of legal documents (Mochales Palau and Moens 2009) more than on the complexity and semantic ambiguity of its content.

7.2.3 Multilingualism

If we move from a monolingual (and national) dimension to a multilingual (and transnational) dimension, a further complexity arises: legal terminologies used in both European and non-European legal systems express not only the legal concepts which operate in the different countries but also reflect the deep differences existing between the various systems and the varying interpretations given by lawyers in each system. Given the structural domain specificity of legal language, we cannot talk about ‘translating the law’ to ascertain correspondences between the legal terminology in various languages, since the translational correspondence of two terms satisfies neither the semantic correspondence of the concepts they denote nor the requirements of the different legal systems.

In the European context, multilingualism affects the comprehensibility of legal documents from a dual point of view (Ajani 2007); on the one hand, the difficulty of establishing meaning correspondences (horizontal equivalences) between concepts that reflect different legal systems (and social/cultural contexts); on the other hand, the need to guarantee vertical consistency between the legal language of the national system and a transnational legal language, most importantly that of European Union law, where the need to produce conceptually equivalent legislative texts requires harmonised and inevitably generic terminological choices to be made.

Several examples of the crucial difficulties in managing the multilingual panorama of European Community can be provided, demonstrating how, in several social contexts, the terminological complexity reflects the problems of finding a methodology for bridging diversities and harmonising legal rules. In the area of private law, the two most famous projects, the PECL (Principles of European Contract Law) and the PETL (Principles of European Tort Law), include in the design of a shared conceptual area also a proposal for the use of a standardised terminology. In criminal law, to support documents exchange in transnational criminal proceedings, a codified multilingual vocabulary for criminal records has

be shown [...]. If expert knowledge is indispensable, the model must indicate it. d. The model must be empirically validated. It is necessary that psycholinguistic tests determining individual comprehension shape the model” (Rathert 2006). The quality of public documents is the object of the Plain English Campaign (<http://www.plainenglish.co.uk>), now extended to other languages than English.

been defined within the institutions of the European Criminal Records Information System (ECRIS).²

7.2.4 Communicating and Sharing Legal Knowledge

Linguistic and conceptual complexity is combined with technical barriers. While the amount of public sector information made available by governments for free access and reuse is continuously increasing and among it legal information has reached an unprecedented coverage, the availability of satisfactory, complete and reliable information services for legal experts and non-experts has still to come.

Documents and information in both structured and non-structured form and in different formats are stored in local and often inaccessible databases; despite several initiatives for legal documents standardisation,³ the level of interoperability is still low, not to mention the very poor level of semantic information attached to documents that prevent conceptual interconnection and sharing of information. The lack of a complete and cross-national legal information system has been recognised by the European Parliament, who, in 2008, adopted a non-legislative resolution on the role of the national judge in the European judicial system⁴: “noting that complete and up-to-date information on Community law is not available in a systematic and proper manner to many national judges, Parliament calls on the Member States to renew efforts in this area as a true European judicial area in which effective judicial cooperation can take place requires not only knowledge of European law, but also mutual general knowledge of the legal systems of the other Member States. It welcomes the Commission’s intention to support the improved availability of national databases on national court rulings concerning Community law and is of the opinion that all national judges should have access to databases containing pending references for preliminary rulings from all Member States.”

In this context, characterised by the textual dependence of legal knowledge, by the heterogeneity of sources and by the lack of a conceptual shared model, solutions are offered by the semantic web, whose models, languages and tools can be adapted

² Annex A of the Council Decision 2009/316/JHA of 6 April 2009 on the establishment of the European Criminal Records Information System (ECRIS) in application of Article 11 of Framework Decision 2009/315/JHA.

³ Initiatives on adoption of XML standards for the representation of legislative document structures and metadata have been brought on at both national and international levels in different countries in recent years. To cite the most successful, XML.gov in the USA and Crown XML Schema in the UK provide the most rich and complete datasets made available by governments in open XML. Other initiatives in European countries, like NIR (NormeInRete) standard in Italy or Metalex in the Netherlands, have also led to further development for a pan African standard (AkomaNtoso) and to the international initiative of Metalex/CEN global interchange standard of legal sources.

⁴ Eurlex document: A6-2008-0224.

in order to fit the peculiarity of the law. “The use of semantic technologies such as RDF, ontologies, topic maps, etc. is not very popular yet. This is remarkable as the most important aspect of the data that is being exchanged is in fact its linguistic meaning. Without meaning, data does not become information, it is just data. Semantics gives meaning to data and that is very useful.”⁵

Semantic technologies can be explained in terms of an integrated environment of languages, architectures and methodologies connecting unique identifiers, standard metadata sets, conceptual structures (ontologies), tools for semantic classification (de Maat et al. 2010; Francesconi 2010) and concept extraction (Francesconi et al. 2010) and semantic theories enabling data interconnection. The following chapter is dedicated to an illustration of the semantic web approach as it is applied to law. Here, we introduce some of the emerging methodological issues.

The first question concerns the adoption of a theory of meaning able to express at the same time the language dependence of law and the conceptual structure of legal knowledge. In the ever changing panorama of law, it is unrealistic to expect that controlled vocabularies, such as dictionaries or terminologies, would be able to encode and explain all the semantic variables of legal concepts, which presupposes an independent access to a system of concepts and of shared conceptual relationships. That implies, in our view, that a clear separation between lexical information (linguistic layer) and ontological information (knowledge layer) is at the basis of all of the ‘semantic’ approaches to legal data.

This distinction would enable users to separate a legal concept from its lexical representation within a linguistic system and in different linguistic systems. It enables to distinguish among synonyms (like ‘homicide’ and ‘murder’) to manage the fact that, even in technical language like the legal one, terms can be polysemous and should therefore be assigned to more than one concept, like the Italian term ‘prescrizione’⁶ (Peters et al. 2007), and when dealing with multilingual information, it enables to disambiguate, for instance, the Italian term ‘diritto’ and the Spanish ‘derecho’, translating from English both ‘right’ and ‘law’.

One of the values of the semantic web is to provide formal frameworks to clearly represent such distinction. Terms are ‘concept labels’ rather than concepts, so labels can be associated with more than one concept; for instance, the concept ‘right’ has labels like right, derecho, droit and diritto, while ‘law’ is lexicalised by law, diritto, derecho, droit and also by legge, lois. Moreover, separating terms from concepts will allow for a further distinction to be made with respect to legal terms (describing domain-specific legal notions) or lexical items, which are general language items used in legal discourse, for instance, ‘worker’ can be associated to several labels, distinguishing among legislative definitions and common sense meaning.

⁵ SPOCS Deliverable D1.1 & D1.2, Survey of Syndication Solutions & Multilingualism, 2010, p. 29 <http://www.eu-spocs.eu> Accessed 18 Sep 2011.

⁶ Depending on the legal contexts, ‘prescrizione’ means ‘prescription’, ‘provision’ or ‘expiration of a right’.

This assumption prompts two methodological questions about (a) the level of formalisation suitable for the representation of legal concepts and (b) the choice between top-down vs. bottom-up approaches in building up the resources.

The two questions are intertwined since, as we outline in Sect. 7.2.1, core ontologies consist in highly formalised systems of concepts, top-down manually performed; on the contrary, practical applications mostly adopt NLP techniques for bottom-up concept extraction from legal texts. The main functionalities of powerful NLP tools for ontology learning and some of their applications to legal domain are described in Sect. 7.2.2, while in Sect. 7.2.3, we argue about the advantages of middle-out approach in the perspective of the problems outlined and we describe a project based on it.

7.3 ICT for Structuring and Conceptualizing Legal Knowledge

7.3.1 Describing Conceptual Legal Knowledge: Formal Ontologies vs. Lightweight Ontologies

Models of legal concepts, namely, legal ontologies, play a crucial role in the cognition of legal contents since they describe the main building blocks of legal knowledge. Ontologies have been defined as the specification of a conceptualisation (Gruber 1993), and in this sense, they can be considered a formal description of the concepts used in a certain domain. Depending on the type of description they provide, ontologies can be formal or lightweight. Formal ontologies provide a language-independent and axiomatised description of concepts, while lightweight ontologies are poorly axiomatised and describe mainly the lexicalised form of concepts. In the legal domain, initial efforts lead to the development of highly axiomatised legal ontologies, containing few concepts which are considered the least common denominator of all legal knowledge.⁷ Known as legal core ontologies, their development was soon found to be costly and slow, and alternative strategies were explored for the development of lightweight legal ontologies. These mainly consisted in mining big legal textual corpora in order to extract representative concepts of the domain. The resulting ontologies contained far more legal concepts, which were anchored in terms appearing in the texts, and they were poorly axiomatised. In what follows, we present these methodologies, with an emphasis on textual mining techniques aimed at terminology extraction.

⁷ Some examples include Functional Ontology of Law (Valente et al. 1999), LRI-Core (Breuker et al. 2005), Core Legal Ontology (Gangemi 2003) and LKIF-Core (Breuker et al. 2008).

7.3.2 Extracting Legal Knowledge: Natural Language Processing Tools vs. Manual Methodologies for Ontology Building

There is a traditional distinction between top-down and bottom-up methodologies for knowledge acquisition and representation. Top-down strategies are characterised by the definition of domain general concepts firstly and, from then on, by a successive specialisation of concepts into more concrete types until a domain-specific level is reached. The opposed strategy consists in starting the construction of the model from concepts as they appear in texts, relying thus on the terminological manifestation of a domain conceptual model. Domain-specific concepts evoked by terminological units appearing in texts are then further generalised by their inclusion into broader conceptual classes, which are in turn linked to even more general classes until the root element of the model is reached. A third strategy that strikes a balance between the benefits of defining linguistic independent general concepts and the advantages of building a model textually rooted has received the name of middle-out strategy.

The middle-out strategy ensures both an anchoring of the conceptual model in the domain textual sources and the coherence with general theories of the domain. Firstly, relevant terms of the domain are extracted from representative textual sources, and secondly, these terms are linked to a semantic model of the domain defined independently of its linguistic manifestations. This approach has the virtue of counting with empirical evidence for the concepts proposed in the model⁸ as well as with theoretical soundness since the top layers of the resulting conceptual model reveal the accepted theories of the domain.

While top-down approaches rely usually on handcrafted conceptual representations, bottom-up strategies most naturally lean to semi-automatic methods whereby lists of relevant terms are extracted from domain texts with the aid of Natural Language Processing tools. Middle-out approaches usually join the qualities of expert manual conceptualisation and semi-automatic term extraction or ontology learning. Ontology learning has been defined as semi-automatic support in ontology development (Buitelaar et al. 2005). If we take into account that building an ontology implies giving a formal representation of a domain conceptual model, suitable outputs for ontology engineering refer to indices which might be useful in the detection of such a model. Thus, support can take the form of lists of domain relevant terms or of clusters of terms grouped according to some kind of semantic relation. Figure 7.1 proposed by Buitelaar et al. (2005) allows a better understanding of the elements of text that are relevant for ontology learning. The figure contains six consecutive levels of knowledge extraction and representation for the final construction of the ontological resource: terms, equivalence relations, concepts,

⁸ By empirical evidence we refer here to the fact that concepts count with linguistic manifestations detected in domain relevant texts and can thus be expected to be part of the expert model of the domain.

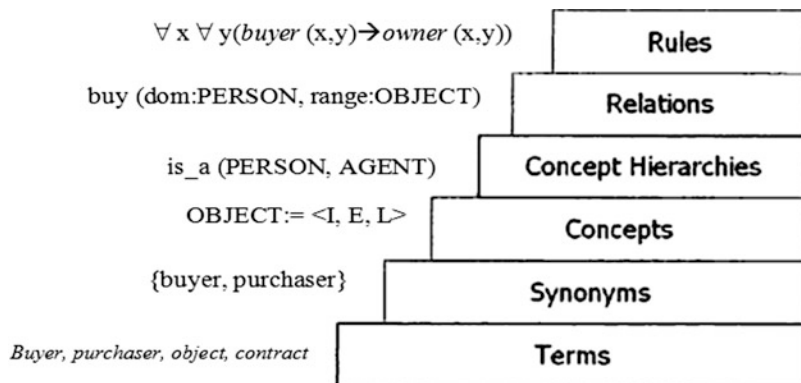


Fig. 7.1 Ontology learning layer cake. Adapted from Buitelaar et al. (2005)

hierarchical relations, other types of relations, such as thematic relations or meronymic relations, and rules.

At the linguistic level, relevant indices refer to terms, that is, to linguistic units that identify domain concepts. In this sense, the challenges of ontology learning tools have to do with termhood and with unithood. Termhood is related to the extent to which a linguistic unit refers to a domain-specific concept, whereas unithood identifies the level of stability of syntagmatic combinations (Cabré et al. 2001, p.54). In other words, ontology learning tools should be able to provide linguistic units with their correct boundaries (where the term begins and ends: unithood) and which are representative of a domain conceptual model (termhood).

Furthermore, tools for term and term relation extraction that rely exclusively on a corpus must work out their hypothesis from a series of textual indices. In this sense, tools can be classified into three different categories according to the evidence used for considering a lexical unit, a surface representation of a domain concept: tools which use (1) linguistic knowledge, (2) statistical knowledge and (3) both types of knowledge, the so-called hybrid approaches (Jacquemin 1997; Cabré et al. 2001; Pazienza et al. 2005, 257ff). The first approach relies solely on syntactic patterns empirically extracted from a terminological analysis (such as noun-noun or noun-preposition-noun patterns) for the recognition of relevant domain terms. The second approach applies directly statistical measures to data not filtered linguistically to, for instance, weight-adjacent terms or estimate of the relevance of a term. Nevertheless, neither the linguistic nor the statistical approach alone is able to provide completely satisfying results (Pazienza et al. 2005, p.259). This is why a third approach has emerged by combining the two previous approaches: the so-called hybrid approach. In this approach, in a first step, data are linguistically analysed in order to provide candidate terms, and in a second step, statistical measures are used for ranking terms and eliminating linguistically justified but irrelevant terms.

Recently, the need for structured language resources has fostered a shift in the field of applied terminology from mere term extraction towards term structuring (Cabré et al. 2007, p. 3). In this sense, Cabré et al. (2001, pp. 4–6) provide

a typology of methods for semantic relation mining. The first distinction proposed by the authors is that between exogenous and endogenous approaches. Exogenous approaches rely on some external source (such as a dictionary, a taxonomy or an ontology) for determining the existence of a relation between the extracted terms. Endogenous approaches rely solely on the corpus for identifying semantic relations and can be divided into statistical and linguistic. Statistical approaches are mostly concerned with the identification of similarity relations and are based on distributional semantics, namely, the more similar the distributional behaviour of lexical units, the more likely that these units are synonyms. Linguistic approaches are in turn divided into two methods: the one based on morphosyntactic variation and the one based on lexico-syntactic patterns. The former relies on the fact that some morphosyntactic variations are manifestations of semantic relations, usually hypernym/hyponym (such as in *bread* and *white bread*, where the pattern *Adj + N* corresponds to a hypernym relation). The latter is built on the hypothesis that semantic relations can be manifested through a set of lexico-syntactic patterns, such as ‘*X is a Y*’, which can lexicalise a hypernym/hyponym pair (as in ‘*contract of sale is a contract*’).

Not many systems have been specifically trained with legal corpora. In many projects, general terminology extraction tools have been used, such as *Yoshikoder*, *Antconc* or *Wordsmith* (see for instance [Casellas 2008](#)).

However, in some cases, terminology extraction systems have been tailored to the characteristics of legal corpora. Below, two examples⁹ are presented as follows: *T2K* and *LEXTRACT*. They exemplify the tool typologies presented in the previous section: *T2K* is a hybrid tool, while *LEXTRACT* is based on linguistic patterns.

T2K (Text to Knowledge) has been developed jointly by the Institute of Computational Linguistics (CNR) and the Department of Linguistics of the University of Pisa and relies on a combination of Natural Language Processing (NLP) techniques, statistical text analysis and machine language learning in order to deliver a set of potentially relevant terms for the domain (termbank) and some structuring of those terms into proto-conceptual sets ([Lenci et al. 2009](#)). Two of the outputs of the *T2K* system represent its function as an ontology learning tool; on the one hand, a list of terms (individual and multi-word) which are proposed as candidate terms for representing the domain and, on the other hand, two constructs that can be considered as proto-conceptual structures. The latter include lists of taxonomical chains and clusters of semantically related terms. Whereas term extraction is based on a first level of linguistic analysis, namely, chunking, the extraction of proto-conceptual structures requires more detailed linguistic pre-processing, more concretely, dependency analysis.

LEXTRACT is a semi-automatic extraction tool of legally relevant terms developed in the framework of the *LEXALP* project that aimed at providing tools for legal practitioners and translators in the *Alpine Arch* ([Lebarbé 2007](#)). More

⁹For extensive reviews of currently available tools for terminology extraction and the domains to which they have been applied, see ([Jacquemin and Bourigault 2003](#); [Cabr e et al. 2001](#)).

concretely, the project aimed to help professionals to deal with the different languages and legal systems of the countries involved in the Alpine Convention. The particularity of the tool is that it aims at extracting legally relevant terms, that is, terms belonging to common language that are used as well in legal discourse.

T2K and LEXTRACT are examples of systems targeting different term subsets: T2K targets both legal and regulated domain terms, whereas LEXTRACT targets legally relevant terms, namely, terms used in legal discourse but which denote the regulated domain. Some recent developments addressing this issue include Francesconi (2010) and Bonin et al. (2010). The former proposes a formal model for separating domain knowledge (DK) and domain-independent knowledge (DIK). The latter present a terminology extraction methodology aimed at singling out legal terms from regulated domain terms. The goal is achieved through a statistical contrastive method that builds on the analysis of an open-domain corpus and a legal corpus belonging to a different legal sub-domain.

7.3.3 Legal Ontologies and Terminologies for Enhancing the Knowledge of the Law: The Middle-Out Approach

The choice among building strategies (top-down or bottom-up) mainly depends on the tasks ontologies are aimed to perform: concept comparison vs. cross lingual retrieval and legal reasoning vs. data connection. The former requires a deeper semantic representation while the latter can be supported by shallow semantic relations.

However, several projects have sought to strike a balance between top-down strategies and bottom-up knowledge acquisition in order to ensure the coherence with domain theories and the anchoring of lexical units in domain corpora. This approach corresponds to a middle-out strategy in which both lexical meanings and conceptual structures are represented. The evolution from the LOIS project to the DALOS projects is a good example of this strategy.

LOIS is a legal WordNet (Peters et al. 2007), where the monolingual lexicons are interconnected via the interlingual index to the English synsets; in this way, semantic disambiguation and cross lingual retrieval can be coherently supported, even if the conceptual similarity on which the equivalence is based is left unexplained. However, when a consistent semantic interoperability is required, the best choice is to adopt a middle-out approach by combining term extraction with reference to external systems of concepts. In this case, a solid ontology-based description of the domain would drive the process of terminology extraction and multilingual alignment, thus providing the minimum core of common knowledge necessary to explain conceptual divergences and terminological misalignment.

The DALOS¹⁰ project applies this methodological approach. In its framework, lexical and formal ontologies should not be considered as two alternative ways for

¹⁰ <http://www.dalosproject.eu> (eParticipation 2006).

meaning representation, but as two complementary components, whose interconnection offers a promising solution for bridging the gap between text and knowledge. The DALOS project was designed to provide European lawmakers with a legislative drafting tool, able to mark the textual structure of the new law according to XML standard formats and, at the same time, to check the terminological consistency of language by mapping the new text to the terminological uses of existing legislation.

The knowledge-based architecture of DALOS is composed by a lexical layer that contains lexicons extracted by using NLP tools¹¹ from a set of parallel corpora of EU legislation and case law.¹² Extracted terminologies have been manually refined, producing four monolingual terminologies (in Italian, English, Dutch and Spanish), structured along the lines of WordNet, and formally codified¹³ as sets of instances of the NounSynset class, identified by URI and described by OWL object properties that translate WordNet relations. Each word sense is also linked to its textual referent, a text fragment codified as an instance of the class partition (Agnoloni et al. 2008).

On the top of the lexicon, the concept layer is a virtual flat list of synsets, linked by has-lexicalisation relations to monolingual synsets. Like in WordNet ILLI, it acts as pivot, to align synsets of different languages. They provide the extensional characterisation of concepts, but they do not carry any kind of semantic information, which is provided by the ontology that formally describes the intentional meaning of core elements in the consumer law domain.

At the upper level, the ontological layer acts as a backbone to which legal terminologies extracted from multiple corpora can be aligned, thus migrating from the lexical notion of concept, like WordNet synset, to something more consistent from the semantic point of view. The task of the ontological layer is to assign a domain-specific characterisation to entities at conceptual levels and, consequently, to explain and validate terminological choices at the lexical layer. Furthermore, it enables to disambiguate concepts, setting their meaning in a specific domain and perspective. In selecting candidates for the ontology, we have assumed that all concepts defined in the legislative corpus are relevant, as well as several concepts used in the definitional contexts, expressing the basic properties of the

¹¹ The tools specifically designed for processing English and other EU language texts are the already mentioned T2K and GATE. GATE owned and maintained by the Department of Computer Science of the University of Sheffield supports advanced language analysis, data visualisation and information sharing in many languages. GATE has facilities for viewing, editing and annotating corpora in a wide number of languages (based on Unicode) and has been used successfully for the creation, semi-automatic annotation and analysis of many electronic resources. It contains many modules for the annotation of textual material, such as parts of speech information, lemmatisation, conceptual indexing and semantic annotation.

¹² The domain chosen as a case study in DALOS is consumer protection; the corpus is composed by 16 EU directives, 33 European Court of Justice judgments and 9 Court of First Instance judgments.

¹³ See <http://www.w3.org/TR/wordnet-rdf/> Accessed 16 Sep 2011.

domain. The ontology has been modelled around the notion of ‘commercial transaction’ and the roles of agents (i.e. ‘supplier’ and ‘consumer’) and entities involved in the regulated state of affairs.

7.3.4 Remaining Challenges: Bridging Expert and Common-Sense Knowledge, Web 2.0 vs. Web 3.0

Despite the advancements in ontology learning and in methodologies for ontology modelling, an important challenge remains. Indeed, legal ontologies usually aim at modelling institutional and expert legal models, and this implies that they are not mainly designed for processing user-generated input. This constitutes a real drawback for the access to legal contents and public services by laymen through Web 2.0 portals. This challenge has been described as the missing link between Web 2.0 and Web 3.0¹⁴ which consists in being able to extract semantics from user-generated data and, more importantly, in being able to link that semantics to available formal and lexical ontologies. The main difficulties derive from the unpredictability of terminological and conceptual aspects of user-generated content. Indeed, whereas institutional texts lend easily to the identification of linguistic and semantic patterns, collective and distributed data cannot be assumed to share underlying models.

Some ongoing projects aim at bridging this gap. The ONTOMEDIA project aims at the design of a semantic platform offering online services and information to users and professionals in the domain of mediation (Poblet et al. 2010; Noriega and López 2009). Building on the results of the Catalan White Book of Mediation, the ONTOMEDIA platform models a space for interaction between professionals and users. One of the expected functionalities of the semantic platform is to allow citizens to present their problem in natural language and to redirect them either to relevant information already available online or to the suitable state agency. In this sense, the project directly tackles the issue of interfacing user-generated content with available domain ontologies. Initial research on this issue has shown that it is possible to link user-generated terminology to available domain ontologies such as the consumer mediation domain ontology and the mediation-core ontology (Poblet et al. 2009). Figure 7.2 shows a sample of the mapping between ontological classes (parties in conflict, consumer and seller) and laymen terminology.¹⁵

¹⁴ Web 2.0 can be generally described as an interactive Internet in which users not only consume but produce online content. Web 3.0 corresponds generally to the Semantic Web, namely, rendering accessible to the computer the semantics of documents.

¹⁵ Laymen terminology was extracted from a diachronic corpus of around 10,000 questions and 20,000 complaints that have been addressed by consumers to the Catalan Consumer Agency from 2007 to 2010. Complex terms were extracted on the basis of morphosyntactic patterns (Fernández-Barrera and Casanovas 2011).

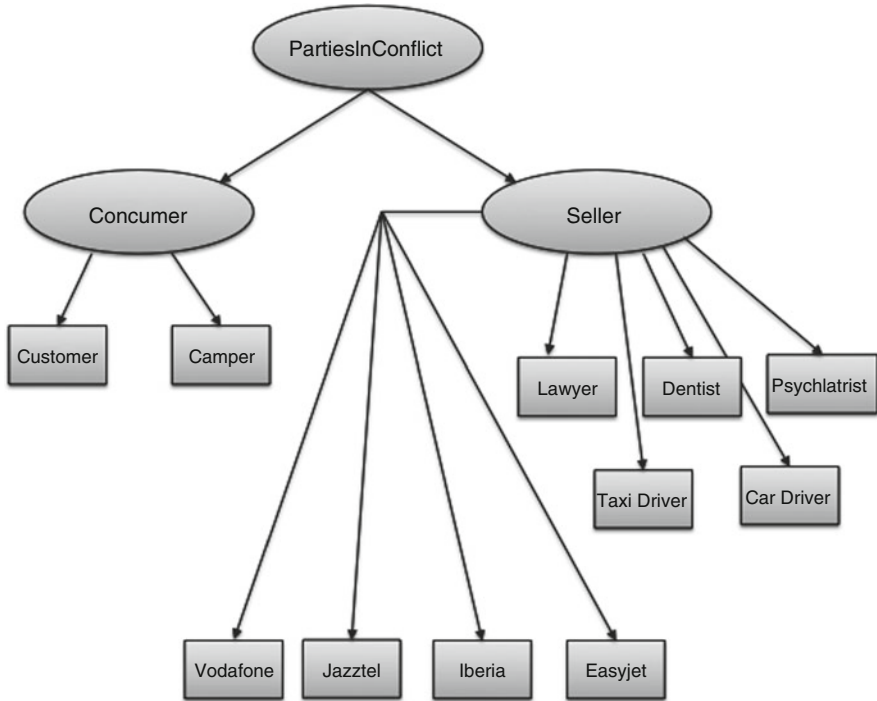


Fig. 7.2 Mapping between laymen terms and normative ontology (Fernández-Barrera and Casanovas 2012)

7.4 The Future: Linked Legal Data

Up to now, the application of semantic technologies to legal information has mostly consisted in the construction of core and domain ontologies for describing sets of legal data and for enabling locally several advanced functionalities. Nowadays, a new dimension comes into play: the creation of a network of linked data in which datasets are described in RDF and connected among them through RDF links.

This trend converges with current initiatives regarding the opening of public data. The open data movement consists in making available online public data freely and in an easily reusable format so that they can be reused by different actors and for different purposes (both commercial and non-commercial). Several public institutions have led this movement, notably the US¹⁶ and the UK governments, and more recently, the World Bank.¹⁷ The production of linked government data

¹⁶ <http://www.data.gov> Accessed 20 Sep 2011.

¹⁷ <http://data.worldbank.org> Accessed 20 Sep 2011.

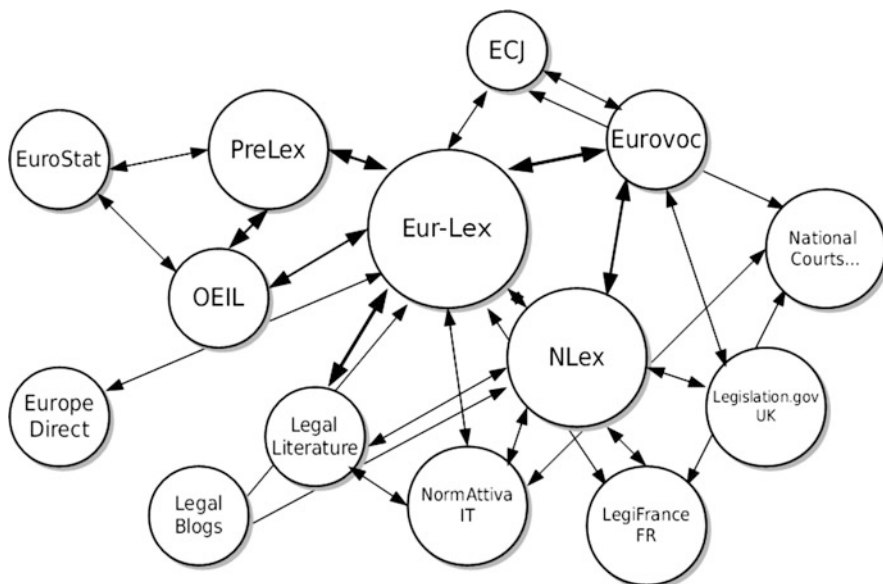


Fig. 7.3 Fragment of legal linked cloud (Agnoloni 2011)

(Berners-Lee 2009) is the next step, and some initiatives are already addressing the issue. Ding et al. (2010), for instance, have the goal of integrating US Data.gov data sets into the Linked Open Data Cloud.

Among public data, public actors are releasing online legal datasets as well. For instance, the Law Data Community site¹⁸ publishes different legal datasets produced by the executive power in the USA.¹⁹ Thus, the current challenge is to create a real network of legal data, linked not only among themselves, but as well to other datasets (such as geographic or socio-economic data). In this line, the site legislation.gov.uk publishes all UK legislation online, and one of the goals is to publish data following linked data standards (Sheridan 2010). The adoption of the linked data principles in the legal domain would allow reaching a level of opening and interconnection of existing legal collection and legal-related semantic. Figure 7.3 shows a fragment of the web of linked data (Agnoloni 2011) sketched for some of the European sources.

In terms of knowing the law, the advent of the web of linked legal data opens up new possibilities. Firstly, legal data will be linked to other types of data. As a result, legal data will not be isolated but contextualised, for instance, geographically and according to different activities and actors. This will revolutionise access to legal

¹⁸ <http://www.data.gov/communities/law> Accessed 20 Sep 2011.

¹⁹ The site makes available datasets beyond traditional legal sources and with different legal value, such as administrative decisions, case filings, legal interpretations and agency directives (<http://www.data.gov/communities/law>).

information by tailoring access to the specific situation and needs of users. Secondly, the development of services for consuming data in particular ways will in the future gain centrality. This way, through data mash-ups and the development of applications, users will not anymore consume raw legal data. Instead, they will consume personalised content through Internet services accessible through different channels (e-mail, web sites and mobile phone). The web of linked legal data will in this sense contribute to the next generation public services (as defined by Lampathaki et al. 2010).²⁰

Several challenges arise for making real the web of linked legal data. These challenges are related to different aspects of technical and legal accessibility. Technical accessibility has to do with the format in which data are released. However, even in cases in which technical accessibility might be guaranteed, legal accessibility is not clear.²¹ Legal uncertainty about license terms might hinder initiatives of data reuse, due to the fear of infringing copyrights. This is why open data made available online and published according to linked data principles should include a clear reference to the license applicable to them. CC licenses are a good option since they allow to clearly specify the different ways in which data might be freely reused.

A last question concerns the diverse quality of the available data and the necessity to cope with the dynamic evolution and stratification of knowledge.

But how does this new web of linked legal data connect to past developments in legal semantic technologies? Synergies are clear. On the one hand, open linked legal data can help grounding semantic web technologies, for instance, by providing direct links to concept definitions contained in legislation (Sheridan 2010). On the other hand, ontologies can be useful to explore the web of linked data and capture information relevant to a topic and to link data to other linked data in the Linked Open Data Cloud, or to existing data sources in the conventional web.

Conclusions

In this chapter, we have shown that the complexity of legal systems, together with the increasing interaction among them, urges for the development of computational models able to handle such complexity. Here, we have concentrated on conceptual models, so-called ontologies enhancing the cognition of the law. We have presented their characteristics and typologies, current methodologies of construction and their applications in such varied domains as legal drafting, information retrieval or legal reasoning.

²⁰ It is not yet clear how the tasks of publishing raw data and developing applications for consuming them will be distributed among private and public actors. Some authors have proposed that governments should limit their role to the publication of open data in easily reusable formats so that private parties can concentrate their efforts in the development of advanced applications for consuming data in a tailored way (Robinson et al. 2009).

²¹ On the different aspects of open access to information (economic, legal and technical open access), see Dulong de Rosnay (2010).

Furthermore, we have highlighted that in recent years there has been a shift in legal ontology building towards the exploitation of big legal corpora through semi-automatic terminology extractors. Thus, the textual component has become a crucial element in future legal ontological models.

The challenge of accessing the law has been addressed through meta-models that rely on a theory of legal meaning that relies on textual structures but as well on extralinguistic conceptual models.

As far as current challenges are concerned, we have identified a missing link between legal expert knowledge and common-sense knowledge and emphasised that this shortcoming might hinder the usability of web legal services in the future. Integrating user-generated content into currently available semantic web structures becomes thus another important issue in the research agenda.

Finally, we have analysed current trends in opening legal data in the framework of the linked data initiative and have presented some hypotheses regarding possible synergies between AI technologies, such as ontologies, and the linked data environment. This has led us to rethink the role ontologies might play in the future for handling linked legal data and, and at the same time, how linked legal data could proof useful sources for ontology construction.

References

- Agnoloni T (2011) Opening public data: a path towards innovative legal services, presentation at the Law via the Internet 2011 Conference, (Hong Kong, 9–10 June 2011), <http://www.hklii.hk/conference> Accessed 15 Sep 2011
- Agnoloni T, Bacci L, Francesconi E (2008) Ontology based legislative drafting: design and implementation of a multilingual knowledge resource. In: Knowledge engineering: practice and patterns, Proceedings of the 16th International Conference EKAW 2008, Springer, Berlin, 2008, pp 364–373
- Ajani G (2007) Coherence of terminology and search functions. In: 25 Years of European Law Online, Publications Office of the EC, Luxembourg, 2007, pp 129–136
- Allen LE, Engholm CR (1980) The need for clear structure in plain language legal drafting. *U Mich J L Reform* 13:455–513
- Biagioli C, Mercatali P, Sartor G (eds) (1995) *Legimatica: iformatica per legiferare*. ESI, Napoli
- Berners-Lee T (2009) Putting government data online. <http://www.w3.org/DesignIssues/GovData.html> . Accessed 15 Sep 2011.
- Biasiotti MA, Tiscornia D (2011) Legal ontologies: the linguistic perspective. In: Sartor G, Casanovas P, Biasiotti MA, Fernández-Barrera M (eds) *Approaches to legal ontologies, theories, domains, methodologies*. Springer, Berlin, pp 143–166
- Bommarito M, Katz D, Zelner J (2009) Law as a seamless Web? Comparing various network representations of the United States Supreme Court corpus (1791–2005). In: Proceedings of the 12th International Conference on Artificial Intelligence and Law (ICAIL 2009 – UAB Barcelona), ACM Press, New York, pp 234–236
- Bonin F, Dell’Orletta F, Venturi G, Montemagni S (2010) A Contrastive Approach to Multi-word Term Extraction from Domain Corpora. In: Proceedings of the 7th international conference on language resources and evaluation (LREC 2010), La Valletta, Malta, 19–21 May, pp 3222–3229

- Breuker J, Valente A, Winkels R (2005) Use and reuse of legal ontologies in knowledge engineering and information management. In: Benjamins VR, Casanovas P, Breuker J, Gangemi A (eds) *Law and the semantic web*. Springer, Berlin, pp 36–64
- Breuker J, Hoekstra R, Boer A (eds) (2008) OWL ontology of basic legal concepts (LKIF-Core). Deliverable 1.4 <http://www.estrellaproject.org/doc/D1.4-OWL-Ontology-of-Basic-Legal-Concepts.pdf>. Accessed 15 Sep 2011
- Buitelaar P, Cimiano P, Magnini B (2005) Ontology learning from text: an overview. In: Buitelaar P, Cimiano P, Magnini B (eds) *Ontology learning from text: methods, evaluation and applications*, vol 123, *Frontiers in artificial intelligence and applications series*. IOS Press, Amsterdam
- Cabr  MT, Estop  R, Vivaldi J (2001) Automatic term detection: a review of current systems. In: Bourigault D et al (eds) *Recent advances in computational terminology*. John Benjamins, Amsterdam, pp 53–87
- Cabr  MT, Condamines A, Ibekwe-SanJuan F (2007) Introduction: application-driven terminology engineering. In: Cabr  MT, Condamines A, Ibekwe-SanJuan F (eds) *Application-driven terminology engineering*. John Benjamins, Amsterdam, pp 1–17
- Casellas N (2008) *Modelling legal knowledge through ontologies. OPJK: the ontology of professional judicial knowledge*, PhD thesis, Faculty of Law, Universitat Aut noma de Barcelona, Spain
- de Maat E, Krabben K, Winkels R (2010) Machine learning versus knowledge based classification of legal texts. *Legal knowledge and information systems – JURIX 2010: The Twenty-Third Annual Conference, Frontiers in Artificial Intelligence and Applications*, vol 223
- Ding L, Difranzo D, Graves A, Michaelis J, Li X, McGuinness D, Hendler J (2010) Data-gov Wiki: towards linking government data. In: *2010 AAAI Spring Symposium Series*, AAAI Publications
- Dizon MAC (2010) Participatory democracy and information and communications technology: A legal pluralist perspective. *Eur J Law Technol* 1(3)
- Fern ndez-Barrera M, Casanovas P (2012) Towards the intelligent processing of non-expert generated content: Mapping web 2.0 data with ontologies in the domain of consumer mediation. *Language Resources and Evaluation Conference 2012 Proceedings, Istanbul, Turkey*
- Francesconi E (2010) A learning approach for knowledge acquisition in the legal domain. In: Sartor G, Casanovas P, Biasiotti M, Fern ndez-Barrera M (eds) *Approaches to legal ontologies: theories, domains, methodologies*. Springer, Berlin
- Francesconi E, Montemagni S, Peters W, Tiscornia D (eds) (2010) *Semantic processing of legal texts. Where the language of law meets the law of language XII*. Springer, Berlin
- Gangemi A, Sagri MT, Tiscornia D (2003) A constructive framework for legal ontologies. *Law Semant Web* 97–124
- Gruber TR (1993) A translation approach to portable ontology specification. *J Knowl Acquis* 5(2), Special issue: Current issues in knowledge modeling
- Hart HL (1961) *The concept of law*. Clarendon Press, Oxford
- Herberger M (2006) *Der Zugang zum Recht*. In: *25 Years of European Law on Line. OPOCE*, 2006, Luxemburg, p 38
- Holmes N (2011) Accessible Law. <http://blog.law.cornell.edu/voxpath/2011/02/15/accessible-law> Accessed 12 Sep 2011
- Jacquemin C, Bourigault D (2003) Term extraction and automatic indexing. In: Mitkov R (ed) *The Oxford handbook of computational linguistics*. Oxford University Press, Oxford, pp 599–615
- Jacquemin C (1997). *Variation terminologique : reconnaissance et acquisition automatique de termes et de leurs variantes en corpus*. Habilitation   diriger des recherches en informatique, Universit  de Nantes, Nantes
- Lampathaki F, Koussouris S, Passas S, Mouzakis S, Tsavdaris H, Charalabidis Y, Dimitris Askounis D, Osimo D, De Luca A, Bicking M, Wimmer M (2010) CROSSROAD Project. State of the art analysis. Deliverable. D.1.2, p.280. Available at: <http://crossroad.epu.ntua.gr/files/2010/04/CROSSROAD-D1.2-State-of-the-Art-Analysis-v1.00.pdf> Accessed 15 Sep 2011

- Lebarbé T (2007) LexTract: Extraction semi-automatique de termes à portée juridique. *Revue électronique Texte et corpus*, n°3 / août 2008, Actes des Journées de la linguistique de Corpus 2007, pp 197–205 http://web.univ-ubs.fr/corpus/jlc5/ACTES/ACTES_JLC07_lebarbe.pdf Accessed 15 Sep 2011
- Lenci A, Montemagni S, Pirrelli V, Venturi G (2009) Ontology learning from Italian legal texts. In: Breuker J, Casanovas P, Klein M, Francesconi E (eds) *Law, ontologies and the semantic web- channelling the legal information flood*, *Frontiers in artificial intelligence and applications*. IOS Press, Amsterdam, pp 75–94
- Mochales Palau R, Moens M-F (2009) Argumentation mining: the detection, classification and structure of arguments in text. In: *Proceedings of the 12th International Conference on Artificial Intelligence and Law*, 08–12 June 2009, Barcelona, Spain
- Noriega P, López C (2009) Toward a platform for online mediation. In: Poblet M, Shield U, Zeleznikow J (eds) *Proceedings of the workshop on legal and negotiation support systems 2009*, in conjunction with the 12th International conference on artificial intelligence and law (ICAIL 2009), Barcelona, June 12th (2009), IDT Series 5, pp 67–75
- Pagallo U (2007) “Small world” paradigm and empirical research in legal ontologies: a topological approach. In: Ajani G, Peruginelli G, Sartor G, Tiscornia D (eds) *The multilanguage complexity of european law: methodologies in comparison*. European Press Academic Publishing, Florence, pp 195–210
- Pazienza MT, Pennacchiotti M, Zanzotto FM (2005) Terminology extraction: an analysis of linguistic and statistical approaches. *Stud Fuzziness Soft Comput* 185:255–280
- Peters W, Sagri MT, Tiscornia D (2007) The structuring of legal knowledge in LOIS. *J Artif Intell Law* 15:117–135
- Poblet M, Casellas N, Torralba S, Casanovas P (2009) Modeling expert knowledge in the mediation domain: a mediation core ontology. In: Casellas N et al (eds) *LOAIT- 2009*. 3rd Workshop on legal ontologies and artificial intelligence techniques joint with 2nd workshop on semantic processing of legal texts. Barcelona, IDT Series, n. 2.
- Poblet M, Casanovas P, López-Cobo J.M (2010) Online dispute resolution for the next web decade: the ontomedia approach. *Journal of universal computer science*, *Proceedings of the 10th international conference on knowledge management and knowledge technologies*, Graz, Austria, pp 117–125
- Rathert M (2006) Comprehensibility in forensic linguistics – new perspectives for frame semantics. In: Brandt P, Fuß E (eds) *Form, structure, and grammar*. *Studia grammatical* 63. Akademie Verlag, Berlin
- Sheridan J (2010) legislation.gov.uk. LII / Legal Information Institute, Cornell University. <http://blog.law.cornell.edu/voxpath/2010/08/15/legislationgovuk> Accessed 15 Sep 2011
- Toulmin S (1958) *The uses of argument*. Cambridge University Press, Cambridge
- Valente A, Breuker J, Brouwer B (1999) Legal modeling and automated reasoning with ONLINE. *Int J Hum Comput Stud* 51:1079–1125

Regional Participation Model to Engage Citizens in Distant Decision-Making

8

Sabrina Scherer, Maria A. Wimmer, and Johanna Schepers

Abstract

eParticipation is seen as particularly important for participation of citizens in distant decision-making, i.e. where the decision-making body is at quite a distance to the constituency such as in European legislation on consumer protection. In addition to general challenges regional and local projects in eParticipation have to cope with, further difficulties have to be overcome in distant decision-making such as motivating citizen participation. This chapter investigates such challenges in a systematic way. It proposes a regional participation model to engage citizens in distant decision-making. As such, a model itself cannot automatically ensure the success of an eParticipation project. A framework for a regional model for eParticipation is proposed consisting of a procedure to implement a regional model for eParticipation, extensive marketing methods, an eParticipation platform and a serious game. Based on this framework, experiences from VoiceE and VoiceS projects are presented, and recommendations are given.

8.1 Introduction

Political participation is arguably one of the domains where impact of Web 2.0 is now visible (Kohut et al. 2008). Yet, despite increasingly sophisticated technological solutions, challenges remain for eParticipation projects, especially on a

S. Scherer (✉) • M.A. Wimmer (✉)
Research Group eGovernment, University of Koblenz-Landau, Universitaetsstrasse 1,
Koblenz 56070, Germany
e-mail: scherer@uni-koblenz.de; wimmer@uni-koblenz.de

J. Schepers
Medien- und Filmgesellschaft Baden-Württemberg mbH, Breitscheidstr. 4, 70174 Stuttgart,
Germany

supranational stage as, for example, in Europe. Reasons for such challenges are manifold (DEMO-net 2006; Macintosh 2004a, b; Tambouris et al. 2007):

- The degree of complexity of cross-regional or supranational affairs (different regions or even countries, different languages, huge amount of legislative issues) often constrains the development of eParticipation initiatives.
- Marginal acceptance of such services reflected in small numbers of participants, especially if issues are complex and the level of information is low. This is, for example, the case for many EU policy areas and pieces of legislation.
- There is little evidence of decision-makers incorporating eParticipation results into their policy routines and practices, thus putting into question the actual effects of eParticipation.

To overcome these difficulties, this chapter introduces a regional participation model to engage citizens in distant decision-making. The remainder of the chapter is as follows: Sect. 8.3 argues challenges and needs for a regional participation model to engage citizens in distant decision-making. Section 8.4 presents the framework for a regional model for eParticipation. Subsequently, the application of the regional model for eParticipation in the VoiceS project is presented. We conclude with a discussion and with recommendations for the implementation of a regional model for eParticipation in distant decision-making in Sect 8.5.

8.2 Need for and Characteristics of a Regional Participation Model to Engage Citizens in Distant Decision-Making

Participation in supranational decision-making is a topic of interest for political affairs, which go beyond borders of a country or state as, for example, for the European Union (EU) or the USA. Reason is the declining interest of citizens in supranational elections. Participation in European elections has, for example, decreased since 1976 when the first European elections took place (Eurobarometer 2010c). Several Eurobarometer reports of 2010 give hints for causes. For example, in (Eurobarometer 2010a, p 104f), it is argued that if the interest of citizens in European political topics is compared with the interests in national or local political topics, the first one suffers. A majority of European citizens are not convinced that their own voice is heard in the EU (Eurobarometer 2010a, p 155); citizens rather see that the voice of their countries is heard (Eurobarometer 2010a, p 156). But even if the majority think that elections are the best way to make their own voice heard in EU (Eurobarometer 2010b, p 161), the number of voters is declining (Eurobarometer 2010c). In particular, one report argues that the knowledge citizens have about European participation offerings is poor (Eurobarometer 2010b, p 159ff). All this evidences that participation in distant decision-making has to tackle additional challenges in comparison to participation on regional or local level. Another challenge common to models of political participation in distant decision-making is the discrepancy between interested citizens and decision-makers with regard to the level of available information. For citizens, it is very difficult to get involved into a system, which is not only extremely complex, but

whose acting decision-makers are also remote and mostly unknown to them (Holzner and Schneider 2008). Another challenge is the limited knowledge of citizens about supranational institutions, their influence on national and regional level (Ali et al. 2009; Eurobarometer 2008) and legislative procedures. Even if the Eurobarometer report states that the majority of European citizens have heard of the European Parliament or the European Commission, the knowledge in other institutions is rather little (Eurobarometer 2010a, p 158ff). Limited knowledge may lead to a reduction of acceptance and of trust in supranational institutions.

The regional model for eParticipation attempts to bridge the gap by creating channels for citizens allowing them to communicate directly with decision-makers from their region, which they have elected themselves (in part, at least) and who speak their language (giving otherwise anonymous politicians and decision-makers a ‘face’, in turn creating accountability and transparency). A model of regional eParticipation in supranational context also has further advantages. Holzner and Schneider (2008) highlight them for the European case:

- Citizens from the region can be directly targeted with awareness-raising campaigns far easier and with a higher intensity than a non-specified target group (e.g. all Europeans).
- Existing and well-established channels of communication on supraregional affairs in the regions can be used to advertise the platform.
- Elected representatives can discuss real policy issues with their own constituency, not only with the few they can address in person during visits home.
- Regional agencies can be included to support addressing the citizens regionally.
- Political entities with an interest or activities in supraregional affairs can easily be included.

The following relevant stakeholders of a regional eParticipation model in distant decision-making can be identified: citizens from the region, members of the supraregional parliament as, for example, European Parliament or committees of the region in the European case, representatives from regional administrative bodies and from supraregional organisations with links to both regions, as well as NGOs and representatives of governmental institutions working in the topic.

The regional model itself does not per se ensure good participation in an eParticipation project. The success of innovative eParticipation solutions depends heavily on the organisational planning and the incorporation of such initiatives into the different stages of the policy life cycle. In this regard, the next section introduces a framework for a regional model for eParticipation.

8.3 Framework for a Regional Model for eParticipation

The framework for a regional model for eParticipation provides a reference structure to implement an eParticipation project based on the regional model. A regional model for eParticipation refers to a distant decision-making engaging constituency from the regional level through the activation of regional nodes that support and disseminate the eParticipation endeavour. Such a model does not a priori ensure the

participation of citizens in supraregional politics and a successful project result. Careful planning of such a project is necessary. Hence, the regional model is positioned in a framework that supports project managers in its application. It consists of the following three key elements:

- A procedural guidance about how to implement the regional model
- Recommendations about extensive awareness rising and marketing methods as a key factor for eParticipation projects
- Recommendations for a reasonable integration of tools (including a serious game) into an eParticipation platform

These elements add up to a framework for a regional model for eParticipation. They are presented in the subsequent section.

8.3.1 Procedural Model for the Implementation of the Regional eParticipation Model

A number of procedural models for eParticipation exist, which can provide a framework and guideline for eParticipation projects also on a regional level. Scherer and Wimmer (2011) analysed seven procedural models, of which four (Ali et al. 2009; Islam 2008; Koop 2010; Phang and Kankanhalli 2008) are not focusing on a particular participation level, i.e. they are general enough to be applied on supranational and local level alike. One model (Arbter 2011) is focusing on the national level. Two further models (Märker et al. 2009; Taubert et al. 2010) are focusing on the local level respectively. The model is even particularly streamlined for participatory budgeting (Taubert et al. 2010). The models investigated focus on different tasks necessary to implement an eParticipation project; none of them provide a holistic approach.

None of the selected models focus on regional level for distant eParticipation. Nevertheless, they provide important input about how to implement an eParticipation project. The analysis of procedural models for eParticipation unveils that tasks necessary to implement an eParticipation project are diverse and interdisciplinary. Together with the experiences from two eParticipation projects (VoicE and VoiceS), the insights gained by the analysis of the procedural models flow into the procedural model as introduced below.

The procedural reference model provides guidance in order to manage those tasks, which are necessary for implementing an eParticipation project. The guideline is structured along following three phases for implementing an eParticipation project: *Phase I: Analysis and design* (preparation), *Phase II: Implementation, deployment and execution* and *Phase III: Evaluation and impact assessment*.

Figure 8.1 shows the guideline with the three phases in a five-step iterative process. The procedural model bases on the approach presented in Scherer et al. (2010), but it gives further details in particular to the regional model in distant decision-making. Subsequently, its phases and steps are outlined.

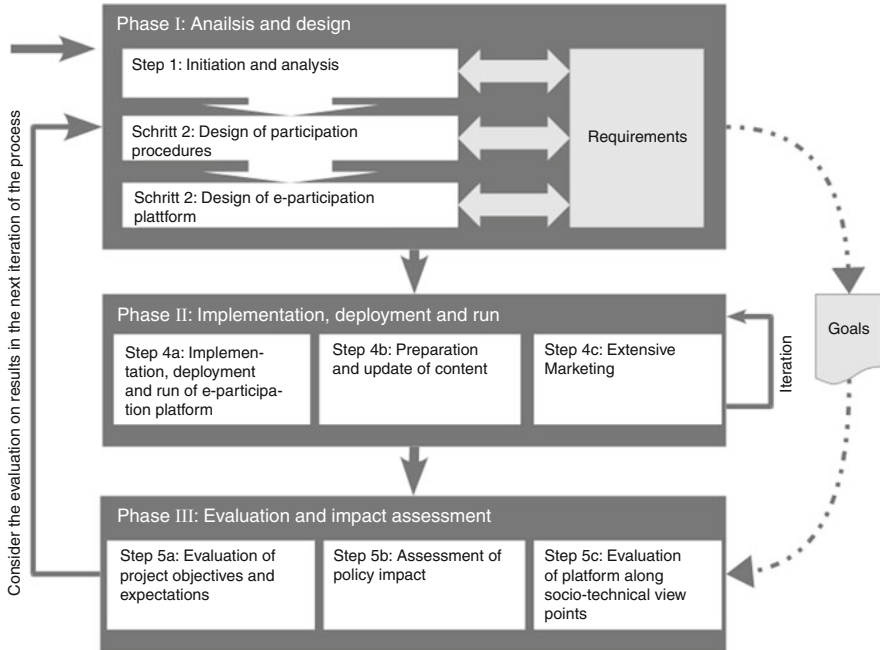


Fig. 8.1 Procedural model for the implementation of the regional eParticipation model

Phase 1: Analysis and design aims to prepare the eParticipation project. Three steps need to be implemented successively, accompanied by a requirements analysis:

Step 1: Initiation and analysis. When an eParticipation project is initiated, the first step is to agree upon the objectives. The following questions need to be answered during this step:

- What are the objectives of participation?
- Who are the stakeholders?
- How should the different stakeholders be involved?
- What are the expectations regarding the impact of the eParticipation initiative?

Step 2: Design of participation procedures. In this step, the participation techniques are selected, and appropriate processes are designed (Glass 1979; Phang and Kankanhalli 2008; Scherer et al. 2010). The questions to be answered in this project step are:

- Which steps of the policy life cycle in distant decision-making are supported?
- How is it possible to have an impact on the policy, and what is the estimated impact of the policy?
- Which participation techniques can be used?
- Which time period is scheduled for the participation process?
- Which information is relevant for the stakeholders?

- How do stakeholders get feedback on their participation?
- How to harmonise regional interests with distant decision-making?

Step 3: Design of eParticipation platform. Based on the participation processes and user needs analysed in steps 1 and 2, it should be decided which regional media and channels (on- and offline) need to be supported and, if applicable, which tools are to be integrated into the platform to support the participation. Users should be involved in the design process from the beginning in order to analyse requirements and design user-friendly participation services. It is essential for eParticipation that communication by electronic means is not more complicated than necessary. The questions to be answered in this project step are (requirements as results):

- Which electronic means support the participation processes best (see Sect. 8.3.3 for more details)?
- Which usability goals are to be fulfilled?
- How to build a link between electronic and traditional, regional participation processes?

If particular results in a step introduced above demand further consideration, it is possible to go back and iterate the steps.

Phase II: Implementation, deployment and execution describes the implementation, deployment and running of the whole eParticipation project and initiative. It focuses on ICT (see step 4a), on the content provided by ICT (see step 4b) and performing awareness rising and marketing to support the project/initiative (see step 4c). These three steps need to be implemented in parallel in order to effectively run the initiative. Subsequently, these steps run along the whole lifetime of the eParticipation project as updating content or marketing materials, fixing bugs and moderating discussions are frequently necessary. Subsequently, the steps are described in detail.

Step 4a: Implementation, deployment and running of eParticipation platform describes those tasks necessary to implement, deploy and run the eParticipation platform effectively; based on the decisions in phase I, implementing an eParticipation system requires well-organised user and system tests. Running the platform refers to activities necessary in order to keep the platform alive from a technical point of view (maintenance).

Step 4b: Preparation and update of content is an ongoing, cost and time-intensive task. The effort for moderation needs to be planned properly too, as this ensures a dynamic platform. A careful preparation of information helps to be in time with the deployment of the platform and to be able to update content for new political developments. It is recommended to follow a well-structured process for information preparation in this step. Questions to be first addressed are as follows: What do you want to prepare, why and how do you want to prepare it? In addition to this, it is necessary to prepare information about the participation process and expectations to make the initiative transparent.

Step 4c: Extensive marketing needs to be seen in context with permanently updating the platform and publishing news. Points to be considered in a marketing strategy for regional eParticipation are described in detail in Sect. 8.3.2.

Phase III: Evaluation and impact assessment. Evaluation of the eParticipation platform, of the processes and of the actors' participation shall give insight into whether the goals of the eParticipation initiatives are met, impact is reached and how far the electronic tools have supported the outcomes reached. The evaluation results show whether the eParticipation initiative is successful. Critical points, which need to be revised and improved in an iterative design cycle, are identified. Questions to be answered in order to evaluate project objectives and expectations, policy impact and the eParticipation platform along socio-technical viewpoints are:

- To what extent are the specific aims and objectives of the project fulfilled?
- To what extent did the project affect policies?
- To what extent does the design of the eParticipation toolbox affect the outcomes?

The procedural model introduced in this section describes an iterative process to successfully plan and implement eParticipation initiatives. Hence, the insights gained in the evaluation (phase III) feed back into revisions in earlier steps of the engineering approach, as shown in Fig. 8.1.

As pointed out earlier in the guideline, marketing activities are a crucial part of an eParticipation project. Hence, the marketing strategy is investigated further in the next section. Likewise, careful selection of eParticipation tools is important. Section 8.3.3 will provide recommendations for this element of the regional participation model. Section 8.3.4 will dig into the use of serious games as a particular eParticipation tool.

8.3.2 Marketing Strategy

Extensive marketing is an ongoing and important task. The marketing initiative must start before the platform has been launched. It will last as long as the commitments make it necessary. During the first stage, the strategy will be focused on raising awareness of citizens concerning the new initiative, using different marketing tools and merchandising: press releases, banners on Web sites, advertisements, etc. The launch of the platform should be incorporated in a large event with considerable visibility (press coverage, number of visitors, etc.). Examples of effective mechanisms of a marketing strategy are:

- Question of the Month: Simple polls are used to stimulate initial participation and involvement in the topic by the stakeholders.
- Posting recent news about the topic and giving the possibility to comment them.
- Offering video interviews with important stakeholders.
- Advertising the platform in on- and offline networks.

It is fundamental to know the target group of the eParticipation project. In the following, the key parameters to be considered in the marketing strategy are summarised:

- **Age:** A marketing strategy is to be different when addressing different target groups such as pupils, students or retired people as well as voters and non-voters. Images, layout, explanations, linguistics, etc., that are used need to be adapted to the age range.
- **Knowledge of the topic:** It is important to find out the awareness, involvement and knowledge that the target group has of the respective topic. Depending on this, more or less detailed information needs to be offered.
- **Internet expertise:** How experienced the user groups are with the Internet and the various tools has to be reflected in the marketing strategy. Pupils might be more easily attracted by an e-mail or a Twitter tweet, while others may better be reached through traditional flyers.
- **Target area:** If the service is offered on a local level, the message is more direct, and people are able to comment or express their concerns and opinions more easily. At supraregional or even supranational level, it is necessary to provide more information and to explain the content in easily understandable way.

It is thus of crucial importance for the success of an eParticipation initiative to define the target group at a very early stage. The 'One size fits all' approach does not work in this case. On- and offline strategies may particularly target different stakeholder groups; these need to be coordinated and harmonised. Yet, it is no longer true that only the young are on the Web. More and more older people discover the Internet and become fit in surfing on the Web. Hence, means to reach target groups have to be selected carefully. In the following, some online means are briefly outlined.

Social networks can be considered as a tool to discover and to find new contacts, new ideas, business or project partners, any kind of group, potential clients and call up Internet users to discuss special topics. Before starting to use social networks, it is necessary to study and analyse different social networks in order to find out which ones are close to the respective project activity and target groups. The most popular social networks among citizens are potentially the most interesting tools for the online dissemination strategy. Once the social networks have been selected, it is necessary to set up a strategy of use of this tool as a channel of dissemination. It does not suffice to have just the channels. Social networks require active maintenance and care, for example, by posting information, answering questions, being interested in what others say. Hence, in planning eParticipation endeavours, resources must be assigned to this type of activities if social networks are used in marketing and awareness rising.

Newsletters are an easy tool to send the target groups information about the project, its progress and developments. However, people should not be 'spammed' with the newsletter. Readers' authorisation has to be obtained before a newsletter is being sent.

Marketing activities cannot merely focus on the online means. Depending on the age and structure of the target groups, using offline means such as road shows, booths at key conferences, letters and so forth as described subsequently. Most important offline marketing tools to raise interest for supraregional politics on a regional level are as follows:

- Participation in congresses, seminars and conferences related to the topic of the project/activity, meetings, etc., to present the project to groups of interest.
- Workshops and training sessions in order to explain the aim of the project/activity in detail.
- Organisation of meetings in schools especially political sciences courses where the project and its tools are presented. Especially the serious game can be promoted in such classes.
- Design of marketing materials and giveaways like brochures, flyers, leaflets, rollers, posters, pens, notebooks, postcards, etc., about the eParticipation project.
- Close relation to media in order to promote the activities and to reach as many people as possible. In a regional context, close contact to journalists from these regions needs to be established to get the broadest possible coverage there.
- Providing content to those entities (associations, organisations, etc.) that are dealing with the topics tackled because they can disseminate the project through their own publication means.

8.3.3 eParticipation Platform

Through marketing activities, citizens may have gained interest in the eParticipation platform. To ensure sustainable participation of target groups, careful selection of adequate tools is important.

Without a need to register, citizens should have access to a large pool of detailed information on current legislative affairs in distant decision-making and the possibility to view ongoing debates and statements by politicians. Important in regional or local contexts is to speak the language of the citizens, i.e. using simple paraphrases and considering regional languages.

If citizens want to get involved in debating, they should not necessarily need to create a user account. Most of the informative and participative areas of the site are to be open to everybody. Citizens shall be able to give their opinion on policy issues under discussion, and they shall easily connect to the policymakers through the platform's participation portal. Functionalities to be offered are as follows:

- Citizens can give their views on the topics launched by policymakers and directly interact with them, for example, via discussion fora, comment functionality, chat features or in social networks.
- Citizens can participate in opinion polls.
- Citizens will be able to request the inclusion of different issues in the policy under discussion. This can be achieved in two separate ways: directly (through online petitions) or indirectly (by the semantic interpretation of their comments in forums and other similar tools).
- Citizens will have the option to communicate and collaborate around projects (e.g. to draft a petition before publishing it on the Web site).

- A calendar function alerts citizens about events in their region as well as on upcoming legislative issues.
- Moderators and content administrators have to be supported in summarising conclusions of discussions in a simple and effective way.

The usability of eParticipation platforms is of significant importance. Communication by electronic means should not be more complicated than necessary. Therefore, eParticipation features must base on easy-to-use tools in order to avoid usability flaws that could discourage people from online participation. Widely established tools and user paradigms respectively should even be preferred.

8.3.4 Serious Game to Support Transparency and Better Understanding of Complex Systems

If citizens have limited knowledge of the complex system of supranational decision-making and its mechanisms, they can be directed to a browser-based serious game to learn about such procedures and the institutional system. Games and play are a means to make the decision-making process more transparent (DEMO-net 2006). A game can be defined as an activity, usually undertaken for enjoyment and sometimes also used as an educational tool. Some components of games are goals, rules, challenges and interactivity (Carr et al. 2008). Games generally involve mental or physical stimulation, and often both. Serious games, as a special kind of game, help to develop practical skills, serve as a form of exercise or otherwise perform an educational, simulative or psychological role (Abt 1987). Electronic serious games can support eParticipation to describe a situation, an upcoming decision or a decision-making process (e.g. a new legislative proposal that is ready to being passed through given legislative decision-making process) in a user-friendly and interactive way and thereof are usable in all participation areas (DEMO-net 2006).

A browser-based serious game, which can be embedded into the platform, allows citizens to explore the realms of superregional legislation in a playful, interactive and entertaining manner. By assuming the position of a politician or other person involved in the procedure, citizens go step by step through the whole legislative process and are constantly confronted with political challenges and decisions. This way, the superregional legislative process, the legislative issue at hand and the difficulties decision-makers are facing become transparent and comprehensible. As some of the issues discussed in the game will also be debated in platform forums, direct links will be created between the game and other platform functions (“if you want to contribute to this debate with your real politician, click here to join our forum”).

After having introduced the regional eParticipation model, the next section describes the application of the framework and lessons gained thereby from two practical projects. First, the projects are explained, and then the application of the procedural model is detailed.

8.4 Case Study: Evaluating the Framework Along the Voice and VoiceS Case

The VoiceE¹ project was designed as a trial project, implementing a regional model of eParticipation in the European Union (EU), which places a high emphasis on platform marketing, editorial preparation and integration into the surrounding political institutions (Holzner and Schneider 2008). VoiceE provided two regional platforms² serving as interfaces between decision-makers in the EU and citizens in the regional contexts. The VoiceE platform was launched in the participating regions of Baden-Württemberg, Germany and Valencia, Spain.

In terms of contents, the project focused on the policy field of consumer protection. On both platforms, general information on consumer protection in the EU, a news section, polling functionality ('Question of the Month') and a discussion forum ('civil forum') were included. For the distribution of content, also RSS feeds, Twitter messages, social bookmarking and newsletters were used. Texts were available in German on the Baden-Württemberg and in Spanish and Valencian on the Valencia instance. The feasibility of such an approach was of particular importance, as the follow-up project VoiceS³ continued the aims of the VoiceE project (which was finished in December 2009) and complemented the platform by adding a series of new features as semantic applications, a serious game and social networking—a more detailed description of the project is provided in Scherer et al. (2009a). By building on experiences made in VoiceE, VoiceS incorporated ongoing evaluation in an iterative design cycle as described in the procedural model (see Sect. 8.3.1).

Mostly, the VoiceE and VoiceS projects were related to Members of the European Parliament (MEPs) of both participating regions, of whom several have agreed to support the VoiceE project. Using the platform gave the MEPs an opportunity to directly discuss with their regional electorate issues related to their day-to-day operations, for example, within the Committee on Consumer Protection. However, the VoiceE model was not necessarily restricted to the European Parliament. Other channels of particular regional relevance that have been taken into consideration include the regional governments and their links to the Committee of Regions.

8.4.1 Participation Processes

A challenge in the VoiceE and VoiceS projects was that the participation possibilities in the European Parliament are limited and not transparent. Therefore, it

¹ VoiceE—Giving European people a voice in EU legislation. <http://www.give-your-voice.eu>. Accessed 15 Sep 2011.

² Baden-Württemberg, Germany (<http://www.bw-voice.eu>) and Valencia, Spain (<http://www.voice.gva.es>). Platform functionalities described in Scherer et al. (2009b).

³ VoiceS—integrating semantics, social software and serious games into eParticipation. <http://www.eu-voices.eu>. Accessed 15 Sep 2011.

was envisaged that VoicE and VoiceS would operate as a mediator between citizens and MEPs. The project consortia decided to forward the opinions of citizens expressed in the forum directly to the politicians (and not to wait until they read the posts in the forum). Therefore, a ‘Letter to Brussels’ initiative was established to enable the users to bring their opinions in the political process. A ‘Letter to Brussels’ initiative was started by the project team after the European Commission had published a new proposal related to customer protection policies (i.e. the VoicE topics). It was processed as follows: First, information on the proposal was prepared (what will be changed?, when will it change?, how will it change?, etc.). After that, it was published on the platform, and a discussion thread was opened. In a predefined period, the citizens as well as MEPs could discuss the topics of the proposal in the forum. The VoicE team summarised the discussions in an official statement. This document was published in the news and the forum. It could be discussed and revised in a period of 1 or 2 weeks. This should make sure that all participants agree with the statement. Afterwards, the ‘Letter to Brussels’ was finalised, published on the Web site and sent to the MEPs with the request for a response. This way, MEPs should be directly informed about the opinions of their voters from the regions. It was planned that MEPs can formulate a reply and send it back to the VoicE team (for publication on the Web site) or discuss directly in the forum.

The participation of MEPS was limited, however. One challenge to face was that the few reactions of the politicians discouraged citizens to invest their time in further discussions.

Despite rather low participation of citizens and political stakeholders, the ‘Letter to Brussels’ initiative gives an idea and impression for similar activities in eParticipation endeavours. Such initiatives need to be established and planned well to increase the number of participation (on both sides—citizens and politicians). The experience demonstrates that improvements and intensified adaptation are necessary to impact political processes and the visibility of the participation activities at political level.

The next section describes aspects, which need to be considered when designing and implementing an eParticipation platform. Thereby, it focuses on the engineering process and the use of platform features based on the design of the participation processes (as argued in Sect. 8.3).

8.4.2 Implementation, Deployment and Running of the VoiceS Platform and the Serious Game

In order to adapt the VoiceS platform to the users, a usability engineering life cycle for eParticipation was developed and applied in VoicE (see Scherer et al. 2009b for details). Usability engineering helped to ensure the usability of eParticipation applications by providing a structured and comprehensive methodology to design and implement such system types. Special attention was paid on user involvement in the overall process.

The VoiceS platform is based on the content management system Gov2DemOSS.⁴ In the beginning of VoicE, some general participation features have been chosen to provide the citizens and politicians the possibility to participate. In fact, the list of platform features has been agreed before concretising how discussions and activities on the platform could have an impact in EU politics. Later in the project life cycle, i.e. after pilot tests, a number of platform features have been removed. The most important remaining tools were the forum, the opinion polls and the visualisation tools. To avoid double work and frustration of the users, the procedural model for eParticipation proposes to first plan the participation process(es) without considering technical features (as described in Sect. 8.3.1). Which features are to be used cannot be determined until the eParticipation processes have been decided. Few but effective features simplify the user interface. Another point to be considered is that participation features should only be provided in the case where the voice of participants is really heard by responsible authorities. For a more detailed analysis of the VoicE platform design, the reader is referred to Scherer et al. (2009b).

To ease the participation for citizens, VoicE minimised the barriers given through the registration procedure. First, the registration has been simplified through the minimisation of requested data [only user name (pseudonym), e-mail and password were necessary to register]. In a subsequent step, the whole registration to participate in the VoicE forum was deactivated in order to test if this increases the numbers of discussions. Since VoicE allowed unregistered people to write in the forum, the number of posts has increased. The recommendation in this respect is that a registration feature has to be well thought through. If registration is not absolutely necessary, it should be avoided. If there is a clear reason for requesting registration (e.g. fraudulent or disruptive interventions), then the reasons have to be made transparent to the citizens and politicians to be involved. Privacy of the users and minimisation of access barriers for participation have to be taken care wisely in eParticipation projects.

With the help of a serious game, the VoiceS project created an interactive scenario, which allows the player to explore the EU co-decision procedure from various perspectives. In this way, the game players could not only familiarise themselves with the complex legislative process in a playful manner. They also have the opportunity to learn about a legislative subject. The game is available in three languages: English, German and Spanish. For developing the game scenario, a real European directive from the field of consumer protection was selected. In the game, the player can take the role of crucial decision-makers, i.e. European Commissioner, Lobbyist, Minister (member of the Council of Ministers) and European Parliamentarian (MEP).⁵ The player has to influence the other decision-makers in such a way that ideally the final directive contains his own position. From

⁴ Gov2SDemOSS. <http://www.gov2u.org/gov2DemOSS>. Accessed 15 Sep 2011.

⁵ The VoiceS serious game is available online under http://www.give-your-voice.eu/index.php?option=com_content&task=view&id=111&Itemid=278. Accessed 15 Sep 2011.

the pedagogical point of view, an enhanced way to enter the scenario is developed that builds up the competence of the player in a scaffold way. This progress of proficiency with the elements constituting the scenario can be achieved playing four in a predefined order.

The experiences in VoiceS with the serious game show that such a tool is most fruitful for users with prior knowledge about the field that need to train or motivate users not yet familiar with the formal procedures or the particular policy context. For example, teachers found the game useful within the frame of school lessons or university seminars. Here a motivated learner can detect and combine existing knowledge with new experiences and insights. The support of the learning process through an experienced teacher enhanced the learning experience. Nonetheless, we assume that also without prior knowledge the learning results seem promising within a guided learning context.

To explore alternative policy options with serious games in agenda setting and policy formation stages is, to our knowledge, however, limited in serious gaming tools as used in the VoiceS context. Current and future research in policy simulations seems to develop new potentials at present. This is, however, still a research field where profound results are yet to be expected in the near future.

8.4.3 VoiceS Marketing Strategy

The VoiceE/VoiceS marketing activities started with the launch of the platform. However, the marketing strategy had been defined several months before. The marketing activities have been changed and adapted according to the development of the project and the novelties that needed to be considered, such as the focus on social networks in the framework of VoiceS. In VoiceE and VoiceS, contacts to consumer protection associations and relevant political actors such as ministries were established and used for dissemination. The online main activities took place in Facebook and Twitter. The projects managed to reach a broad public and thus to improve the dissemination activity and the citizens' knowledge of the project. The number of fans, friends and followers was slowly but constantly growing.

Conclusions

The evaluation of the regional model for eParticipation along the VoiceE and VoiceS case shows that the regional model can help to strengthen citizens' interest in distant decision-making politics. This effect is supported by the thematic focus on consumer protection, a topic relevant to all citizens. The regional and thematic focus highlighted the impact of European politics on citizens' daily lives. The results in VoiceE and VoiceS prove that a regional model of eParticipation has advantages in this regard in comparison with top-down participation endeavours from European level. Higher acceptance of the information offering is ensured through regional language and marketing activities at regional level. Also, the closer link to the politicians elected for or present in the distant constitutional bodies (in the case of the VoiceE and VoiceS

projects the European Parliament and Committee of Ministers of the EU) via the regional contact nodes and the regional participation platform evidences the benefits of such a model.

The challenge that regional voices have a lower impact on European level was the starting point for involving MEPs from the regions in participation offerings in the VoiceE and VoiceS projects. However, MEPs have limited time, and one cannot expect that they will be present in many different regional online participation offerings. In order not to frustrate citizens with low impact at distant decision-making, regional eParticipation offers need to be well integrated into political processes. Electronic participation processes must therefore be planned in detail and adapted and integrated with political processes. An eParticipation feature can only be used in the eParticipation endeavour, if the integration of the processes and results into the overall political process is ensured. It must be ensured that the users can see that their engagement will be recognised.

Relevant information must be presented in an understandable, short and interesting way to the users. Regional effects of legislation are to be highlighted. Distant decision-making and its institutions need to be brought closer to the citizens by providing short and easy understandable information about the institutions, their functions and processes.

Marketing initiatives for eParticipation projects should follow the principles of a small local focus, making or keeping it simple, credible, creating personal affection and making sure that participation has an impact.

A regional offering could, for example, serve as intermediary to translate European consultations in the language of citizens, obtain their opinions, translate them back in political language and put them forward to the European institutions. Following such an approach with online means, the advantages of a regional participation model could be used in the European context.

To implement successful eParticipation procedures, a systematic and methodically grounded approach of development is necessary. The regional model for eParticipation as introduced in this contribution presents such a methodical approach. The regional model recommends the use of information and process models to analyse, design and optimise the political and participative processes.

Serious games in general try to close the gap between education and the application of knowledge by basing on the assumption that humans learn easier and more sustainable by applying knowledge. This learning experience is supported by having fun, even though this is not in first place. The way serious game is designed in the VoiceS case (with the aim to support learning) needs an educational environment. It is not suitable to support policy formation and active political debate. If serious games are planned in eParticipation endeavours, their use is to be planned with care and for the educational purpose. However, advanced methods of policy simulation may open up new potentials. Ongoing research will show whether these potentials will materialise to support collaborative policy formulation using simulation and gaming tools in future.

Acknowledgement The projects Voice ‘Giving People a Voice in European Legislation’ and VoiceS ‘Integrating Semantics, Social Software and Serious Games into eParticipation’ were co-funded by the European Commission under the eParticipation Preparatory Action. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein. We thank all Voice and VoiceS projects partners for collaboration in the projects and making them a success.

References

- Abt CC (1987) *Serious games*. University Press of America, Lanham, MD
- Ali H, Macaulay L, Zhao L (2009) A collaboration pattern language for eParticipation: a strategy for reuse. In: *Proceedings of the 9th European conference on e-Government*, Academic Publishing International, London, pp 29–38
- Arbter K (2011) *Standards der Öffentlichkeitsbeteiligung*. Praxisleitfaden, Bundeskanzleramt Österreich, and Federal Ministry of Agriculture, Forestry, Environment and Water Management, Wien. http://www.partizipation.at/standards_oeb.html. Accessed 15 Sep 2011
- Carr D, Buckingham D, Burn A, Schott G (2008) *Computer games: text, narrative and play*. Polity Press, Cambridge, MA
- DEMO-net (2006) DEMO-net D5.1: report on current ICTs to enable participation. Deliverable, DEMO-net consortium. http://www.demo-net.org/what-is-it-about/research-papers-reports-1/demo-net-deliverables/pdfs/DEMO-net_D5.1.pdf. Accessed 15 Sep 2011
- Eurobarometer (2008) *Public opinion in the European Union. First results 70*, Eurobarometer. Fieldwork: October–November 2008 publication
- Eurobarometer (2010a) *73 public opinion in the European Union. Report vol 1*, European Commission
- Eurobarometer (2010b) *73 public opinion in the European Union. Report vol 2*, European Commission
- Eurobarometer (2010c) *Report on the election of Members of the European Parliament (1976 Act as amended by Decision 2002/772/EC, Euratom) and on the participation of European Union citizens in elections for the European Parliament in the Member State of residence (Directive 93/109/EC)*. Report from the commission, European Commission. <http://eur-lex.europa.eu/Notice.do?val=525591>. Accessed 15 Sep 2011
- Glass JJ (1979) Citizen participation in planning: the relationship between objectives and techniques. *J Am Plan Assoc* 45(2):180–189
- Holzner M, Schneider C (2008) Consumer protection, European decision-making and the regions – the eParticipation project Voice. In: Cunningham P, Cunningham M (eds) *Collaboration and the knowledge economy: issues, applications, case studies part 1*. IOS Press, Amsterdam, pp 351–356
- Islam MS (2008) Towards a sustainable e-Participation implementation model. *Eur J ePract* 5: 1–12. <http://www.epractice.eu/files/5.3.pdf>. Accessed 15 Sep 2011
- Kohut A, Keeter S, Doherty C, Dimock M (2008) Social networking and online videos take off: Internet’s broader role in campaign 2008. TPR Center, The PEW Research Center, 202, pp 419–435. <http://www.people-press.org>. Accessed 15 Sep 2011
- Koop A (2010) *Leitfaden Online-Konsultation: Praxisempfehlungen für die Einbeziehung der Bürgerinnen und Bürger über das Internet*. Leitfaden, Bertelsmann Stiftung. <http://www.online-konsultation.de/leitfaden>. Accessed 15 Sep 2011
- Macintosh A (2004a) Characterizing e-participation in policy-making. In: *Proceedings of the 37th annual Hawaii international conference on system sciences (HICSS-37)*, vol 5, Big Island, Hawaii, 5–8th January, IEEE Computer Society, Los Alamitos, CA. <http://csdl2.computer.org/comp/proceedings/hicss/2004/2056/05/205650117a.pdf>. Accessed 15 Sep 2011

- Macintosh A (2004b) Using information and communication technologies to enhance citizen engagement in the policy process. In: Promises and problems of e-democracy: challenges of online citizen engagement. OECD, Paris
- Märker O, Wehner J, Gölz S (2009) Leitfaden für kommunale E-Partizipations-Verfahren. Technical report, Fraunhofer IAIS, Zebralog
- Phang CW, Kankanhalli A (2008) A framework of ICT exploitation for e-participation initiatives. *Commun ACM* 51(12):128–132
- Scherer S, Wimmer MA (2011) Reference framework for E-participation projects. In: Tambouris E, Macintosh A, de Bruijn H (eds) Proceedings of third international conference on eParticipation (ePart 2011). Springer, Berlin, Nr. 6847, pp 145–156
- Scherer S, Holzner M, Karamagioli E, Lorenz M, Schepers J, Wimmer MA (2009a) Integrating semantics, social software and serious games into eParticipation: the VoiceS project. In: Tambouris E, Macintosh A (eds) Electronic participation: proceedings of ongoing research, general development issues and projects of ePart 2009, pp 151–158
- Scherer S, Karamagioli E, Titorencu M, Schepers J, Wimmer MA, Koulolias V (2009b) Usability engineering in eParticipation. *Eur J ePract* 7
- Scherer S, Wimmer MA, Ventzke S (2010) Hands-on guideline for e-participation initiatives. In: Janssen M, Lamersdorf W, Pries-Heje J, Rosemann M (eds) E-Government, E-Services and Global Processes, vol 334, IFIP advances in information and communication technology. Springer, Boston, pp 49–61
- Tambouris E, Liotas N, Tarabanis K (2007) A Framework for assessing eParticipation projects and tools. In: HICSS '07: proceedings of the 40th annual Hawaii international conference on system sciences, IEEE Computer Society, Washington, DC, p 90
- Taubert N, Krohn W, Knobloch T (2010) Evaluierung des Kölner Bürgerhaushalts. Technical report, Universität Bielefeld im Auftrag der Stadt Köln

Mitja Trampuš, Sinan Sen, Nenad Stojanović,
and Marko Grobelnik

Abstract

This chapter presents a novel visual approach to data interpretation in online discussion forums. Due to information overload in these forums, it is very difficult to get the right information at the right time, especially when the information is summary in its nature and spread across a big number of posts. The authors propose a tool that enables any visitor of a discussion forum to easily visualise its contents and thus gain an overview of its structure and discussion trends. The tool, which has been deployed on three politically themed pilot forums, also enables the user to receive proactive notifications about interesting topics being posted on the forum. The work presented was performed in the scope of EU co-funded project VIDİ and contributed visibly to a better participation of citizens in (local) political life.

9.1 Introduction

Some of the richest Internet sources of public opinion are discussion forums. However, despite the constantly growing number of users and posts, the structure of these forums has not changed much since the mid-1980s when Usenet was introduced. While the threaded display works well within a single fine-grained topic, navigating among the topics is becoming increasingly difficult. New visitors to a forum are met with an overwhelming number of topics and posts. With threads

M. Trampuš (✉) • M. Grobelnik
Jožef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia
e-mail: mitja.trampus@ijs.si; marko.grobelnik@ijs.si

S. Sen • N. Stojanović
FZI Research Center for Information Technology, Haid-und-Neu-Str. 10-14, 76131 Karlsruhe,
Germany
e-mail: sinan.sen@fzi.de; nstojano@fzi.de

getting excessively long, it can even become hard to grasp the ideas expressed in a single thread in a reasonable amount of time. On the aforementioned political discussion forums, analysts and decision-makers are eager to follow the public opinion but simply cannot read through hundreds of posts every day.

Various visualisation techniques can be applied to make knowledge emerging through the online discussion more explicit. Proper visualisation metaphors have the ability to support the users in improving their ability to process large and complicated information spaces. Such techniques include visualisation of both quantitative and qualitative data within and about the discussion. The visualisation can show which topics are popular and how the interest changes in time, i.e. how they evolve over time. Moreover, such an analysis can show what people like and what they dislike regarding the topics they are discussing (a kind of sentiment analysis).

In this chapter, a novel approach that enables any visitor of a discussion forum to easily visualise its contents and thus gain an overview of its structure and discussion trends is presented. The approach also enables the user to receive proactive notifications about interesting topics being posted on the forum.

The approach has been implemented as an easy-to-use, Web-based tool. In order to validate proposed approaches, we deploy the tool in three different use cases. The results are very encouraging: such a tool can help very much in a better inclusion of ordinary people in various (political) discussions.

The remainder of this chapter is organised as follows. In Sect. 9.2, the problem and the authors' contributions to its solution are provided, contrasted with existing work in the area. In Sect. 9.3, the enabling technology behind the proposed software is presented, and in Sect. 9.4, a review of the software from the end user point of view is presented, stressing the ways in which it helps forum visitors, analysts and owners better understand its content. Section 9.5 describes the results of a user survey on usefulness of the tool, and finally Sect. 9.6 concludes with a short discussion of both the achieved and possible future results.

9.2 Definition of the Problem

The vision of VIDİ project was to enable a more efficient interaction between citizens and policymakers by enabling better understanding of the public opinion and its involvement regarding the proposed or adopted legislations. The goal of the project was to provide a systematic approach for processing public opinion and its impact by developing methods and tools for the analysis and the visualisation of the citizens' feedback (opinion) for a legislation.

However, current tools for visualisation miss this opportunity, especially the explicit link between the discussions related to legislation and their impact on this legislation. The main challenge of the VIDİ project was to close this gap, as presented in Fig. 9.1.

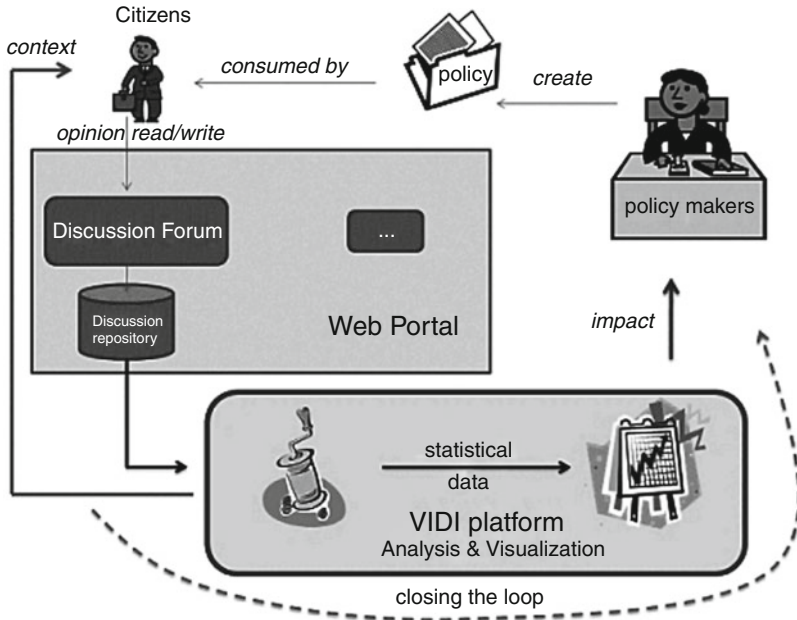


Fig. 9.1 Closing the policymaking loop: Policymakers create some legislations, which are consumed by citizens, who express their opinion through participating in various discussions forums. VIDI platform takes data from discussions, analyses and visualises it, returning to the policymakers the public opinion about the legislation. At the same time, VIDI platform gives the context about current discussions to the citizens, which provokes their more active involvement

Therefore, generally speaking, the work presented in this chapter is contributing to the problem of closing the gap between the information providers and information consumers in the online communities. Nevertheless, the examples that will be provided are related to a particular domain, eParticipation, that VIDI project is relevant for.

9.2.1 Contributions

The main contribution of this chapter is the usage of data mining methods to visualise public opinions on discussion forums and to enable a timely involvement. The software enables a visual browsing of historical data in a user-friendly way. In order to be informed about new topics, the platform provides an expressive language in order to define notification patterns. The software handles multiple language, efficiently stores constantly incoming new data and scales to several millions posts in a forum. From the application (eParticipation) point of view, there are three main contributions:

1. Boosting eParticipation process in order to enable expressing different views, i.e. more active involvement of citizens

2. Presenting the discussions in a clearer manner in order to better understand the impact of legislation
3. Enabling a timely involvement of citizens and decision-maker through the real-time processing

9.2.2 Related Work

Visualisation of a document corpus is a very useful tool for finding the main topics that the documents from this corpus talk about. Different methods were proposed for visualising a large document collection using different underlying methods. For instance, visualisation of large document collection based on document clustering, or visualisation of news collection based on visualising relationships between named entities extracted from the text (Grobelnik and Mladenic 2004). The IST-World project (Grobelnik and Mladenic 2003) visualises the European research topics. Given a set of descriptions of European research projects in IT (sixth Framework IST), using document visualisation, one can find main areas that these projects cover, such as semantic Web, eLearning, security, etc. We follow with a more structured overview of the possibilities.

A longer overview is given by Silic and Basic (2010), a survey listing several existing visualisation methods and analysing the commonalities and differences between them. Particularly informative is a table of about 30 methods surveying the underlying basic techniques like multidimensional scaling (MDS) or self-organising maps (SOM) (see Sect. 9.2.2.1) that they employ.

Many of the standard text visualisation techniques have been made available in IBM's publicly available ManyEyes tool.¹ Like VIDDI, it aims to support exploratory analyses. Because it assumes little about the data and offers many options, it is particularly suited for advanced users.

When visualisation techniques are applied specifically with the goal of easing understanding of a debate and its participants' points of view, it is referred to as computer-supported argument visualisation (CSAV) (Kirschner 2003). A successful attempt at fostering a more structured, easier to follow debate with the help of CSAV is the DebateGraph² tool, developed within the WAVE ERC project (Gatautis 2010). DebateGraph is a forum-like platform which classifies 'posts' as one of 'issue, position, supportive argument or opposing argument' with appropriate interlinks. Also recently, the LEX-IS ERC project (Loukis et al. 2007, 2009) evaluated the usefulness of CSAV (the Compendium tool was used) for making the legislation creation process more understandable and thus increasing public participation.

¹ IBM ManyEyes. <http://www.manyeyes.com>. Accessed 10 Sep 2011.

² DebateGraph. <http://www.debategraph.org>. Accessed 10 Sep 2011.

9.2.2.1 Corpora Visualisation and Dimensionality Reduction

In automated text processing focusing on the content as a whole rather than some specific part of it (e.g. named entities or relations), documents are usually represented using the bag-of-words (BOW) document representation, where each word from the document vocabulary stands for one dimension of the multidimensional space of documents.

As a consequence of the BOW data representation, we are dealing with very high dimensionality of up to hundreds of thousands dimensions. Dimensionality reduction is important for different aspects of automated text processing including document visualisation—to draw the contents of a document or a collection of documents, it is clear that we first need to reduce their dimensionality to 2D or at most 3D. As the idea is to present the (dis)similarities between documents in terms of only a few crucial latent concepts (not many can be presented on the screen), this low-dimensional space is often dubbed latent semantic space.

The key idea in visualising contents of a large document collection, as is the case with posts in online forums, is to display documents as connected or spatially close to each other if they have similar content. The end result is a collection of documents embedded into two dimensions in such a way that a human can easily perceive the larger topical clusters; a natural extension of such graphical clustering is to provide rudimentary descriptions of each cluster's contents.

One of the first methods for dimensionality reduction were Kohonen (1990) SOM which use an iterative procedure to partition the low-dimensional space into areas with varying topical preferences while at the same time assigning the (inherently high-dimensional) documents to those partitions. An early work demonstrating the applicability of SOM to corpus visualisation is by Lin (1991).

Linear methods also present an important approach to dimensionality reduction. Due to the clean, relatively simple and very well-researched mathematics underpinning them, they are fast to apply, though they can lack expressive power. They are therefore particularly useful for reducing high-dimensional documents to moderately dimensional ones, at which step it becomes feasible to employ better, more complex, but also computationally more expensive methods for the final reduction step. The most applicable linear methods are latent semantic indexing (LSI), correspondence analysis and principal component analysis (PCA), which are all closely related to each other and the mathematical method of singular value decomposition (SVD). If some pre-existing labelling of documents is given and needs to be reflected in the final visualisation, Fisher's discriminant analysis can also be of use.

In Document Atlas (Fortuna et al. 2005), dimensionality reduction is applied for document visualisation by first extracting main concepts from documents using LSI and then using this information to position documents on a two-dimensional plane via MDS (Carroll and Arabie 1980). The final output is graphical presentation of a document set, using the two dimensions output by MDS as coordinates for plotting on a computer screen. This approach is implemented, e.g. as a part of Text Garden software tools for text mining (Mladenic 2006), in a component providing different kinds of document corpus visualisation based on LSI and multidimensional scaling. VIDI's rendition of this type of visualisation was dubbed topical atlas.

9.2.2.2 Structured Information Visualisation

Instead of trying to visualise the complete topic of documents being analysed, it is sometimes more informative to only extract specific fragments of information from the corpus and visualise those. The most frequent piece of information to be extracted are the named entities (Grobelnik and Mladenic 2004), though, for example, general noun phrases can be extracted as well (Berendt and Subasic 2009). Once such fragments are extracted, they are presented in the form of a graph, with two nodes being connected if they are in some kind of relationship. This relationship can be trivial, e.g. co-occurring in the same sentence in the corpus, or it can be more meaningful, e.g. ‘is CEO of’ if we set off to extract people and companies. These methods generally require more involved linguistic approaches as they have to extract the entities from unstructured text and possibly also identify the prevailing relation between each pair of entities, if any, or at least the strength or presence of such a relation.

In a similar vein, instead of extracting entities from text and then displaying relations between them, documents themselves can be the entities of interest. If the edges between documents are based on inter-document similarity (Andrews et al. 2002), this class of visualisations starts to converge with the latent space visualisations from Sect. 9.2.2.1.

In general, all of these methods require a graph drawing method to plot their findings. Graph drawing is a wide area outside the scope of this chapter; suffice it to mention that most methods employ some variant of force-directed placement (Fruchterman and Reingold 1991), an approach where each graph edge is viewed as spring, its strength being determined by the importance of the relation between the two nodes it is connecting. The screen coordinates of the nodes are obtained by simulating the physical system of springs and finding its equilibrium state. In the scope of VIDI, a visualisation of this kind is not employed.

9.2.2.3 Document Stream Visualisation

Complementary to the visualisations above, visualisations of document streams provide valuable insights into how topics evolved through time.

A straightforward approach to visualise changes through time is to create a latent semantic space visualisation or a structured visualisation with one of the methods described above, but separately for every time slice of the original data. By allowing the user to interact with system or even simply by showing the visualisations in succession, an animation showing the evolution of our corpus is obtained, as for example presented by Watson and Shamma (2005). The downside of this approach is that human short-term memory is limited, so such animations make it easier to misinterpret the data on account of cognitive biases (Luo et al. 2010). Methods with unstable results such as SOM or MDS, i.e. those that have a strong nondeterministic component or many local optima, are less appropriate for this approach unless incremental updates to the result are possible.

One of the more popular visualisations developed specifically for exploring the temporal/evolutionary properties of the text is ThemeRiver (Havre et al. 2000). For some user-specified topics and a metric of relatedness of a document to a topic, the

visualisation displays a graph representing the number of documents related to a topic that were published in a small time window; time is the ordinal axis. When multiple topics are overlaid, the user can grasp the shift in focus of discussed topics over time. In Havre et al. (2000), topics are simply user-defined keywords, and a document is said to contribute to a topic if it contains that word. The CanyonFlow visualisation (Grobelnik and Mladenic 2003) builds on this idea and detects the topics automatically by hierarchically clustering the whole document corpus. Various other variations are possible, e.g. smoothing the topic activity graphs or displaying relative activity volume rather than absolute. VIDI's rendition of this type of visualisation was dubbed 'topical timeline'.

9.2.2.4 Complex Notification Systems

A notification system delivers messages to a set of recipients based on a filtering mechanism. The filtering is based either on topics or on the content. A topic-based system delivers all messages published under a certain topic where content-based systems deliver only messages that match the content constraints defined by the user. Google Alert,³ for example, monitors the Web for interesting new contents and sends an e-mail with a list of links that matches the search query defined by the user. A notification system is based on the publish/subscribe pattern where senders (publisher) of contents do not know the receiver (subscriber) of the content (cf. Eugster et al. 2003). The subscriber expresses its interest and receives only messages that are of interest. This kind of subscription is quite limited and does not allow to subscribe to pattern of messages that are more expressive and complex. However, our objective in VIDI was to empower the user with the possibility to express more complex subscriptions. In order to enable a more complex subscription, we used the complex event processing (CEP) paradigm. CEP is concerned with processing real-time events in order to detect complex events (Luckham 2001; Chandy and Schulte 2009). For example, events can represent various run-time interactions with software elements. The CEP system features a set of complex event descriptions, by means of which complex events can be specified as temporal constellations of events. The complex events that have been defined can in turn be used to compose even more complex events and so forth.

9.3 Application

As mentioned above, the forum visualisations provided by VIDI are made available to the user in the form of a Web browser-based toolbar. This section describes the VIDI toolbar as seen from the end user's point of view. We present each of the visualisations in turn as well as the interface for configuring proactive notifications,

³ <http://www.google.com/alerts>.

describing the intended interpretations of the visualisations and the options available to the user for manipulating them.

To use the VIDI tools, one first has to expand the toolbar. This is done by clicking on the handle on the left-hand side of the screen (see Fig. 9.2). Once the toolbar is expanded, we can observe two main parts: the selection panel in top and the action buttons below it. Before starting any of the visualisations, we have to express our interest, i.e. select the forum threads that we want visualised.

In addition to the toolbar, there is another way in which the VIDI platform makes itself seen on the Web page: Small icons appear next to each link that points to a discussion topic or a discussion thread, as illustrated in Fig. 9.3. Clicking an icon



Fig. 9.2 The VIDI toolbar in the context of the page in its hidden (*left*) and visible (*right*) state. In the right screenshot, the result of the browsing suggestions tool is visible



Fig. 9.3 The thread selection icons shown in a close-up screenshot of a pilot forum

expresses interest in the corresponding forum section. The sections selected in this way get listed in the selection panel at the top of VIDI toolbar and the icon changes colour to indicate the selection. To make the tiny icons easier to click, they increase exponentially in size as the mouse pointer approaches them. The individual posts that should be visualised (implicitly selected via the threads containing them) can be further filtered by specifying a time interval to be analysed.

A frequent requirement by the users was to select threads of interest based on other criteria as well; in particular, they wished to be able to select only threads pertaining to a certain topic. The solution is to combine VIDI with the built-in search functionality that most forums provide: First, search for appropriate threads, and then use the selection icons to analyse the relevant results.

9.3.1 Browsing Suggestions

The browsing suggestions are a simplistic yet, as our user survey (Sect. 9.5) shows, useful aid in exploring an unknown forum or part of it. If the user is overwhelmed by the number of threads available on the forum, but has so far identified some threads, which he already knows are interesting to him, he can obtain further thread suggestions from VIDI by clicking the ‘suggestions’ button.

Links on the current page identified by the system as relevant to the user will be marked with an orange circle; see Fig. 9.2. The bigger the circle, the higher the probability that the link is truly relevant.

9.3.2 Topical Atlas

The topical atlas, accessible via the namesake button, implements a “semantic space” type of visualisation (see Sect. 9.2.2). The atlas chart comprises points (each representing a forum post) and keywords (each roughly describing the topic of its immediate neighbourhood). The posts are positioned on the chart in such a way that the distance between posts reflects their similarity as much as possible—more similar pairs of posts are displayed closer together. This gives natural rise to graphical clusters of topically related posts forming on the screen.

Since the calculations behind this visualisation are somewhat more involved, it might take up to a minute for the chart to appear (Fig. 9.4).

To get further information about parts of the chart, the user can move his mouse over it. A lightly shaded area follows the mouse cursor. This is the focus area; posts within the focus area are summarised by a list of keywords that is displayed next to the mouse cursor. The size of the focus area and the number of keywords can be regulated with sliders positioned in the control panel at the bottom. To reduce the need to scan the whole chart with the focus area, some keywords are given in advance. Those are shown in the background. The area of the chart of which they are representative is marked with a light shade of green.

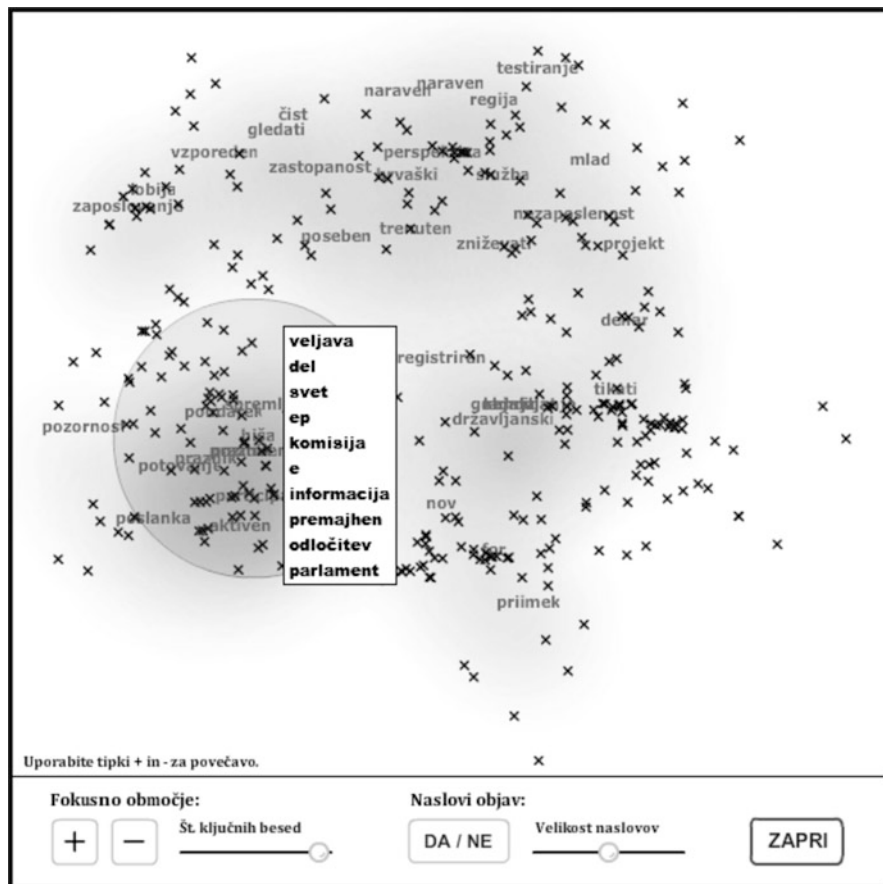


Fig. 9.4 The topical atlas of a forum. Similar posts are displayed close together, forming topical clusters. A summary of the posts within the *shaded circle* is being displayed

An important property of the visualisation that users identified is the ability to drill down to the level of single posts comprising the chart. Hovering the cursor over a forum post shows its subject as it appears on the forum (e.g. “Re: new anti-smoking law”). The user can also choose to display all the titles, though this tends to clutter the display too much. Clicking on a post displays its contents.

To get a better view of the structure within the more densely packed clusters, it is also possible to zoom in and out of the chart.

9.3.3 Topical Timeline

The goal of the topical timeline is to provide the user with an overview of how one or more topics evolved through time. The timeline chart is a variant of the frequency vs. time class of visualisations (see Sect. 9.2.2) (Fig. 9.5).

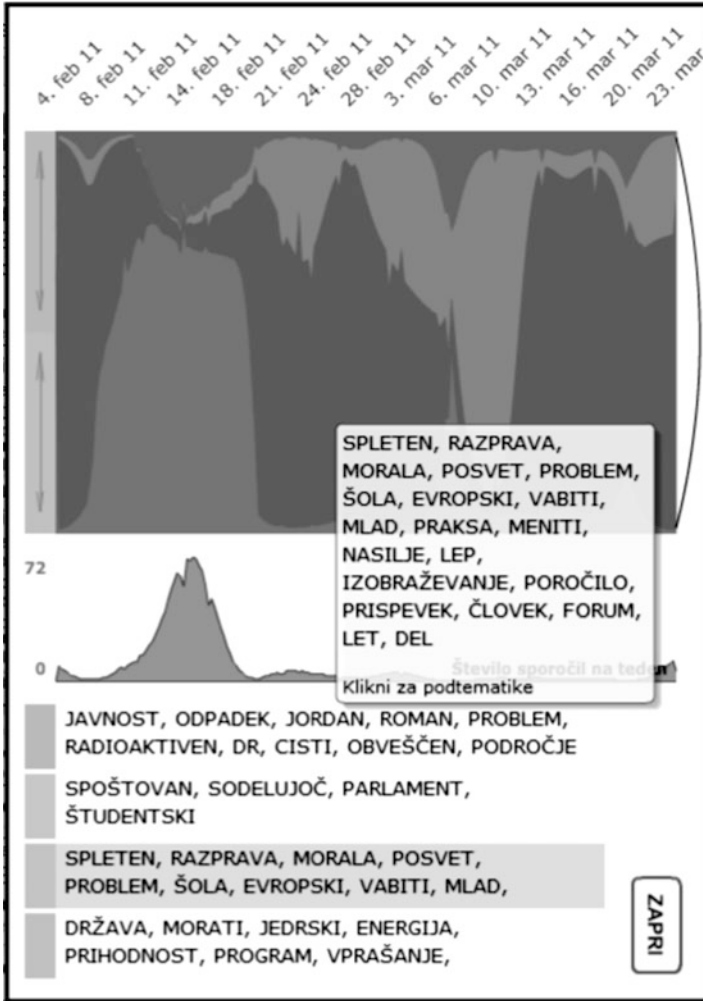


Fig. 9.5 Topical timeline. Each coloured stripe represents a topic; its description (in the form of keywords) is given below the graph. The thickness of each stripe corresponds to how much a topic was talked about at a given moment

The main part of the visualisation is the graph in its upper half. Each of the coloured areas of the graph represents a topic on the forum. The thickness of the coloured stripe shows how active this topic was through time. The actual dates are given just above the graph, at the very top of the visualisation. Hovering over a topic shows a tooltip with keywords describing the topic. At the same time, keywords for all the topics are displayed below the graph in a colour-coded legend.

Note that the frequency graph is relative in nature: For each time slice, it gives the percentage breakdown of activity in each of the topics. This was done to compensate for varying flow of visitors to the forums. For example, assume there

are 100 new posts posted on Friday, of which 20 talk about topic A and 80 about topic B. On Saturday, people go vacationing, so there are only 50 new posts: 10 about topic A and 40 about topic B. A chart displaying absolute topic activity would show a sharp drop in activity for both topics; however, we are more commonly interested in interestingness of topics, and here, the ratio clearly remains unchanged. Our visualisation focuses on the interestingness aspect and therefore displays the ratios; in the example described above, there would be no change from Friday to Saturday in the graph. Since sometimes the absolute numbers are still interesting (e.g. they might be a good indicator of how strongly people feel about a topic), we provide another, smaller chart just below the main one. This chart displays the absolute number of posts overall. To help better perceive the trends, both timelines are smoothed.

The topics are automatically determined by semantically clustering the selected posts in a hierarchical fashion. To avoid over-segmentation, all the posts are initially split into just two topics. If desired, it is possible to delve deeper into a topic by clicking its stripe in the graph. If subtopics are available, the topic will split into two. Clicking on the black arc on the right merges the subtopics once again.

9.3.4 Proactive Notifications

A discussion forum usually contains a lot of discussions and plenty of discussion topics. Often the user is only interested in certain discussion topics and wants to be alerted if certain discussion topics become more important or new facts about these topics are published.

In order to inform the user about these kinds of information, the VIDY toolbar offers real-time notification functionality. Its goal is to keep a user up to date regarding the new information landscape on the forum. It is about pushing information to users based on predefined rules in real time. Instead of searching for interesting information, the information will be forwarded to the user such that she/he can join the discussion or react to certain posts more timely. In a nutshell, this functionality enables users to be informed about important changes on forums without worrying about missing important changes.

The proactive notification is a Web-based system and provides a flow chart design. The GUI (Fig. 9.6) provides three sections to design new notifications that are described below:

- Notification input section: The notification input section provides the elements that are needed in order to define a new notification. A notification definition consists of entities (words) which are to appear in a post, connected by operators—AND (all words must be contained in the post) and/or OR (at least one of the words must be contained in the post).
- Notification design section: The notification design section provides the panel to design a new notification. The user can select the entity nodes, operator node and action node from the notification input section and put into the design section. Once the user has placed all nodes, she/he can use the Auto Connect button in

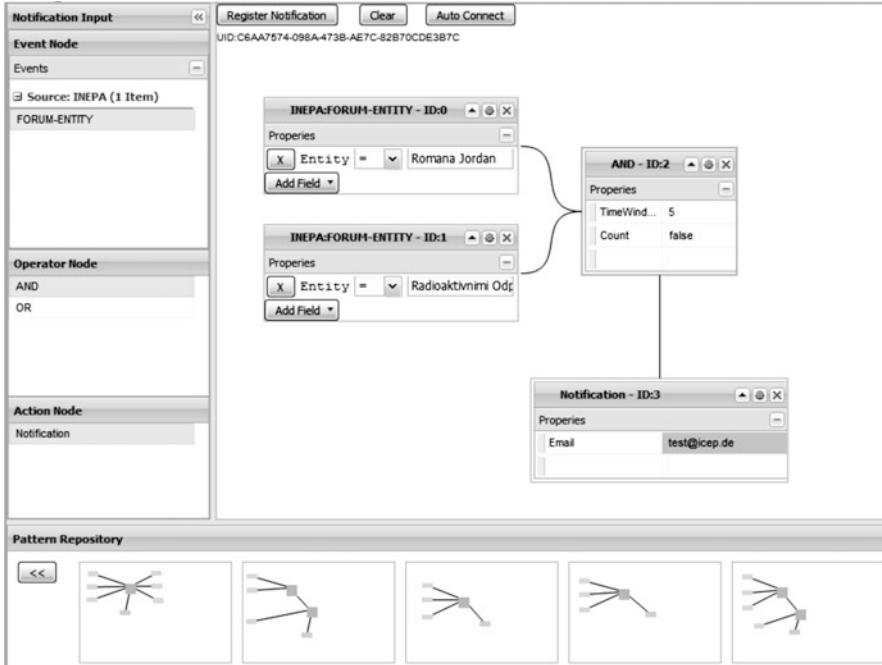


Fig. 9.6 Proactive notification. The GUI provides three sections in order to design a new notification rule. In this example, an alert will be generated whenever there is post containing both words “Romana Jordan” (a member of European Parliament from Slovenia) and “Radioaktivnimi odpadki” (radioactive waste)

order to connect the entity nodes with the operator node, which is again connected to the notification node automatically. The result is a notification rule ready for the registration by pressing the Register Notification button.

- Notification repository section: The notification search section enables the user to see which other patterns have already been defined.

Once the user has deployed a notification, the notification system sends an alert to the owner of the notification as soon as the situation of interest happens. For each post that satisfies a notification rule, an e-mail alert will be sent.

9.4 Methodology

This section presents the technology behind the software that drives the visualisations and proactive notification. At first, the preprocessing steps common to all the visualisation techniques are described, and then specific details of each of the VIDI modules are given. All the visualisation methods operate within the so-called vector space model, assuming that the input data are represented as a vector

of numbers. As already mentioned in Sect. 9.2.2, the prevalent way to convert text into this form is to represent each document as a BOW. This means that first all the distinct words in the corpus are enumerated and then each document is represented as a frequency vector of length n where n is the number of distinct words. The i th component of the document's BOW vector gives the frequency of i th word in that document.

Before enumerating the words, we perform lemmatisation, the transformation of words into their base forms or lemmas. For example, 'dogs' is converted to 'dog', 'wrote' is converted to 'write'. This is a particularly important step when dealing with highly inflectional languages. We used the lemmatiser by Jursic et al. (2007).

Another improvement to the basic BOW model that has been employed is the detection of simple multiword concepts based on frequency. For example, if the term 'European Union' appears frequently in the corpus, our system will learn that this probably signifies a single concept and will therefore treat it as a single 'word' in the BOW model.

To prevent documents being overly defined by very common words like 'the' or 'said', we employ two extra steps:

- Stopword removal. Stopwords are words that bear no information content, like 'the', 'of', 'a', etc. For the atlas and timeline visualisations which employ the list of most frequent keywords to describe the contents of a document cluster, a good stopword list proved essential—without one, the cluster descriptions are full of common but very uninformative words.

In addition to stopword lists, we employed a heuristic for identifying yet-unseen stopwords like 'hahahahaaaa' which the informal, social language of online forums is ripe with. This also proved quite important—not for keeping the cluster descriptions informative as was the case with frequent stopwords, but for limiting the dimensionality of BOW vectors.

- TF-IDF weighting scheme: Each word frequency is weighted, so the following value is used in the BOW vector of document d for word w :

$$\text{TF-IDF}(i) := (\#_{ai}/|d|) \times \log(D/|\{d : \#_{ai} > 0\}|).$$

Here, $\#_{ai}$ denotes the absolute frequency of word I in document d , $|d|$ denotes the total number of words in d , and D denotes the total number of documents. Intuitively, the first term (TF) increases as the word appears more frequently within a document; however, the second term (IDF) decreases as the word appears in a larger number of documents in the corpus. In the extreme case, for words that appear in every document, the TF-IDF value would be zero. For efficiency reasons, the global corpus is used to compute IDF throughout the application, even where only a part of the corpus is being visualised.

Though not part of preprocessing, another part is equally shared by all visualisation components: the distance metric between two documents. Here, we use the well-established cosine distance.

9.4.1 Browsing Suggestions

Browsing recommendations is both conceptually and technically the simplest component of VIDI. When a user requests suggestions for a set of threads, the BOW vectors of all the posts contained in those threads are averaged to obtain a simple numeric description of user's interest. Likewise, the average of contained posts' BOWs is computed for each of the threads that are linked to from the site currently being browsed by the user.

Finally, the cosine distance is computed between the user interest vector and each of the thread vectors. This distance is used to determine the size of the blob similarity indicator rendered on the page.

9.4.2 Topical Atlas

For the topical atlas, the high-dimensional space defined by the sparse TF vectors is projected onto several hundred dimensions using LSI and from there onto two dimensions using MDS. Since the computational cost of this process is still prohibitively high when the number of documents is large, we use random subsampling of documents: At most, 5,000 posts matching the user's selection criteria are processed and then visualised. This not only speeds up the process but also makes the visualisation clearer; a higher number of points on the chart makes it cluttered, often to the point of illegibility.

In case of 200 or more documents, we further reduce the time needed to produce the visualisation by first clustering the documents into 100 clusters, performing LSI and MDS on the cluster centroids, expanding the clusters and only then performing the final steps of MDS.

To produce the keyword descriptions (both for the user-controlled circular focus area and for the predetermined background descriptions of the space), we simply sum up the relevant BOW vectors to find the most prominent keywords.

9.4.3 Topical Timeline

To identify topics in an unsupervised way, we hierarchically cluster user's selection of documents. We use bisecting *k*-means with cosine distance. Like with the atlas, we subsample the posts to speed up the process of clustering.

To create the graphs, we first arrange the posts into a simple histogram with 200 bins. The bin values then get smoothed using Gaussian smoothing with standard deviation of 5% of the date range being visualised, but not more than 20 days.

To produce the keyword description for each of the clusters, we again take the top-scoring terms from the cluster centroid's BOW vector.

9.4.4 Proactive Notifications

At the core of the proactive notification is CEP. CEP is the analysis of events from different event sources in near real time in order to generate immediate insight and enable immediate response to changing business conditions (Luckham 2001). The knowledge for the situation detection is encoded in so-called complex event patterns. In VID, every notification is translated internally into a complex event pattern. Every complex event pattern will be matched against incoming event data in order to detect a situation and to trigger an alert.

Figure 9.7 shows the architecture of the proactive notification service. The components of this architecture are the GUI presented in Sect. 9.3.4, the CEP engine which matches the complex event patterns against the incoming event data, the Eventizer which transforms the incoming blog data into a stream of event data, and finally the Action Management which notifies the user by sending an e-mail. Below, we describe these components in more detail.

Proactive Notification GUI. Whenever a user creates a new notification, there is a process that takes place in order to transform the GUI object in a complex event pattern, which is based on a CEP engine-specific language. In our case, the CEP engine supports an SQL-like language. In order to generate this language, we have mapping procedure that translates the graphically generated notification into the target language. As an example, for the notification definition presented in Fig. 9.6, the result of the transformation will be the following complex event pattern:

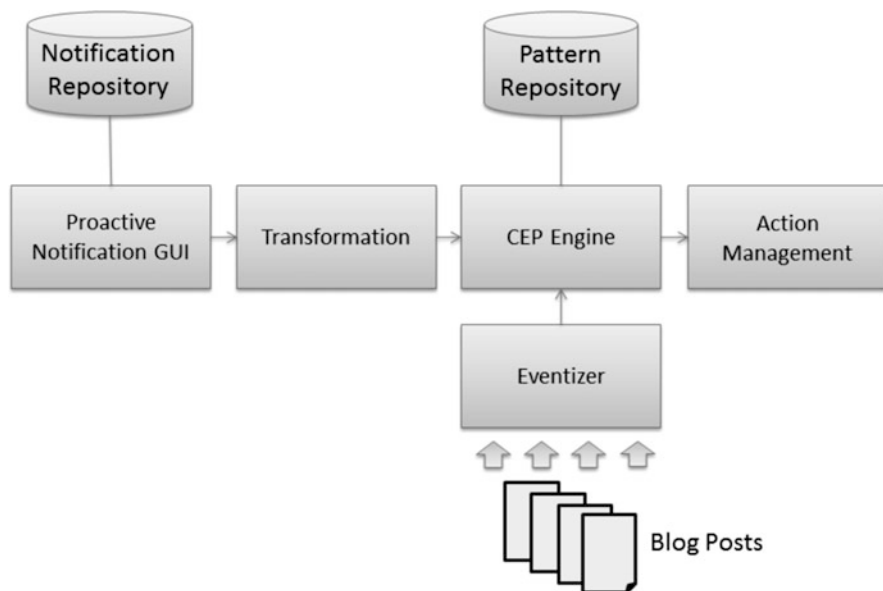


Fig. 9.7 Proactive notification service architecture

```
SELECT * FROM PATTERN
```

```
  [((a1 = vidiXML(a1.eventSource.eventType.body.namedEntity = 'Romana Jordan'))
  AND ((a2 = vidiXML(a2.eventSource.eventType.body.namedEntity = 'RAO')))]
```

The structure of this pattern is based on an XML schema that we developed in the context of VIDi. This schema describes the skeleton of event data, which will be matched in the CEP engine (a comprehensive documentation of the Esper and the EPL language is available at <http://esper.codehaus.org/>). All notifications which are deployed in the CEP engine are stored in the repository in a graphical way in order to visualise them in the GUI search section.

CEP Engine. In VIDi, we use the open source CEP engine *Esper*. *Esper* is a component for event stream processing applications and is available for JAVA and .NET. It enables a rapid development of applications that process large volumes of incoming messages or events in real time. Based on the Esper engine, we built a Web service that provides two interfaces. One is for receiving the result of the notification transformation, and the other is for receiving the event data coming from the *Eventizer*. Every active notification in the CEP engine is stored in a repository in order to ensure that a server restart does not affect the notifications. Whenever the engine restarted, it loads and deploys all notifications.

Eventizer. The role of the *Eventizer* is to transform every forum post data into a stream of uniform event data format, which can be processed by the CEP engine. The events processed by the engine are defined in XML format according to the XML schema. Figure 9.8 shows an example of an event object that is generated from a new post in the INEPA forum that contains the word “Tanja”.

An event object also contains, besides the content information, several attributes describing the source of the event, the type of the event and additional meta-information like who has posted the message.

```
<event xmlns="urn:vidiXML"
  xsi:schemaLocation="data/VIDI_Event_Schema.xsd">
  <eventSource value="INEPA">
    <eventType value="namedEntity">
      <header>
        <forumId>1</forumId>
        <postId>3</postId>
        <postedBy> sinan </postedBy>
      </header>
      <body>
        <namedEntity>Tanja</namedEntity>
      </body>
    </eventType>
  </eventSource>
</event>
```

Fig. 9.8 An event object as output by the Eventizer module

Action Management. This component has the task to send an e-mail to the specified e-mail address whenever the pattern is fulfilled. For that purpose, we use the *JavaMail API*.

9.4.5 Overall System Architecture

VIDI employs a client–server architecture: The server locally caches and preprocesses data from all the VIDI-supported forums. It also does all the heavy real-time computation required for visualisations. A thin browser-based client provides the user interface and sends visualisation requests to the server. The server replies with data that are ready to be displayed, e.g. 2D datapoint coordinates for the atlas.

The system architecture is shown in more detail in Fig. 9.9. Data flow starts in the top right corner, where a scheduler periodically triggers the data acquisition module that in turn crawls the forums. The data acquired from the forums are preprocessed and stored in a local database. At the same time, a notification of newly acquired data is sent to the complex event pattern engine for detection of posts, which the users need to be notified about. At the other end, the client produces visualisation requests that are sent to the server. The server accesses the DB, performs the necessary computations and responds to the client.

We now briefly turn to technologies used to implement this pipeline.

Data acquisition. A local copy of all data from all supported forums is stored in an SQL database; we adapt the data from all forums to our local data model.

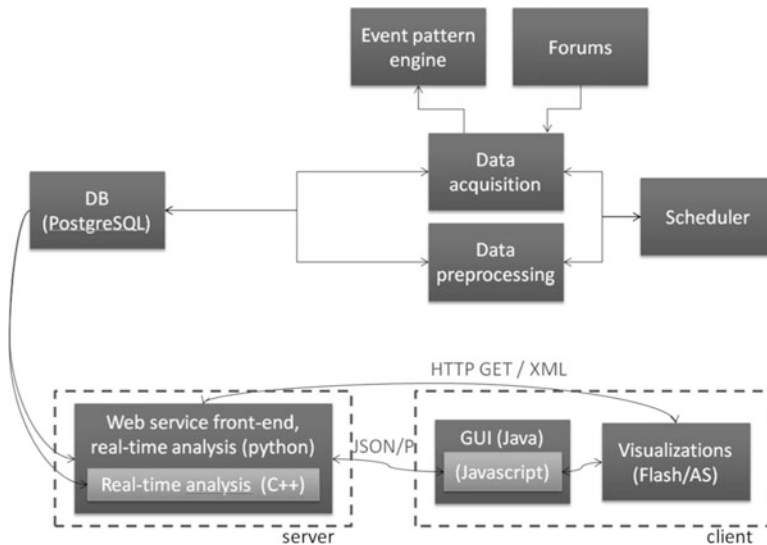


Fig. 9.9 System architecture

Data augmentation. Before the data are stored in the database, the basic pre-processing steps described at the beginning of Sect. 9.4 are performed. We store both the original and the preprocessed (BOW) form of the data. To speed up the computations, we cache some statistics, e.g. TF vectors for all forum threads and topics and document frequencies for all terms.

Analytic modules. The analytic modules (providing input for browsing suggestions, topical atlas and topical timeline GUIs) access the database directly. The computationally intensive parts are written in C++ and exposed to python with Boost.Python. The Python wrapper performs some additional formatting and exposes the functions as Web services. Database is accessed with either native drivers (python) or via ODBC (C++).

Client side and client-server communication. The client side of the software is written in Java and snippets of JavaScript using the Google Web Toolkit (GWT) platform. GWT cross-compiled this into JavaScript that is then deployed to end users. The JavaScript inspects the structure of the page and injects HTML into it, creating the VIDi toolbar. The visualisations created with Adobe Flash.

JavaScript (the toolbar) and the Flash visualisations communicate using flashvars (from JavaScript) and Flash's ExternalInterface class (to JavaScript; both directions possible). Flash communicates with the server using custom-formatted GET HTTP requests. JavaScript communicates with the server using JSONP (JSON with padding) callbacks to work around cross-domain scripting restrictions.

The fact that the client is entirely based on Web technologies (JavaScript and Flash) is quite important for reaching to a broad public. It allows for two modes of deployment of VIDi. The preferred method is that the forum owner includes the VIDi JavaScript library on the Web page; this will make VIDi available to every visitor on the page. If one is unwilling or unable to make the tools available to everybody because he is not the owner of the forum, VIDi can be still be added by every visitor separately using a so-called bookmarklet (browser bookmark with a JavaScript target); the process is described in VIDi's user manual.

9.5 Evaluation

VIDi designed its work plan and resource allocation around the goal to scientifically evaluate and convincingly assess the pros and cons, critical success factors, empirical results and demonstrable advantages of the proposed solution for visualising moderated online discussions. Consequently, a rigorous, unbiased and comprehensive scientific evaluation, with the ultimate goal of forecasting benefits for end users, was the major challenge for our project.

Evaluation was performed in two phases. Phase one was the ongoing evaluation offered by the case study partners in the VIDi project in the scope of which this software was developed. Based on their feedback, we made numerous small improvements to the functionality and interface of the toolbar. For example, we added the date range selection, the easier-to-click self-increasing selection icons,

the zooming option for the atlas, the drill-down option for the atlas, the absolute volume of posts for the timeline, etc.

After we felt that the consortium was reasonably satisfied with the software, we performed a systematic evaluation with an online questionnaire and a larger number of users. 55 participated; their experience with the toolbar ranged widely, with approximately 50% being first-time users, 30% having had used it 2–4 times and 20% being experienced with data analysis with VIDİ. Besides the online survey, we have also conducted a personal research among local municipality officials.

The two-phase approach is consistent with the MOMENTUM evaluation framework for eParticipation projects, which we followed, in its key points. As stated in Cseh et al. (2009): “The MOMENTUM evaluation method is designed as a two part approach. It consists of (1) An internal self-assessment of experts engaged within the projects. These experts will assess the impact of the project they are involved in on the basis of their perception of success. The instruments to be used will be structured questionnaires and SWOT analyses. (2) External evaluation through target users and experts in the field. The instruments to be deployed are structured questionnaires and evaluation reports.

The purpose of this two-part approach is to eliminate certain biases accompanying specific evaluation methods. Self-assessment allows sustainable evaluation through feedback loops that can be frequently applied and seamlessly integrated into everyday practice of the eParticipation projects. It is strongly related to a formative evaluation that takes place at frequent intervals and therewith presents frequent interim findings with the objective of modifying and improving the ongoing interventions of the eParticipation projects. To gather raw data for the self-assessment in a structured way, a questionnaire has been developed which proves evaluation criteria such as how many users, hits, and posts the eParticipation projects have, what subjects they address and which stakeholders are targeted and engaged.

To start with, the questionnaire for end users consists of a number of questions investigating if the user is reached or not, and if he or she is reached to identify if the platform could attract his or her interest regularly. Several questions investigate the interrelations and interdependencies between platform attributes, a positive or negative attitude, and the behaviour of users to continue the use of the platform based on the four key criteria of evaluation”.

The survey consisted of 24 multiple-choice questions, with some of the questions having an additional optional free-form field where the users had an opportunity to express their concerns or suggestion or to elaborate on their answers. The full list of questions along with the answer percentage breakdown is available in Cseh et al. (2010). Here, we present the key findings:

- The goal of VIDİ application is generally clear to the users. The visualisations of the system are clear and understandable to 60% of the users, while particularly first-time users reported initial difficulties understanding the more complex visualisations, particularly the atlas.
- The system is easy to use: 85% of users described the ease of use as ‘easy’ or ‘appropriate’.

- The system is useful: 65% feel that VIDI helped them better understand ongoing discussions. Of the rest, apparently at least some felt that the visualisations were still interesting if not directly helpful to understanding: 70% of the users would recommend the platform to others.
- Of the visualisations, atlas was judged to be the most interesting and useful, followed by recommendations and the timeline.
- Roughly 70% of the users feel the system is sufficiently fast.

Some additional questions were posed in the offline version of the survey, which was only given to the municipality workers. The results show an encouraging interest in the decision-making community for tools like VIDI:

- Eighty-eight percent say they would use public forums more frequently to help them understand the public opinion.
- Eighty percent believe that the opinion on the Internet forums should approach the local or central political decision-makers.

The free-form suggestions of the users were mainly commenting on the speed of the system, the interpretability of results (again, atlas was pointed out by several users as being too unusual to interpret easily) or the difficulty in starting to use the system (online help was only provided in one language, unlike the programme interface, which was translated into languages of all the countries in which the forum was deployed). One of the respondents suggested integration of analyses with the social network present in the forum, which we can only heartily agree with as we believe this is one of the key ways in which more insight can be gained.

Since its pilot deployment, the system continues to be in use in two of the three pilot cases. It has been most actively used on the Slovenian forum <http://evropske-razprave.si> devoted to the European Union and related issues. The moderators of the forum have used the tools to help prepare several reports for members of the European parliament (MEPs) about public discussions initiated on the forum at the instigation of MEPs and/or government agencies. In short, we consider the system to have been well received by the users.

Conclusions

The presented approach is a very innovative technological solution, based on the powerful combination of the linguistic and statistical analysis of the text documents (discussions) in order to extract information from them, which enables further, extensive, sentiment-based analyses of the discussions. We use novel visualisation techniques for presenting different views on the information and enabling efficient navigation through this large information space. In particular, we have provided an efficient toolset for advanced visualisation of messages posted in an online discussion forum that will support ‘monitoring’ and analysis of discussions. The ultimate goal was a better understanding of emerging arguments and ideas contributing to the policymaking process.

From the application (eParticipation) point of view, we see two main contributions of our approach:

1. Boost eParticipation process in order to enable expressing different views, i.e. more active involvement of citizens
2. Understand the discussions in a more clear manner in order to better understand the impact of legislation

Future work will be oriented towards developing services for the prediction of the information that will be spread over social networks. Indeed, such an approach can lead to a full-fledged proactive system that is able to sense its environment (i.e. discussion/online forums) and react correspondingly.

Acknowledgements The work presented in this chapter has been mainly performed in the scope of the EU co-funded project VIDĪ ‘Visualising the impact of the legislation by analysing public DIscussions using statistical means’, 2-year project from the eParticipation Work Programme (2009–2011). The system can be tested live on any of our pilot forums (developed in the scope of the project); a list is available at <http://www.vidi-project.eu/>.

References

- Andrews K, Kienreich W, Sabol V, Becker J, Droschl G, Kappe F, Granitzer M, Auer P, Tochtermann K (2002) The infosky visual explorer: exploiting hierarchical structure and document similarities. *Inf Vis* 1:166
- Berendt B, Subasic I (2009) STORIES in time: a graph-based interface for news tracking and discovery. In: 2009 IEEE/WIC/ACM international joint conference on web intelligence and intelligent agent technology, pp 531–534
- Carroll JD, Arabie P (1980) Multidimensional scaling. *Annu Rev Psychol* 31:607–649
- Chandy M, Schulte R (2009) Event processing: designing IT systems for agile companies. McGraw Hill, New York
- Cseh B, Stojanovic N, Delakorda S, Delakorda M, Pé Palotai P, Gábor A (2009) VIDĪ project deliverable D3.1 piloting plan. [http://www.vidi-project.eu/root/web/vidiw.nsf/\(files\)/en-pdf-d31/\\$FILE/VIDI_D3-1a.pdf](http://www.vidi-project.eu/root/web/vidiw.nsf/(files)/en-pdf-d31/$FILE/VIDI_D3-1a.pdf). Accessed 10 Sep 2011
- Cseh B, Stojanovic N, Delakorda S, Delakorda M, Szépréti R, Gábor A, Petravalsky E (2010) VIDĪ project deliverable D3.3: basic pilot assessment report. [http://vidi-project.eu/root/web/vidiw.nsf/\(files\)/en-pdf-d33/\\$FILE/VIDI%20D3.3.pdf](http://vidi-project.eu/root/web/vidiw.nsf/(files)/en-pdf-d33/$FILE/VIDI%20D3.3.pdf). Accessed 10 Sep 2011
- Eugster P, Felber P, Guerraoui R, Kermarrec A (2003) The many faces of publish/subscribe. *ACM Comput Surv* 35(2):114–131
- Fortuna B, Grobelnik M, Mladenic D (2005) Visualization of text document corpus. *Informatica* 29:497
- Fruchterman TMJ, Reingold EM (1991) Graph drawing by force-directed placement. *Softw Pract Exp* 21(11):1129–1164
- Gatautis R (2010) Creating public value through e-participation: WAVE project. *Artificial Intelligence and Law*, pp 483–491
- Grobelnik M, Mladenic D (2003) Analysis of a database of research projects using text mining and link analysis. In: Mladenić D, Lavrač N, Bohanec M, Moyle S (eds) *Data mining and decision support: integration and collaboration*. Kluwer, Boston, MA, pp 157–166
- Grobelnik M, Mladenic D (2004) Visualization of news articles. *Inform J* 28(4):375–380
- Havre S, Hetzler B, Nowell L (2000) ThemeRiver: visualizing theme changes over time. In: *Information visualization, 2000. InfoVis 2000*, pp 115–123
- Jursic M, Mozetic I, Lavrac N (2007) Learning ripple down rules for efficient lemmatization. In: *Proceedings of the 10th international multiconference information society, IS 2007*, vol A, Ljubljana, pp 206–209

- Kirschner P (2003) Visualizing argumentation: software tools for collaborative and educational sense-making. Springer, London
- Kohonen T (1990) The self-organizing map. *Proc IEEE* 78(9):1464–1480
- Lin X (1991) A self-organizing semantic map for information retrieval. In: SIGIR'91 Proceedings of the 14th annual international ACM SIGIR conference on research and development in information retrieval
- Loukis E, Wimmer MA, Charalabidis Y, Triantafillou A, Gatautis R (2007) Argumentation systems and ontologies for enhancing public participation in the legislation process. In: EGOV 2007 international conference, pp 3–7
- Loukis E, Xenakis A, Tseperli N (2009) Using argument visualization to enhance eParticipation in the legislation formation process. *Electronic participation*, Springer, pp 125–138
- Luckham D (2001) The power of events: an introduction to complex event processing in distributed enterprise systems. Addison-Wesley, Reading, MA
- Luo D, Yang J, Krstajic M, Ribarsky W, Keim D (2012) EventRiver: visually exploring text collections with temporal references. *IEEE Trans Vis Comput Graph* 18(1): 93–105
- Mladenic D (2006) Feature selection for dimensionality reduction. In: Setchi R, Jordanov I, Howlett R, Jain L (eds) Subspace, latent structure and feature selection techniques: statistical and optimisation perspectives, Springer lecture notes in computer science
- Silic A, Basic B (2010) Visualization of text streams: a survey. In: Knowledge-based and intelligent information and engineering systems. Springer, pp 31–43
- Watson B, Shamma DA (2005) Visualizing live text streams using motion and temporal pooling. *IEEE Comput Graph Appl* 25(3):52–59

Distributed Discussion: An Integrated eParticipation Model for Engaging Young People in Technology Policy

10

Ella Taylor-Smith, Simone Kimpeler,
and Pille Pruulmann-Vengerfeldt

Abstract

This chapter describes an eParticipation model, designed to be especially appropriate to young people and complex topics: distributed discussion. It draws on the experiences of the HUWY project, which piloted a distributed discussion model, in four countries, to assess how this supported young people's engagement. The pilot revealed that young people valued structured and well-supported discussions, particularly well-facilitated offline discussions. Integrating online and offline, national and international elements are the advantages and challenges of this model. This chapter aims to give an overview of the theoretical basis, process and impacts of the model and to provide recommendations for future development and use.

10.1 Introduction

HUWY 'Hub Websites for Youth Participation' was an eParticipation Preparatory Action project, which piloted a distributed (networked) discussion. The pilot ran in Estonia, Germany, Republic of Ireland and the UK, from 2009 to 2011.

E. Taylor-Smith (✉)

Institute for Informatics and Digital Innovation, Edinburgh Napier University, 10 Colinton Road, Edinburgh, EH10 5DT, UK

e-mail: itc@napier.ac.uk

S. Kimpeler

Fraunhofer Institute Systems and Innovation Research (ISI), Breslauer Strasse 48, 76139 Karlsruhe, Germany

e-mail: simone.kimpeler@isi.fraunhofer.de

P. Pruulmann-Vengerfeldt

Institute of Journalism and Communication, University of Tartu, Ülikooli 18, Tartu 50090, Estonia

e-mail: pille.vengerfeldt@ut.ee

HUWY aimed to find good ways to support young people to discuss Internet problems and improvements and to encourage policymakers to interact with the resulting ideas. Young people in each country chose topics (e.g. cyberbullying, privacy) to focus the project, including an open thread about Internet experiences.

HUWY’s eParticipation innovation is the method to bring people into policymaking: distributed discussion. Networked hub Web sites contain information about the project, well-structured background materials, the results of young people’s discussions and feedback from policymakers. There is one hub Web site for each pilot country, with localised information and language. Young people hold discussions in their own chosen settings: on Web sites (organisational or social) or in offline settings. Discussion groups post their results on their country’s hub. The four country hubs are linked by an EU hub <http://huwy.eu>, a global entry point and place to summarise results for EU policymakers (Fig. 10.1).

The distributed discussion model was devised to be as flexible and inclusive as possible: to enable young people to get involved in issues that were important to them, while they controlled the place and format of this involvement. It was

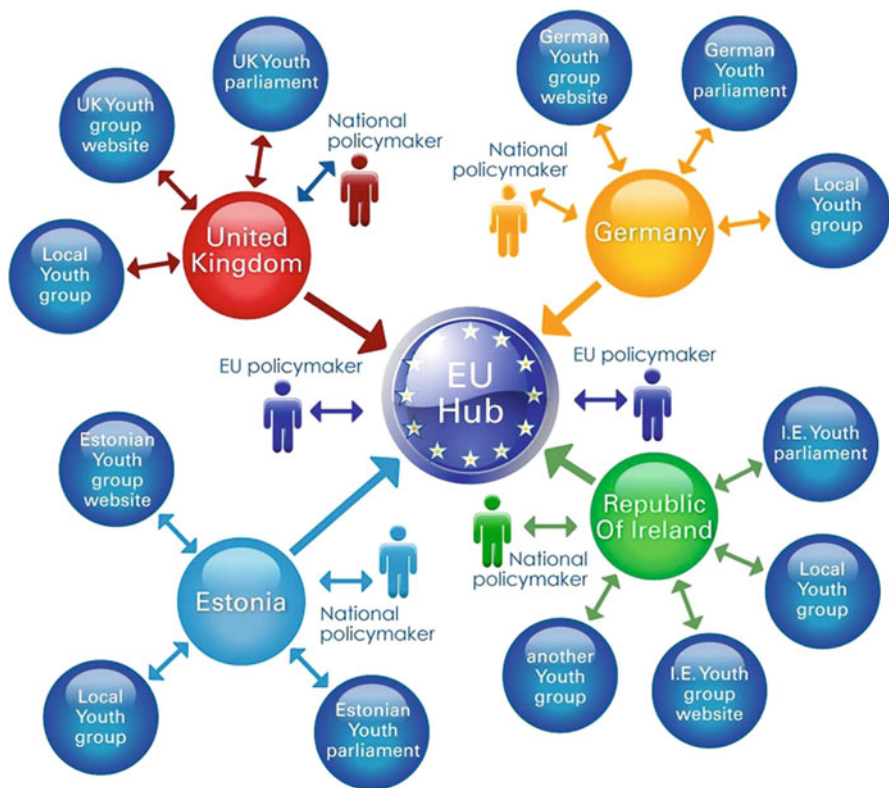


Fig. 10.1 HUWY hub structure

designed to include youth groups who had their own online spaces, especially those already talking about HUWY topics, inspired by Mayo and Steinberg's (2007) suggestion that government work with established online communities. It was also designed to include more casual groups, meeting on social networking pages or even offline.

The HUWY pilot included an extensive evaluation process, focused on impacts, sustainability, scalability, user engagement and the effects of involvement for young people. The evaluation was internal to the pilot, in terms of time (during the live pilot period) and personnel (conducted by the HUWY teams), but using inputs from external participants. The results reveal the strengths and weaknesses of the distributed discussion model, which this chapter aims to summarise, to provide relevant information to future users of distributed discussion models.

10.2 The Theoretical and Practical Context

10.2.1 Combination of Distributed and Centralised Actions

The HUWY distributed discussion model supported a combination of national and transnational approaches, online and offline activities, to get young people engaged in Internet policymaking. The model promoted country-specific strategies to get policymakers, youth organisations and young people involved. HUWY piloted a grassroots approach in which local discussions are, ideally, self-organised, but with strong context-sensitive support by regional project partners. So, a hub Web site was implemented in each of the four pilot countries, offering background information about the project and the topics, materials to support discussions, profiles of youth groups and policymakers, posts of discussion results and feedback comments from policymakers. The four hubs are networked via an EU hub. The hubs are created from open source components. The HUWY project was not about developing new software but about using the Internet as it is, especially the social networks extensively used by young people in Europe. The HUWY consortium has taken up the challenges set by Coleman and Rowe (2006): "When seeking to engage with young people, decision makers should utilise those sites and methods of communication that young people already use, rather than simply building new Web sites and expecting young people to come to decision makers".

HUWY has been designed to support the use of whatever sites and software youth groups choose, as well as supporting groups who hold discussions offline. This is essential in countries like Ireland and the UK, where rural groups may have limited access to broadband. The hub structure is the key element of the dissemination strategy on a national level, while local actions support the involvement of (potential) participants in face-to-face settings, like workshops.

10.2.2 Everyday Political Talk and Inclusion

It has long been suggested that democracy needs an overhaul and that alienation between state and subjects is a significant problem. Many authors (e.g. Dahlgren 2006; MPFS 2010) suggest that technology is seen as a contribution to the solution; many attempts have been made to use online technologies in this way. Dahlgren sees online technologies as especially relevant: important in increasing access and availability, but also enabling filtering of everyday talk into political action. Everyday talk is where most people contribute to the public sphere (Kim and Kim 2008). In this context, HUWY aimed to involve young people in discussions about Internet policy issues. Further, classic deliberation models may provide nicely formatted arguments for readers but can dissuade people from joining in Sanders (1997). As Monnoyer-Smith and Wojcik (2011) point out, formal deliberation “can disqualify not only certain communities with oral traditions which are directed towards the expression of self, such as storytelling or the narration of personal histories, but also disqualify all those whose personal culture and education renders inapt for public expression and the presentation of a coherent, justified argument”.

This is extremely relevant for young people, whose lack of confidence can be a barrier to their public participation, but who have valid contributions to make. HUWY believed that young people’s extensive use of the Internet makes them valuable expert stakeholders in Internet policy topics, though their legal and technical knowledge may be limited. Inspired by Innes and Booher’s (2003) powerful example of the Sacramento Water Forum, supported by their introduction to relevant dialogue theories, the HUWY project encouraged groups to use a variety of dialogic methods to explore and share both relevant personal experiences and information about the topics, provided by the partners on the hub Web sites.

10.2.3 Young People and the Internet

The HUWY project grew out of a wealth of research into eParticipation and the Internet and young people. In particular, HUWY is inspired by *UK Children Go Online*¹ and its sister projects *EU Kids Online I and II*.² While these studies are primarily concerned with children, and HUWY targets young adults (around 16–21), an observation from their research provided our inspiration: “The challenge is clear: how can society effectively facilitate the opportunities for children and young people online (i.e. positive regulation) while also reducing or managing the risks they encounter online (i.e. negative regulation)? There is a growing consensus that meeting this challenge is a task for multiple stakeholders, not simply a new burden for already over-taxed parents. For all concerned, this demands adapting to

¹ <http://www.lse.ac.uk/collections/children-go-online/UKCGOfinalReport.pdf>. Accessed 30 June 2011.

² <http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/Home.aspx>. Accessed 30 June 2011.

rapid change, learning new forms of expertise (including enabling and critical literacies), apportioning responsibility flexibly among relevant parties, identifying feasible strategies for enhancing safety, adapting local or national experience to confront a global phenomenon and, last, acknowledging some very real limits of regulatory power” (Livingstone 2007).

The UK’s Byron Review identifies both risks and advantages to young people in using the Internet (and video games) and explicitly recognises the importance of young people’s informed involvement in tackling these issues: “Children and young people need to be empowered to keep themselves safe—this is not just about a top-down approach. Children will be children—pushing boundaries and taking risks. At a public swimming pool we have gates, put up signs, have lifeguards and shallow ends, but we also teach children how to swim” (Byron 2008).

HUWY encouraged young people to explore their own experience and the wider context, developing skills and informed opinions, before publishing their ideas on the hub Web sites for policymakers to read: a more bottom-up approach. Top-down agendas lack convergence between those emphasising commercial expansion of the Internet (e.g. i2010 EU Policy Framework for the Information Society and Media³) and those which emphasise the protection of Internet users (e.g. the Safer Internet Programme⁴). In many countries, these two objectives are the responsibilities of quite different government departments and conflicts arise over regulation. Policies which affect Internet use are developed at all government levels: local, regional, federal, national, the EU and international. This tangled policymaking arena makes it difficult to identify organisations responsible for specific topics to influence policy directions. In the HUWY project, this led to challenges in providing information about which government departments were responsible, especially for larger countries with older legislatures: governance structures in Germany and the UK are federalised and devolved, respectively. Departments and responsibilities change over time, but mismatches remain between the centuries of tradition and new, cross-government topics, like the information society. Estonia is a small country with a new democracy, where many of the Internet regulations are newly developed, within the process of re-establishing the country. However, Estonia lacks a long-term tradition of engagement in policymaking: Soviet history has forced Estonia to re-invent much of its civic society (Runnel et al. 2009). Thus, in most countries, until the youth groups’ results were posted, we could not be specific enough about the areas covered to identify the right policy organisation. It was also difficult to align young people’s priorities with top-down engagement opportunities, like consultations.

³ http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm

⁴ http://ec.europa.eu/information_society/activities/sip/index_en.htm

10.2.4 Science and Technology Policy

Internet topics involve complex legal and technical factors, as well as touching on matters central to young people's lives. At the beginning of the pilot, we worked with young people to identify topics and discovered that they had a wealth of experience to share, but this was not always sufficiently grounded in knowledge, about technical or legal aspects, to support meaningful progress. We needed to both engage and inform, to spark and support discussions. The HUWY distributed discussion aimed to support informed discussion on Internet topics:

- Through providing good quality background materials on the hubs
- Structuring this by topic and engagement level, to lead, through items that attract attention, to materials which support topic exploration and onto materials which support groups to work on their ideas to improve the Internet
- Providing information in various formats (e.g. text, video, podcast) and enabling young people to search by format
- Creating materials to support discussions, on- or offline (e.g. for teachers, for peer facilitated groups, agendas and information sheets for download)
- Localising information
- Supporting young people to create multimedia and post it on the hubs
- Hosting structured discussions at HUWY events and by visiting youth groups
- Encouraging young people to explore the topics in discussions with their peers

We believe that this model will be useful to people using the Internet to support public engagement in policy discussions on topics, like nanotechnology, genomics and climate change. Like these issues, HUWY spans everyday experience with scientific, technical, legal and moral complexity. Legislation and political initiatives which affect the Internet need technological realism: while policies should not be led by technology fashions, they need to be reviewed by experts to highlight unintended loopholes or side effects. Equally, cultural impacts require consideration: the Internet is central to young people's work, studies, social and family life. Young people are a kind of local stakeholder, whose input is crucial: "We need to ensure that the correct value settings are in place so that the information society has a reasonable chance of running smoothly, of not crashing" (Duff 2008).

10.3 Pilot Objectives, Requirements and Implementation

The objectives of the HUWY project grew out of the context described above, influenced by the goals and experience of the initiators and funders and grounded in current theory. The high-level objectives of the project are as follows:

- To increase involvement in democracy
- To involve young people in policy developments related to the Internet and its governance
- To advance eParticipation

Fifteen objectives, derived from these, are the basis of requirements, implementation and evaluation (Table 10.1):

The teams worked together with young people and policymakers to implement the project, based on these objectives. Use-case scenarios were developed to clarify the envisaged use of the hub Web sites and associated offline processes. Workshops and focus groups with young people were held to choose the topics and identify the best ways to support the discussions and market the project to young people and youth groups. A list of topics was identified and prioritised and is presented in Table 10.2.

As HUWY is an eParticipation pilot, investigating a networked discussion among young people, the hub Web sites are central to all activities. In each of the four EU pilot countries, HUWY hub Web sites were implemented, offering

Table 10.1 HUWY objectives

Increase involvement in democracy	
Objective 1	To increase young people's involvement in democracy through a positive experience that follows best practice established in eParticipation
Objective 2	To demonstrate that young people's views are sought and that their opinions are valued
Objective 3	To contribute to the development of a European public sphere
Involve young people in policy developments related to the Internet and its governance	
Objective 4	To involve young people in discussions on issues related to the Internet, its use and regulation
Objective 5	To support young people to become involved and gain understanding of relevant issues, through providing information in accessible formats and supporting their deliberation, and to provide a useful resource about Internet policy issues, in national and EU contexts
Objective 6	To map chosen areas of the topic agenda to policy and legislative responsibility (national/EU level) clarifying political structures relevant to the topic
Objective 7	To illustrate the role of national governments and parliaments, in designing and applying EU legislation, especially via the working relationships between EU and national bodies, as set out in the Treaty of Lisbon
Objective 8	To support young people to develop and follow best practice in using the Internet, thus contributing to their own safety, their peers' safety and increasing positive experiences of the Internet
Advance eParticipation	
Objective 9	To trial an innovative model for distributed discussion
Objective 10	To provide a specific and transparent connection between young people and decision-making bodies
Objective 11	To increase young people's skills in using online tools for deliberation and eParticipation
Priorities of young people and policymakers	
Objective 12	Project evaluates well using young people's evaluation factors
Objective 13	Young people's preferred outcomes are met
Objective 14	Project evaluates well using policymakers' evaluation factors
Objective 15	Policymakers' preferred outcomes are met

Table 10.2 Topics chosen for youth discussions in HUWY pilots

Topics in the UK and Ireland	Topics in Estonia	Topics in Germany
Cyberbullying	Cyberbullying	Cyberbullying
Child abuse	Child safety online	Censorship and freedom of opinion
ID theft, privacy and phishing	Safety online (related to ID theft, shopping, etc.)	Safety online (related to ID theft, shopping, etc.)
File-sharing	Copyright	File-sharing
Open thread	Open thread	Open thread
Our experiences	Our experiences	Our experiences

nationally contextualised information about the topics and the project, with structured space for discussion results, comments and policymakers' feedback. Beta hubs were created on the WordPress Multi User platform, which turned out to be unable to support some more complex functionality. So, Gamma hub Web sites were created from Drupal components, towards the end of the pilot. These mirrored the structure and design of the Beta hubs but used Drupal's community tools to better support groups to work online and publish their results.

While developing and implementing these hub Web sites, HUWY also implemented offline, face-to-face activities, right from the beginning of the project, to get the grass growing. The HUWY pilots involved over 50 events to bring young people, youth groups and policymakers into the project and disseminate the results, including workshops, information events, visits to schools and youth groups and a transnational residential summer school, in July 2010. This youth exchange (<http://eysm.eu/>) was organised by HUWY partners and co-funded by Léargas, under the EU's Youth in Action Programme. It brought together young people from HUWY pilot countries, in Ireland, to investigate HUWY topics and present ideas using multimedia. It was a valuable experience for participants and created lively media, which was posted on the hub Web sites and used in subsequent workshops. It was one of a very few transnational events for HUWY participants.

10.4 User Engagement Assessment and Sustainability Review

The HUWY assessment approach resembles current best practice in eParticipation evaluation (cf. Macintosh and Whyte 2006; Lipa et al. 2007) as it:

- Works with stakeholders to integrate their objectives
- Addresses objectives from social, technical and political perspectives
- Uses a triangulation of instruments to gather data, verify results and derive recommendations for future actions

During the first phase of the evaluation, the HUWY team investigated the evaluation factors from a user perspective. This added specific detail to the

Table 10.3 Key evaluation factors

KEF1	To increase young people's involvement in democracy through a positive experience that follows best practice established in eParticipation
KEF2	To demonstrate that young people's views are sought and that their opinions are valued
KEF3	To involve young people in discussions on issues related to the Internet, its use and regulation. Also includes the number and variety of groups of young people that are involved in the project
KEF4	To support young people to develop and follow best practice in using the Internet, thus contributing to their own safety, their peers' safety and increasing positive experiences of the Internet
KEF5	To contribute to the development of a European public sphere
KEF6	The amount of ideas that will be taken into account in the policymaking process
KEF7	To trial an innovative model for distributed discussion

objectives derived from the overall projects goals and helped to identify key evaluation factors (KEF) within the user engagement assessment (Table 10.3).

The user engagement assessment focused on two groups of participants: young people and policymakers. Each team used the same diverse set of methods to gather comparable data, during the same time period. Instruments used are the following:

- Web statistics, using Google analytics
- Survey instruments, online survey ($n = 48$)
- Semi-structured interviews with young people ($n = 21$), teachers and youth workers ($n = 2$) and policymakers ($n = 3$)
- Text analysis of posts to evaluate the quality of discussions ($n = 116$ posts) and to give an overview of the proposed policy measures
- Quantitative data about discussions in all four countries
- Reports from workshops and events (50+ workshops)
- Model elements check (milestones checklist)
- Success factors templates, completed by HUWY teams
- Usability tests were conducted in two countries, accessibility testing in one

The technology implemented was also reviewed in terms of usability, sustainability and scalability. This included technical assessments of the implementation of both Beta and Gamma hubs. The sustainability and scalability review identified strengths, weaknesses and recommendations for anyone intending to implement a similar initiative. The review also used the experience of the HUWY teams and input from external interested parties to identify future uses of the HUWY model.⁵

⁵ Full reports available at <http://www.iidi.napier.ac.uk/c/publications/grantid/13363192>. Accessed 30 June 2011.

10.5 Impact Assessment

10.5.1 Methodology

The impact assessment is a project internal analysis of how and to what extent the objectives and expected impact have been met through different actions. Besides the normative approach of assessing intended impacts, the combination of diverse methods like stakeholder surveys and content analyses in this approach also helps to gather information about the actual outcomes of the project, which may not be intended effects and may be positive or negative.

The output and impacts of the HUWY project were assessed by a meta-analysis of the user engagement and sustainability evaluation results, using an impact logic schema (Table 10.4). This shows the ideal relation of each input to its expected key output, direct and indirect outcomes and impacts. The chart serves as a model: the project team is aware that there are no simple causal effects from input to impact. The aim was to identify how the tasks, developed out of the objectives, and the actions which were carried out, were in line with actual final impacts.

10.5.2 HUWY Inputs

Based on the project objectives, six key tasks were defined at the input side:

- Topic selection: make sure that discussion topics are relevant to young people.
- National hubs as information and communication platforms: to support both national/regional contexts and European cross-links.
- Recruitment and training of facilitators: to get young people engaged and to provide guidance and structure for discussion processes.
- Recruitment of policymakers: to get policymakers involved, to take young people's ideas into regulatory bodies; also important in motivating engagement.

Table 10.4 Impact Logic Chart for HUWY trial

Input	Output	Outcome	Impact
Topic selection	Youth-specific informed content	Reliable information	More deliberated opinions
National hubs as I&C platform	Multimedia content	Better understanding	Advanced e-skills
Facilitators recruitment/training	Online and offline discussions	Bottom-up discussions	Advancing eParticipation
	Results of discussions documented	Public discourse about Internet governance	Youth contributions are sought
Policymakers' recruitment	Policymakers' profiles	Policymakers' commenting	Effects on policy
User involvement	Comments and content posted	User-generated content	Increased involvement in democracy
Dissemination	Use of social software	Different channels	Scalability

- User involvement: engagement in a process of dialogue with peers, to explore the topics and possible solutions, to produce content and post their results.
- Dissemination: creating content and actions, including use of social networks.

These tasks require a series of diverse, but interconnected online and offline actions, events and skills and took a lot of time. HUWY teams in each country became responsible for working with young people to choose the topics; specifying how the pilot should be implemented; providing good quality information, in various formats, on each HUWY topic; updating the hubs, through a content management system (in Germany and Estonia); providing translations for Beta and Gamma hubs; promoting HUWY to young people and youth groups; recruiting, training and supporting facilitators; helping facilitators post results online; promoting results to policymakers; and encouraging them to post feedback. Teams then implemented the evaluation processes and impact assessment.

The project was designed to support the use of whatever sites and software for online communication youth groups chose. Despite the openness of the idea, the project needed the hub Web sites as central nodes, so technical weaknesses caused significant problems. The relationship between online and offline activities, between established sites and new content, needs a central, easy to use, online home.

10.5.3 HUWY Outputs

The user engagement assessment indicated that the distributed discussion model was successfully implemented in the HUWY pilot, although some challenges were identified in terms of the engagement of youth groups (depth and quantity), holding online discussions and active involvement of policymakers. The following sections assess success in meeting output goals, based on data gathered through the evaluation instruments (Sect. 10.4) and following the schema in Table 10.4.

HUWY managed to address the issue of youth-specific informed content as the analysis of the youth groups' results posts, in combination with user survey results, reveal that the content provided was of interest to the participants and useful in their discussions. HUWY teams provided background multimedia content, searchable by format. Content accessed was rated well, but few discussion groups generated their own multimedia.

Both online and offline discussions were encouraged and supported, but most groups favoured face-to-face environments. We considered policymakers' profiles to be an important signal that HUWY was of interest to relevant people in power, but few policymakers provided information, for their profiles, which illustrated their potential influence, and only 10% of posts received policymakers' feedback. At events, policymakers mostly responded well to young people's ideas, and young people really valued this.

In terms of comments and content posted, the challenge was to persuade people to start discussion groups, keep discussions going and to get results posted. Guidelines for the organisation, facilitation and documentation of the discussions,

as well as lesson/activity plans, topic guides and templates for results, were provided. HUWY also aimed to integrate social software tools for recruitment, discussions and dissemination, but hub downtime caused problems.

10.5.4 HUWY Outcomes

The evaluation of user engagement in the HUWY project leads to the following conclusions, based on the KEF:

- HUWY has increased young people's involvement in democracy and has provided positive experiences for participants. eParticipation elements were less successfully realised (KEF1).
- Policymaker involvement was only partially fulfilled. However, the project confirms the importance and relevance of involving policymakers in eParticipation projects and emphasises the rewards of bringing young people and policymakers together at events (KEF2).
- Once involved, the different young people and their groups provided topical, considered and relevant input about the Internet, its use and regulations. However, the number of participants was low in most countries (KEF3).
- The project has supported young people's skills in deliberation and better understanding of group processes and, through this, to a small extent, supported the development of the EU public sphere (KEF4 and KEF5).
- There is no evidence of young people's ideas being taken into account in the policymaking process at this stage (KEF6).
- The distributed discussion model is relevant and provides valued opportunities to support young people's informed participation. All feedback mechanisms show that the offline discussions and events were vital components of the model and should be included in any distributed discussion (KEF7).

The following describes the outcomes using the Impact Logic Chart schema.

All project partners prioritised reliable information in the format of background materials on the hubs, for example, naming the authors of articles, providing pro- and contra-arguments where possible and indicating sources of information and links to further reading and other Web sites. Information on the Web sites, and at discussions, supported a better understanding of complex topics. Estonian partners commissioned materials specifically to be used by high school teachers in discussions on HUWY topics. Young people also gained insight into different views and perspectives through discussion activities. In Germany, some discussion groups held scenario workshops to develop joint perspectives. Others used role-play, taking different roles (e.g. teachers, parents, police) to explore and understand points of view.

Facilitators were central to HUWY as one of the aims was to support bottom-up discussions, ideally using peer facilitation. Their role was organising groups and managing group discussions and results posted on the hubs as well as liaising with the HUWY team. (Some facilitators received well-deserved payment.)

Very few policymakers commented on youth group results posts. Estonians were more successful in engaging policymakers. Germany had problems in motivating them, possibly due to the Internet governance topics, as discussed in Sect. 10.2.3. In Ireland and the UK, changes and crises in government caused particular problems within the pilot period.

As an outcome, user-generated content was published, despite most groups holding discussions offline. Results were posted on the hubs, and some groups created multimedia content and uploaded it (e.g. <http://huwy.eu/de/node/429>). Aiming to use different channels, HUWY teams used Facebook, Twitter and other social networks. A few participants used their Facebook profiles to link to HUWY and to comment on results. But no real discussions took place on social networking sites.

10.5.5 HUWY Impacts

We will again follow the Impact Logic Chart (Table 10.4) to discuss each of the outlined impacts. We use ‘deliberated opinions’ to describe interactions within the discussion groups, rather than to refer to classic deliberation methods, which could exclude a dialogic approach. The evaluation showed that the distributed discussion format, used in HUWY, led young people to explore topics and form ideas. The facilitators were trained to support deliberative thinking, listening to others and to manage their groups. Many participants developed a more critical attitude towards the use of certain Internet applications.

Young people were able to advance their e-skills through learning about the Internet in theory through the discussion of experiences, information provided, challenges and possible solutions. They were also encouraged to practice eParticipation and digital literacy skills: searching for information, learning about topics and tasks of policymakers, creating results posts and commenting on other posts. The research team has been able to advance eParticipation through piloting the distributed discussion with extensive evaluation and analysis of results.⁶

The recruitment of policymakers was disappointing in all countries, which made it difficult to assess the model’s support for the hubs as a place where young people could interact with policymakers. HUWY did not demonstrate policymakers seeking youth contributions. The volume of feedback posted was low, and none implied measurable influence. HUWY is unlikely to have much impact on policy.

A qualitative increase in involvement in democracy, in terms of engagement and interest in democratic processes, was observed at the individual level. However, participation was low: out of the four countries, only Estonia met their target number of participants. Due to low participation, the scalability of the model was

⁶ Full reports at <http://www.iidi.napier.ac.uk/c/publications/grantid/13363192>. Accessed 30 June 2011.

not really tested. Social networking tools did not help HUWY to increase in scale, but this may be due to technical problems with the hubs as communication nodes.

Conclusions

The pilots validated the distributed discussion model as an effective way to involve young people by increasing the depth and quality of their ideas to improve the Internet. Participants had an enjoyable and rewarding experience that furthered their engagement with democracy and their awareness of best practice in using the Internet. The model's flexibility enabled a variety of people to become involved, without specialist deliberative or technical skills, or even good Internet access.

The pilots also revealed the challenges of the model. It is resource intensive, requiring teams to undertake a wide variety of tasks, during all pilot phases from planning to evaluation and dissemination. Young people were reluctant to take on the roles that we hoped they would enjoy, such as organising their own discussions (on- or offline) and bringing peers into the project through social networks. Those who did take on these roles provided an impressive list of positive personal outcomes in evaluation interviews. We suggest that these challenges can be met through funded partnerships with youth organisations. In particular, facilitators need to be rewarded for their hard work. In our experience, the skilled work undertaken by engagement workers is rarely described in detail, in either research reports or funding applications. Escobar (2011) describes engagement workers undertaking similar tasks to the HUWY teams: advocating the engagement process, organising, facilitating, mediating, translating, writing up, liaising and building relationships. Engagement workers "translate" between legal or policy documents and the materials they use with participants. HUWY teams created accessible summaries of legal positions for the hub Web sites. Engagement workers then translate the results of engagement exercises back into a form that is suitable for their employers. Perhaps, something similar in HUWY would have increased policymaker feedback. Technology may extend the reach and impact of engagement, but there is little evidence that computer algorithms will be able to replace the full skill-set of engagement workers in the near future. People are needed to feed the grassroots, both on- and offline.

Web site implementation problems were a weakness at the heart of the pilots. Unlike Coleman and Rowe's model, HUWY is not initiated by decision-makers and needs its own online homes to link young people and policymakers. Open source components can be the basis but must be chosen carefully to reliably support all the functions necessary, in various languages. Our experience suggests that, although offline events were highly valued by our participants, the central hubs need to be implemented and integrated with social networks. We came to see social networking and offline discussions as an essential component of the model, to be integrated into the planning.

Social network applications, like Facebook, are currently, and increasingly, very popular means of communication, especially for young people

(Eimeren and Frees 2010; MPFS 2010), inspiring projects to support social media use in initiatives aiming to reach this target group. Williamson (2011) provides a helpful description of social media's current status and potential for civic participation: "Social media—the social Web—is at the heart of a changing political and civic landscape, bringing together otherwise disparate individuals around shared beliefs. Weak ties—these networks of association—become precursors to civic engagement bridging multiple collections of acquaintances. Yet effective engagement is difficult to sustain. It is a many-stage, cyclical and self-re-enforcing process and in this lies its weakness; faults in the process create numerous points of failure and so Web 2.0 is a timely tool to support radical new ways of socially organising for effective change".

The hub Web site model is designed to support the integration of social networking tools, but in our case, young people did not favour social networking sites, like Facebook, as forums for discussion. However, there is more potential to use social media to bring people into the project, to create more active links between participant groups and disseminate young people's results. These possibilities are discussed in more detail by Taylor-Smith and Lindner (2009, 2010).

HUWY is not the first initiative to integrate online and offline engagement settings. IDEAL-EU, another eParticipation Preparatory Action pilot, aimed to involve young people in discussions about climate change. It included online discussion forums, followed by an electronic town meeting, held in three EU cities at once, in November 2008. The town meeting involved keypad voting and face-to-face discussions in small groups (Talpin and Wojcik 2010). The method was inspired by America Speaks Twenty-first Century Town Meeting⁷ and other EU precedents. Talpin and Wojcik found "The subjective learning effect of deliberation appears to be stronger face-to-face than online, despite the higher informational content of IDEAL-EU online discussions. We investigated the potential origins of this rather paradoxical result, and argue that the emotional nature of face-to-face discussions could foster knowledge assimilation".

Monnoyer-Smith and Wojcik's (2011) comparison of online and offline debates found that online debates supported both more formal deliberation characteristics and more diverse forms of expression and, in this case, enabled a wider variety of people to get involved. However, offline methods supported richer, livelier exchanges. Thus, it seems that initiatives which combine both elements, like HUWY, could benefit from the best of both worlds. Hale (2011) describes the English National Health Service (NHS) using similar diverse resources for their 'listening exercise' into plans to reform NHS, collecting thousands of inputs.

The next iteration of the distributed discussion should include offline events, at regular stages throughout the pilot. These should be well integrated with

⁷ <http://americaspeaks.org/>

online elements, promoted on the hubs, using hub information resources. Offline events should create outputs which are posted on the hubs: video recordings, podcasts, text summaries and testaments from participants. These outputs become inputs into discussions, on- and offline. Working in partnership with organisations which already support offline engagement could offset the additional resource use. Transnational distributed discussions should include transnational events.

The HUWY pilots provide a wealth of ideas and insights into methods to engage young people in debates about Internet policies. We hope these conclusions will be useful to people organising similar initiatives on complex topics of day-to-day importance to participants of all ages, but especially young people.

Acknowledgements HUWY was co-funded by the European Commission and the project partners, under the eParticipation Preparatory Action. The involvement of the Estonian partners was supported by Estonian Target Financing measure SF0180017s07 'Estonia as an Emerging Information and Consumer Society: Social Sustainability and Quality of Life'.

References

- Byron T (2008) Safer children in a digital world: executive summary. Department for Children, Schools and Family, and the Department for Culture, Media and Sport, London
- Coleman S, Rowe C (2006) Remixing citizenship democracy and young people's use of the Internet. Carnegie Trust, London
- Dahlgren P (2006) Civic participation and practices: beyond 'deliberative democracy'. In: Carpentier N et al (eds) *Researching media, democracy and participation: the intellectual work of the European Media and Communication Doctoral Summer School*. University of Tartu Press, Tartu, pp 23–34
- Duff A (2008) The normative crisis of the information society. *Cyberpsychol J Psychosoc Res Cyberspace*, 2(1), Article 1
- Escobar O (2011) The work of participation: local deliberative policy making as mediated by public engagement practitioners. In: 61st conference of the Political Studies Association, London, April 2011
- Hale S (2011) The mechanics of listening. <http://hale.dh.gov.uk/2011/05/25/the-mechanics-of-listening>. Accessed 30 June 2011
- Innes J, Booher D (2003) Collaborative policymaking: governance through dialogue. In: Hajer M (ed) *Deliberative policy analysis: understanding governance in the network society*. Cambridge University Press, New York, NY
- Kim J, Kim EJ (2008) Theorizing dialogic deliberation: everyday political talk as communicative action and dialogue. *Commun Theor* 18:51–70
- Lippa B, Aichholzer G, Allhutter D, Freschi AC, Macintosh A, Westholm H (2007) Demo-net: D13.3 DEMO-net booklet "eParticipation evaluation and impact". http://ics.leeds.ac.uk/Research/CdC/CdC%20Publications/DEMONet_booklet_13.3_eParticipation_evaluation.pdf. Accessed 30 June 2011
- Livingstone S (2007) Mapping the possibilities for beneficial online resources for children: issues of trust, risk and media literacy. Working paper for the EU media expert seminar: more trust in contents – the potential of co- and self-regulation in digital media European Union

- Macintosh A, Whyte A (2006) Evaluating how eParticipation changes local democracy. In: Irani Z, Ghoneim A (eds) Proceedings of the eGovernment workshop 2006, eGov06. Brunel University, London
- Mayo E, Steinberg T (2007) The power of information. OPSI, Norwich
- Medienpädagogischer Forschungsverbund Sudwest (MPFS) (ed) (2010) JIM 2010 – Jugend, Information, (Multi-) Media. Basisstudie zum Medienumgang 12- bis 19-Jähriger in Deutschland. Stuttgart. <http://www.mpfs.de/fileadmin/JIM-pdf10/JIM2010.pdf>. Accessed 30 June 2011
- Monroy-Smith L, Wojcik S (2011) Technology and the quality of public deliberation. A comparison between on and off-line participation. In: 61st conference of the International Communication Association, Boston, MA, p 5
- Runnel P, Pruulmann-Vengerfeldt P, Reinsalu K (2009) The Estonian tiger leap from post-communism to the information society: from policy to practices. *J Balt Stud* 40(1):29–51
- Sanders LM (1997) Against deliberation. *Polit Theor* 25(3):347–376
- Talpin J, Wojcik S (2010) Deliberating environmental policy issues: comparing the learning potential of online and face-to-face discussions on climate change. *Policy Internet* 2(2): Article 4
- Taylor-Smith E, Lindner R (2009) Using social networking tools to promote eParticipation initiatives. In: Prosser A, Parycek P (eds) Proceedings of EDEM 2009 – conference on electronic democracy, Vienna, 7–8 Sep 2009, pp 115–121
- Taylor-Smith E, Lindner R (2010) Social networking tools supporting constructive involvement throughout the policy-cycle. In: Prosser A, Parycek P (eds) Proceedings of EDEM 2010 – conference on electronic democracy, Danube-University Krems, Austria, 7–8 May 2010, pp 331–339
- van Eimeren B, Frees B (2010) Fast 50 Millionen Deutsche online – multimedia für alle? Ergebnisse der ARD/ZDF-Onlinestudie 2010. In: *Media Perspektiven*, Nr. 7–8, pp 334–349
- Williamson A (2011) Driving CIVIC participation through social media. European workshop at perspectives of Web 2.0 for citizenship education in Europe, Brno, Czech Republic, 7–9 Apr 2011. <http://www.bpb.de/files/KKY9CZ.pdf>. Accessed 30 June 2011

Open Collaboration in Policy Development: Concept and Architecture to Integrate Scenario Development and Formal Policy Modelling

11

Maria A. Wimmer, Karol Furdik, Melanie Bicking, Marian Mach, Tomas Sabol, and Peter Butka

Abstract

Along the demands for good governance and open government, policymakers need concise, reliable and up-to-date information to respond to society's problems and affairs in an efficient and effective way. Likewise, stakeholders affected by a particular policy call for transparency, accountability and trustworthiness in political decision-making. Along the evolution of information society that leads to increasing digitisation of information and knowledge artefacts and public services, citizens more and more request direct involvement in policymaking. In this chapter, we introduce a comprehensive and innovative approach to collaborative policy development. The approach integrates collaborative scenario building and formal policy modelling via an integrated ICT toolbox. Stakeholders are collaboratively involved in the scenario development as well as in the evaluation of simulation outcomes. To bridge the gap between narrative texts of stakeholder-generated scenarios (evidenced through background documents of the policy to be discussed) and formal policy models (generating model-based scenarios), the approach introduces conceptual modelling, which enables the different stakeholders to better understand the policy context and to support semi-automatic transformation of text statements into formal statements and agent descriptions. A consequence of the agent-based

M.A. Wimmer (✉) • M. Bicking
Research Group eGovernment, University of Koblenz-Landau, Universitaetsstrasse 1, 56070
Koblenz, Germany
e-mail: wimmer@uni-koblenz.de; bicking@uni-koblenz.de

K. Furdik
InterSoft, a.s., Florianska 19, 04001 Kosice, Slovakia
e-mail: karol.furdik@intersoft.sk

M. Mach • T. Sabol • P. Butka
Technical University of Kosice, Letna 9, 04200 Kosice, Slovakia
e-mail: marian.mach@tuke.sk; tomas.sabol@tuke.sk; peter.butka4@tuke.sk

modelling approach used is that the justifications for expectations of the stakeholders are made precise, explicit and linked to evidence, and this process provides for the monitoring of ongoing policy implementation.

11.1 Introduction

The recent economic and financial crisis, which resulted also from our inability to predict dramatic changes in the economy and society and/or from ignoring those few individuals who had been warning the governments from these threats and negative trends, sheds light on an urgent need for more effective and efficient processes of governance and policymaking.

For a number of years, governance on one side and strategic policymaking on the other side were addressed separately and were not researched with the focus of potential benefits of ICT application. Modern approaches to policy modelling consider different disciplines and integrate both global problems and policy issues by using qualitative and quantitative methods, processes and tools in an integrated framework that takes into consideration social as well as economic trends and conditions. In particular, the interest in social simulation has been growing rapidly worldwide as a result of increasingly powerful ICT as well as a rising interest in understanding of social and economic issues (Gilbert and Troitzsch 2005) and wider stakeholder engagement in political processes [cf. the principles of good governance formulated by the United Nations (UNESCAP 2011), the World Bank (World Bank 2011), the OECD (OECD 2006) and the European Commission (European Commission 2001)]. The OECD also demands for more active citizen engagement. Wider online stakeholder consultation facilitates a better conformity with the good governance principles (OECD 2009). In particular, participation, openness and transparency are supported, if a wider audience of stakeholders is involved throughout the process.

One of the recent development strategies is therefore focused on ICT solutions supporting involvement of citizens and specific stakeholder groups in democratic processes, including their involvement in creation of new public policies in an open and collaborative way. Advanced Web 2.0 technologies of social networking, blogs, electronic polling systems, content publishing and tools for information exchange enable creation of virtual communities that, thanks to their 'representative power', should be recognised by governmental bodies at all levels (local, regional, national, etc.).

The eParticipation approach, built on the integration of the Web 2.0 tools into the existing eGovernance solutions, opens opportunities for online consultations and dialogue between the government and citizens (Saebo et al. 2008). A broader concept of eDemocracy (Kersten 2003) extends and supports the involvement of citizens, businesses, non-governmental organisations (NGOs), mass media and other relevant actors in democratic processes, including decision-making procedures (Menda et al. 2010). Approaches in the field of governance and

policy modelling can benefit from eParticipation, in particular if they relate to active stakeholder involvement (Rebedea et al. 2008). The underlying rationale is that the extraction of relevant knowledge and opinions of the stakeholders to a public policy may give reasons for its success or failure. Open collaboration of stakeholders can thereby contribute to understanding the different viewpoints and possible behaviour of stakeholders in regard to individual and group effects of collective policies. Hence, it is necessary to document the consultation and to continuously visualise to stakeholders, what of their contributions and in how far these contributions went into the policy formulated. Besides, Decker and Hauswirth (2008) argue that the involvement of experts in the field and of other designated stakeholders is valuable as networked knowledge supports collective problem solving.¹

These trends are gradually reflected in eGovernance solutions deployed by governmental organisations. The technology-driven eGovernment strand of the past decade, which was mostly focused on a number of services provided by means of ICTs, is drifting towards eGovernance and a newly emerging concept of open government. It is therewith heavily impacted by insights from eParticipation and stakeholder engagement approaches.

As argued by UNESCAP (2011), the World Bank (2011) and OECD (2009), a general goal is to increase the involvement of the public not only in decision-making or service consumption but also in governmental strategic planning and related processes. This, however, requires that the public participants are enabled to access the relevant information on strategies and plans of the government. The citizens and other stakeholders involved in the domain of interest should be able to understand and properly interpret the policy and its implications, to participate actively in the policy development process, to monitor its implementation and, subsequently, to initiate a modification of the policy, if it proves necessary.

To facilitate the research in the emerging area of collaborative policy modelling, the European Commission (EC) has set a research priority on 'ICT for governance and policy modelling' in its seventh Framework Programme.² The objective of this priority is dedicated to the design, development and provision of advanced tools and technologies that are capable to gather public opinions in an open discussion and transform it to shared knowledge. Tools and technologies such as opinion mining, Web 2.0, policy modelling and simulation, and visualisation for better understanding of the underlying rationales and interdependencies of public policy aspects are in the focus of projects³ co-funded in the fourth call of the framework programme.

¹ For a broader discussion of this argument, refer to Bicking and Wimmer (2011a).

² <http://ec.europa.eu/egovernance>. Accessed 19 Sep 2011.

³ The projects funded under the thematic priority of FP 7, Call 4, are the following: COCKPIT, IMPACT, OCOPOMO, PADGETS, +SPACES, UbiPol and WeGov. For more info, refer to http://ec.europa.eu/information_society/activities/egovernment/research/fp7/fp7_projects/index_en.htm. Accessed 19 Sep 2011.

In this chapter, we present a collaborative policy development approach and the concept for a supportive ICT toolbox, which is developed in the OCOPOMO project.⁴ The rest of this chapter is structured as follows: In Sect. 11.2, we elaborate the need for open collaboration in policy development. Section 11.3 introduces the overall method and concept to collaborative policy development. Section 11.4 outlines the architecture (i.e. the technical concept) for the ICT toolbox in OCOPOMO, while Sect. 11.5 introduces two pilot application cases, which lay the foundation for the design and development of the OCOPOMO platform. Section 11.6 concludes the chapter.

11.2 Needs for Open Collaboration and Proper ICT Support in Public Governance and Policy Development

Over the last 5 years, eParticipation has evolved as a research discipline. Subject of eParticipation research is the deployment of ICT for letting citizens and businesses participate at the political decision-making process.⁵ Along this development, a considerable number of eParticipation projects were funded at national and international level, among them trial projects at EC level,⁶ projects conducting fundamental research (e.g. DEMO-net⁷) and projects evaluating existing eParticipation projects and programmes (e.g. MOMENTUM⁸). Major drawback in current governance and policy development is that stakeholders are neither sufficiently informed nor actively involved in the policy formulation and impact assessment processes, as evaluations in MOMENTUM evidence (Bicking et al. 2010). Improving the information exchange and the communication between stakeholders and analysts during the whole policy formulation process is important for:

- Knowing and understanding the different viewpoints of stakeholders in the context of the policy; informing stakeholders about the perspectives resulting from desk research
- Promoting wide-ranging acceptance within and across stakeholder groups

According to IFC (2007), the following key concepts for participation of stakeholders can help to align expectations management and increase success in large projects and wider policy developments: (1) identification and analysis of stakeholders, (2) publishing information, (3) stakeholder consultation, (4) negotiation and partnership, (5) complaint management, (6) stakeholder involvement in project monitoring and (7) reporting to stakeholder. International Finance

⁴ OCOPOMO—‘Open COLlaboration in POLicy MOdelling’—see <http://www.ocopomo.eu/>

⁵ See, for example, a number of technical reports from DEMO-net under <http://www.demo-net.org/>, especially D 4.1 or also (Macintosh 2004).

⁶ eParticipation Preparatory Action. http://ec.europa.eu/information_society/activities/egovernment/implementation/prep_action/index_en.htm. Accessed 1 Sep 2011.

⁷ <http://www.demo-net.org/>, funded by the EC within FP6. Accessed 19 Sep 2011.

⁸ <http://www.epmomentum.eu/>, co-funded by the EC. Accessed 19 Sep 2011.

Corporation recommends to apply these principles especially in regard to “stakeholder groups ‘external’ to the core operation of the business, such as affected communities, local government authorities, non-governmental and other civil society organisations, local institutions and other interested or affected parties” (IFC 2007, p. 3). As the sharing of ideas, opinions and knowledge with stakeholders and consideration of their inputs in policy development contributes to the quality of policy outcomes, stakeholder consultation is a crucial success factor for policy implementation and its monitoring. Collaborative and open policymaking needs to base its decisions on as much expertise and information of stakeholders as possible. Therefore, stakeholder engagement represents an important element of the approach presented in this contribution.

Likewise, lessons from a policy-oriented science and technology roadmapping (PSTRM) project stressed the need to facilitate ICT supported qualitative data analysis to improve reliability and validity of results a community has to accord (Codagnone and Wimmer 2007).⁹ In a subsequent similar roadmapping project on ICT for governance and policy modelling (CROSSROAD),¹⁰ the need to support stakeholder involvement in PSTRM through ICT is substantiated, as through social media and open innovation wider consultation in policy development is emerging (Lampathaki et al. 2010). These experiences evidenced that stakeholder engagement contributes to increased transparency and openness in policy development. However, appropriate ICT support becomes highly important to enable commenting and evidencing different viewpoints of individual stakeholders and stakeholder groups, (semi-automatic) analysis of these contributions, as well as some form of results evaluation through visualisation. Otherwise, distrust may arise, as people may not immediately recognise how their contributions fed into the results or how certain policy decisions are being made.

The experiences from the two roadmapping projects also evidence that stakeholders wish to understand the traces from their statement into the final results (Wimmer and Bicking 2009). Hence, an approach to mapping issues and interrelations and to trace these issues over the processing from narrative text to final (policy) outcomes is needed.

The approach to be put forward in this chapter has been elaborated in the context of the OCOPOMO project. Along the investigations to prepare and setting up the OCOPOMO project, deficiencies in public sector governance have been unveiled, among which the following loom particularly large:

- Inappropriate ICT support in foresights, especially in long-term policy planning
- Lack/inability of managing complexity in strategic planning and policymaking in complex socio-economic environments

⁹ eGovRTD2020 <http://www.egovrtd2020.org>. Accessed 19 Sep 2011.

¹⁰ <http://www.crossroad-eu.net>. Accessed 19 Sep 2011.

- Lack of open collaboration and lack of transparency in identifying the crucial features of complex social and macroeconomic models to simulate potential alternative policies
- Ignorance of the need for eParticipation and other forms of ICT-enabled efficient collaboration of communities of stakeholders relevant to the given policy area
- Lack of focus on developing, visualising and simulating appropriate policy models to enable better management of socio-economic developments and the identification of interdependencies that result in complex social and economic relations likely to affect future developments
- Lack of comprehensive ICT solutions to support policy modelling and simulation on the one hand, and collaboration among policy analysts and policy operators as well as wider interest groups and the general public on the other hand

These challenges and deficiencies emerge from a long history of scientific development that resulted in the need to engage stakeholders in the design and evaluation of social policy processes. A recent study of the CROSSROAD project shows that collaborative policy modelling as a research area tends to be diverse, multidisciplinary and complex (Lampathaki et al. 2010).

An integrated method and ICT toolbox that would be capable to respond to above challenges to support complex policy development can be based on techniques of formal modelling and simulations (of alternatives policies). A collaborative environment enabling open discussions, information sharing and collaboration needs to counterbalance the formal modelling and simulation aspect. According to Moss (2002), an ICT toolkit for policy modelling should be able to perform societal simulations integrating all possible variables, parameters, interferences and scenarios that are necessary to forecast potential outcomes and impacts of proposed policy measures.

In the next section, we introduce the method developed in the OCOPOMO project, which aims at responding to above challenges and needs.

11.3 Collaborative Policy Development

OCOPOMO is creating an online consultation and open collaboration approach to involve stakeholders in the policy formation process, thereby being participatory, consensus oriented, transparent and inclusive (i.e. implementing good governance principles). The OCOPOMO policy development process is shown in Fig. 11.1. It integrates techniques from complexity science, agent-based social simulation, foresight scenario analysis and stakeholder participation to formulate and monitor social policies to be adopted at several levels of government.

The transition from collaborative policy generation and analysis (i.e. scenario inputs) to policy modelling, simulation and visualisation (cf. Fig. 11.1) can conceptually be separated into formulation of a policy (1 and 2), analysis and conceptual modelling (3), formal modelling (4), simulation (5) and visualisation/evaluation of results (6). OCOPOMO foresees iterative interactions among phases

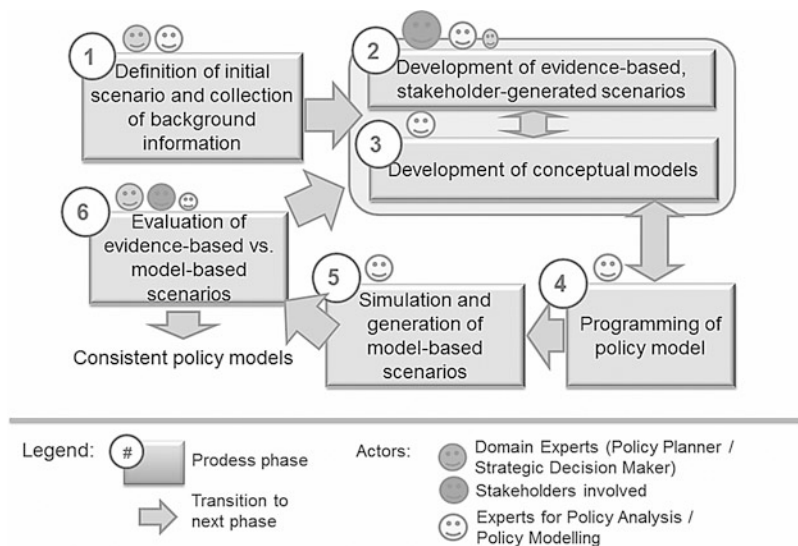


Fig. 11.1 Overall policy development process in OCOPOMO

2 and 3 to ensure that the stakeholder-generated scenarios and conceptual models are as much as possible complete and correct and phases 2–6, with refinements of results in the different phases (generating different versions of results). This longer iteration cycle is needed to ensure that, in the end, the evidence-based scenario documents are consistent with the formal policy model outcomes. Subsequently, the individual phases of OCOPOMO’s policy development process are detailed, thereby indicating main actor groups and artefacts used (actors are described in detail in Sect. 11.3.1, and individual artefacts in Sect. 11.3.2):

- Policy formulation through scenario generation (encompassing phases 1 and 2): Scenario generation is a key element in the OCOPOMO approach. Starting point is either an existing policy to be revised or a new policy needed. A policy can be brought in either by a government agency (i.e. domain expert) or even by an interest group (i.e. a particular stakeholder group). Based on this policy, one initial scenario is generated in phase 1. Then, stakeholders generate further scenarios of different kinds in phase 2.
- Scenario analysis and conceptual modelling (phase 3): To trace the transformation of information from narrative text scenarios to formal policy and simulation models, the OCOPOMO process foresees the use of consistent conceptual descriptions (CCD) to inform the formal policy models. Actor networks (Latour 2005), processes models, skill tables for agents, conditions (evidences and consequences) for actions, IF-THEN rules or rule-dependency graphs are examples of conceptual models (i.e. they are parts of a CCD) used to transform unstructured information from scenarios and background documents into structured representations. These conceptual models are used further to create the simulation model (see next item). The initial narrative scenario generated in

phase 1 and additional background documents evidencing the scenario give first input for the CCD developments. Additional scenarios generated in phase 2 by different stakeholders enrich the CCD models with further input.

- Formal policy model generation (phase 4): Based on the CCD model, policy modelling experts derive the agent-based formal policy model (phase 4), on which the simulation runs. In OCOPOMO, multi-agent modelling (Gilbert and Troitzsch 2005) is used. Hence, formal policy models have to cover actor descriptions, their social relationships, individual behaviour, beliefs and actions as well as rules and conditional dependencies among actions of actors. The actor network in the CCD is of particular importance for the development of the formal policy model, as it presents relevant information in regard to interdependencies of actors (e.g. an actor only sets an action based on the behaviour or impact on another agent). The policy models accommodate in sum the relationships between the individual actions on the micro-level and the collective effects on the macro level to help understand interrelation and interdependencies and thereby making the system manageable.
- Simulation and visualisation (phase 5): Formal policy models are the starting point for running simulations of the policy case (phase 5). In this step, experts of policy modelling instantiate simulation models with particular variables and run the simulations. The results received from such simulations are visualised in a text format (i.e. a model-based scenario) and supportive charts. Visualisation is needed to demonstrate how a strongly connected operation works, and which results are generated and derivable from current scenario descriptions. Visualisation is essential to provide simulation results to users and analysts as well as to receive feedback and support interaction with those stakeholders.
- Evaluation and validation (phase 6): Phase 6 of the overall policy development process serves to expose the model-based scenarios (i.e. the simulation results) to different actor groups (domain experts and stakeholders). The purpose is that the actor groups assess, evaluate and validate the results of the simulation and therewith compare them with the evidence-based scenarios they have generated. Through this evaluation steps, stakeholders can reflect their positions expressed in scenarios. They may enrich their scenarios (feeding information into phase 2 above) or may also better understand opposite positions of other stakeholders and negotiate the result of common agreement. A key benefit of social simulation is that aspects most probably not evident to the stakeholders through textual descriptions become visible.

In the subsequent two sections, the concept of the actors in the policy development process and the conceptual modelling are described in more detail.

11.3.1 Actors Along the Policy Development Process

The smiley icons along phases of the collaborative policy development process in Fig. 11.1 indicate the involvement of specific actors in each phase. The size of an

icon indicates which actor group is more intensely involved than another group in a particular phase. Subsequently, these actor groups are detailed:

1. Domain experts are politicians and/or civil servants. They know well the policy domain. A politician in the project context is considered to be a decision-maker or a person that is responsible for the policy implementation under consideration. Politicians may initiate collaborative policy development (directly, or through civil servants) and may participate in the development of narrative scenarios or policy models. Politicians typically participate only in the initial phase of the collaborative policy development, and in later phases when some results of simulation are already available (especially in phase 6). Civil servants are assisting politicians, and/or they provide relevant supporting materials for other participants of the policy development process. Civil servants, together with politicians, may provide an initial scenario description, which serves as a starting point for collaborative development of a new or improved policy. Civil servants may also participate in phase 2 (to less extent than stakeholders (2)) and in phase 6.
2. Stakeholders of the respective policy domain are considered end users such as citizens, NGOs and SMEs, which are willing and able to participate actively in the construction of narrative scenarios, in discussions and other information exchange of phase 2. They may have particular interests on the future policy that can be opposed to other stakeholders and domain experts (1). Stakeholders are also involved in phase 6, when it comes to the evaluation of the simulation outcomes and to potential revision of the scenarios developed so far in order to reach consistency of both types of scenarios (evidence-based scenarios of phase 2 and model-based scenarios of phase 5).
3. Experts for policy modelling can be divided into three groups: facilitators, analysts and those programming and running the simulation models. Facilitators are mediators who methodically control the collaboration. Policy analysts are experts that investigate scenarios and other (mostly textual) resources of phase 2, analyse these documents and provide conceptual representations of extracted knowledge. Analysts are responsible for the qualitative analyses of narrative scenarios, which result in the construction of CCD (as indicated in Fig. 11.2). The analysis includes an extraction of knowledge from discussions, comments and simulation results in phase 6, and various materials that may support the development of scenarios (i.e. policy analysts are mostly engaged in phase 3 to develop the CCD). Policy modellers are experts that construct formal policy models according to a given CCD. In other words, modellers derive the simulation models from an existing CCD and the underlying textual scenarios. They create the simulation environment, programme the simulation models and run customisable simulations. Modellers are, subsequently, also responsible for providing simulation results to domain experts, stakeholders, facilitators and analysts for enhancing the respective scenarios accordingly. Hence, policy modellers are mostly involved in phases 4 and 5 of the OCOPOMO policy development process.

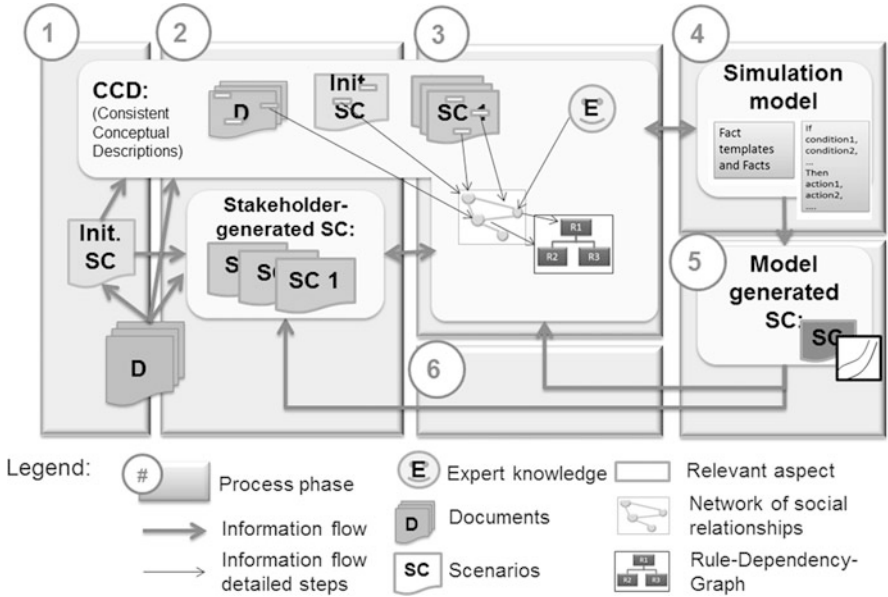


Fig. 11.2 Policy artefacts and information flow along the OCOPOMO policy development process

In OCOPOMO, the actor groups are separated also along external and internal actors to a policy development process as follows:

1. External actors are direct participants of the policy development process and users of the policy development support system, who are involved in policy creation. They have their own preferences, ideas or proposals of how the newly created policy should look like (the first two mentioned above).
2. Internal actors provide methodological (i.e. group (3) above) or technical support in the OCOPOMO collaborative policy development environment. The latter refer to system programmers and administrators, who conduct the technical maintenance and run the participation and simulation system.

The user roles in the OCOPOMO policy development process differ from each other and, therefore, have different needs of support in the policy process and through the ICT such as, for example, different knowledge of the existing policy, principles of policy formation and technical background. The information/data flow along the policy development process (introduced in Fig. 11.1) is depicted in Sect. 11.3.2.

11.3.2 Conceptual Modelling of a Policy Domain

The concept depicted in Fig. 11.2 shows how to transform narrative texts of stakeholders and policy experts via conceptual models into formal policy models.

The main artefacts in this concept are (1) scenarios (with background documents, which are also considered unstructured information), (2) CCD and (3) formal policy models (also called simulation models). Subsequently, we provide more detailed descriptions of the individual information artefacts.

Like in eGovRTD2020 (Codagnone and Wimmer 2007), scenarios are understood as textual descriptions (i.e. they consist of narrative, unstructured or structured text) of a perceived view or understanding of a topic under discussion (Janssen et al. 2007; Carroll 1995). In OCOPOMO, a scenario may cover an existing world status, mental models of stakeholders or an output of future simulations. As indicated in Fig. 11.2, three types of scenarios are distinguished depending on who created the scenario and where it is created along the policy development process:

1. **Initial scenario:** It is generated in phase 1 by domain experts with the help of facilitators to stimulate the process of policy development and to set up a reference point for the collaborative policy development. Further input may be background documents to which the domain experts have access.
2. **Evidence-based user-generated scenarios:** These are collaboratively developed by stakeholders in phase 2 of the policy development process. Different scenarios may be developed by distinct stakeholder groups. The groups may thereby communicate their opinions, views and expectations. The scenarios may be nested (i.e. extending earlier scenario views), may reflect alternative views and policy choices or may even conflict with other scenarios. Input to the scenario can be the initial scenario as well as further background information of various kinds to which the stakeholders have access and on which they rely their scenario arguments on.
3. **Model-generated scenarios:** This type of scenarios is generated as a result of running a simulation. It is a text-based transcription produced in a simulation run in phase 5. It may be accompanied by statistical charts. The input is (a) the individual value of instantiated variables set by the policy modelling experts, and (b) the fact and rule base of the formal policy model, which is itself informed by the CCD artefacts.

The CCD serves to capture descriptions and perceptions of the stakeholders in a structured way and to code this information, cluster it, condense it and further elaborate it to reflect a comprehensive CCD of a policy case. Thus, it informs the formal simulation models. The content can be, for example, stored in a database, which allows different extractions and visualisations of the content (e.g. actor network, domain ontology, rule-dependency graph, beliefs of actors, conditions and relations) as well as understandable visualisations for domain experts and stakeholders. The CCD is generated in phase 3 by policy analysts who have expertise in knowledge extraction and in constructing conceptual models, thereby using standard modelling notations for, for example, ontology, actor descriptions in structured actor description templates, rule statements, rule-dependency graphs and actor network diagrams. Domain experts, facilitators and policy modellers may support policy analysts in the analysis and conceptualisation of the policy case. Conceptual modelling skills are required for these actor groups.

Along the transformation to formal policy models, the CCD plays a role of an intermediary between scenarios and simulation models. Several scenarios can form input to the CCD of a policy domain and further lead to a formal simulation model. Likewise, expertise of policy analysts may lead to particular knowledge constructs in the CCD. The CCD may also inform the scenario development of stakeholders by visualising particular knowledge gaps in the existing scenario descriptions. Finally, the CCD content may be revised or enriched based on input from analysis of the simulation models.

The CCD guides the elicitation of further information one may find useful to increase understanding of the policy domain in question. In OCOPOMO, we aim at supporting semi-automatic transformation of conceptual descriptions of the policy domain into formal Java statements (fact descriptions, actor descriptions, rules and dependencies). The concept is yet to be developed and is part of our future research activities.

Nevertheless, as the integrated ICT toolbox of OCOPOMO needs to support traceability of policy arguments and aspects influencing each other along the policy development process, the CCD is developed to support traceability. The CCD will store the roots of policy aspects in the conceptual models, that is, from which document and at which position in the document the respective information aspect has been retrieved. It also stores information about how single information aspects have been transformed from the original text (i.e. initial and evidence-based user-generated scenarios, and background documents) in the simulation model. With it, the user is able to go back and forth in the process of developing policy models (from scenarios to simulation models and vice versa via CCD). Hence, the arrows between artefact concepts in Fig. 11.2 are depicted in both directions.

According to Gilbert and Troitzsch (2005), a simulation model is a simplified abstract view of the complex reality, thereby representing objects, phenomena and processes in a logical way. When creating a simulation model, three elements are identified as follows: (1) the single parts of the system, (2) the interaction between the parts and (3) the number and nature of inputs. A model is essentially created for each of these, with crucial aspects considered and minor aspects ignored. Frigg and Hartmann (2009) distinguish models along two fundamentally different representational functions: (a) a model that represents a selected part of the world (the ‘target system’) or (b) a model that represents a theory, that is, it interprets rules and axioms of that theory. In OCOPOMO, simulation models are based on agent-based modelling techniques. The system used for programming simulations is RePast, which is based on Java technology. A special declarative rule-based agent modelling software (DRAMS) is developed (Lotzmann and Meyer 2011). These simulation models are of the first type of Frigg and Hartman’s models.

To support online interaction of stakeholders and the handling of the different kinds of artefacts generated along the policy development process, an integrated ICT toolbox is needed, which hosts the different tools indicated in this section. In the next section, the software architecture for the ICT toolbox is described.

11.4 Architecture for the Collaborative Policy Development Platform

The architecture of the proposed software platform for scenario-based collaborative policy development was designed in accordance with the widely accepted methodology of Rozanski and Woods (2005). This method is based on an orthogonal merging of views representing particular aspects of the architecture and perspectives that express their quality properties. In OCOPOMO, the usability and interaction perspectives were specified within the analysis of requirements provided by user partners of the project.¹¹ The design of data structures and functional components, as it was accomplished in the scope of corresponding architectural views, is presented in the next sections along an information viewpoint and a functional viewpoint.

11.4.1 Information View of the OCOPOMO Architecture

According to the adopted methodology, the design of data architecture corresponds to the information view of the system. Based on the initial design of information artefacts (cf. Sect. 11.3.2), the data objects and structures were identified together with the means of storage, maintenance and distribution of information through the system architecture. Six types of information blocks (IB) were identified for data structures required by various functional parts of the platform. Each of the information blocks was further divided into a set of data objects, elementary units of the data architecture. The resulting information view structure is presented in Fig. 11.3.

The information block of content and semantics management (CMS-IB) represents data structures and resources that handle the collaborative process of policy modelling in a shared workspace. It includes a social network environment, a predefined workflow and document flow sequences, data objects for storage and manipulation with semantically enhanced textual content of information artefacts such as textual data analysis rules, underlying semantic knowledge model, context representations, searchable indexes, etc. The content management object represents a data subsystem for storage and maintenance of all artefacts required for collaborative policy modelling. These artefacts are inherited from the generic eParticipation object that encapsulates basic properties for particular types of child data objects as document, discussion, chat, etc. The properties include a presence of textual content that may be annotated by meta-tags, availability of contextual links, integration into workflow tasks and document flow sequences.

The NS-IB and SM-IB blocks contain data objects that represent the core information resources of the policy modelling platform, namely, the scenarios, CCD structures and simulation models (cf. Sect. 11.3.2). The narrative scenario

¹¹User requirements documentation as part of OCOPOMO Deliverable D1.1. http://www.ocopomo.eu/results/public-deliverables/OCOPOMO_D1.1_v10.pdf/view. Accessed 19 Sep 2011.

traceability of agent’s behaviour back to the input data (Moss 2005). In such a declarative model, the agents are described by a set of declarative facts and conditional rules, which can be directly obtained from the conceptual models in the CCD. After running a simulation on this type of models, the output is generated in a form of text traces and charts that visualise the behaviour of particular agents, calculated for the given inputs. This way, the output generated by the model can be compared with the initial scenario and may serve as a model-based material for further discussion on policy alternatives.

11.4.2 Functional View and Architecture of System Components

The collaborative process of the policy modelling requires an open participation of a potentially large group of involved stakeholders. It is quite natural that a system providing such functionality should be designed as a Web-based application, which practically implies the use of the client–server architecture. Following these assumptions and the analysis of available technological frameworks, the functional architecture of OCOPOMO system was proposed in the form of a structure of three main tiers of client-side tools, inner business logic and data storage. The tiers are further subdivided into a set of subsystems and particular functional components, so-called managers, as it is presented in Fig. 11.4.

The Tools layer provides components that are responsible for the maintenance of particular tools within the system, together with respective user interfaces. This layer is structured into three modules, namely:

- Communication subsystem, which covers communication, collaboration and cooperation based features of the platform. The tools (managers) of this module will support components of other subsystems in aspects of communication and information exchange, that is, in eParticipation features that strengthen the collaborative manner of the policy modelling process in OCOPOMO.
- Scenario subsystem, which provides functions for generating narrative scenarios of policy proposals. It includes document management and text analysis

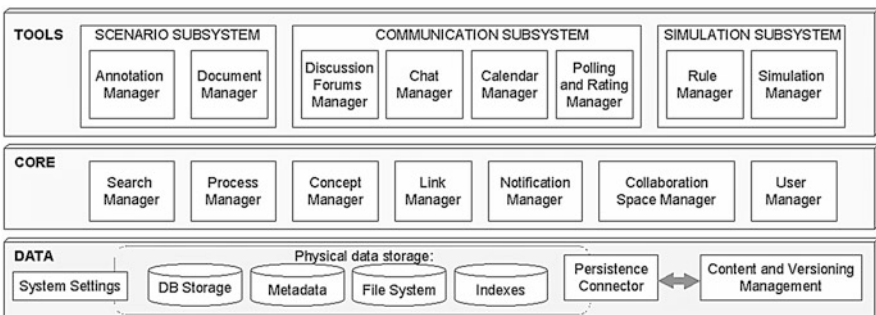


Fig. 11.4 Layers and functional components of the OCOPOMO integrated ICT toolbox

mechanisms, context enhancements and semantic annotations. The annotation manager is specifically responsible for the transformation of unstructured texts of scenarios into the structured information of the corresponding CCD schemas.

- **Simulation subsystem**, providing the functionality which is important for modellers in order to create, update, visualise and execute simulation models. The rule manager specifically handles the transformation of the CCD schemas to the simulation models consisting of agents, rules, axioms, constraints, etc. The simulation manager then enables customisation of the created models by setting up inputs or other parameters, invoking the models into running simulations and providing results of the simulations.

The Core layer is dedicated to processing all the data exchanged inside the system. It supports the Tools layer with any business logic related to the information resources, metadata and processes that may be required by the scenario, communication or simulation subsystems. Functionality of a broader scope than an individual tool, namely, the federated search, system-wide notification, initiation and maintenance of processes, and management of user profiles, is also provided by the respective Core components by means of both business logic and user interface.

The Data layer provides infrastructure for persistent storage, management, secure access, sharing and versioning of particular content of any required type. It may include relational databases for structured data, XML-based semi-structured data for knowledge representations and semantic annotations, file systems for textual or multimedia documents, various indexes enabling the retrieval of data, as well as storage of the system properties and global settings.

The presented layers are mapped onto a standard three-tier structure of client–server applications (Eckerson 1995). On the basis of the methodical concept and software architecture for open collaboration in policy development, next section introduces two pilot cases where the concept presented above will be applied.

11.5 Pilot Applications

Design and development of the OCOPOMO platform are driven by the requirements gathered from two pilot application cases, which determine the scope of the policy development method and integrated ICT toolbox. The pilot cases also serve as a testing environment for the overall solution. In both pilot cases, the identified stakeholder groups are involved in a collaborative development of scenarios in defined strategic area of high public interest.

The first pilot application, located in the Campania region of Italy, is focused on the policy of best possible allocation of the EU structural funds in the region, which may help to increase the socio-economic growth of the region. The objective of this pilot application is to monitor the distribution of EU resources in accordance with stakeholders' priorities in knowledge transfer. Regional centres are set up as joint bodies by universities and other expert actors in particular fields to support small and medium enterprises and entrepreneurs in transforming academic

knowledge into practice in the region. This measure shall in turn help spur economic development and sustainable growth. The competence areas are various: environmental sustainability, support of tourism and cultural events, economic competitiveness of the region, energy, accessibility and transport, information society, etc. Which projects and areas to support is part of the policy to be developed. The responsible body for making contracts with such regional knowledge centres, funding the activities in the first years and monitoring the performance and impact of these projects is the Campania region located in Naples.

The second pilot case is located in the Kosice Self-Governing Region, Slovakia. The goal is to develop a sustainable long-term strategy for use of renewable energy resources. The regional government is interested in a better understanding and identification of potential impacts of policy alternatives in support and exploitation of renewable energy resources, including their impact on employment, environment, financial implications of investments and other related issues.

As an initial step of implementing the principles of collaborative policy development in both pilot cases, existing and potential stakeholders in the domains were identified, and the current status of policy creation process was analysed. A model of strategy planning and decision-making processes, enhanced on features of collaborative information sharing, scenario generation, policy modelling and simulation, was created in the standardised BPMN notation (Furdik et al. 2010). For both pilot cases, initial scenarios were developed, and the key stakeholders were asked for comments [a scenario description for the Kosice case is published in Bicking and Wimmer (2011b)]. Feedback provided by the stakeholders was analysed against the initial scenarios to identify the text portions, which can be annotated by the CCD concepts and transformed to facts and rules describing the behaviour of particular agents. For example, a pragmatic aspect of energy consumers' behaviour can be described by a simple statement: "If two technologies have similar or comparable costs of implementation, the consumer selects one with higher attitude". This statement can be annotated by the CCD instances as presented in the following code fragment (Fig. 11.5).

```
instance EnergyConsumer memberOf AbstractAgent
concept Technology subConceptOf Object
  Cost impliesType _float
  AttitudeLevel impliesType _integer
instance SelectTechnology memberOf Action
  Object hasValue Technology
instance TechnologyCostDifference memberOf Condition
instance ActionRule memberOf Rule
  Agent hasValue EnergyConsumer
  Condition hasValue TechnologyCostDifference
  Action hasValue SelectTechnology
```

Fig. 11.5 Code fragment

The ActionRule instance, with the properties linked to the respective portions of the annotated statement (through the instances of the agent, condition and action concepts), can be directly transformed to a declarative rule of if-then-else type, parameterised by the Agent, TechnologyCost and AttitudeLevel values. However, the rules, clauses and facts are required in a form of code snippets, which are currently created only manually. A semi-automatic support for generating code constructs will be investigated and possibly provided in the later stage of the OCOPOMO project.

Conclusions

This chapter presented a methodical and technical concept to support open collaboration in policy development. The integrated process of policy modelling combines narrative scenario generation by stakeholders and formal policy modelling. It introduces an innovative concept for conceptual policy modelling to bridge textual artefacts with formal statements in programme code.

The target users of the OCOPOMO ICT toolbox are on one hand policy analysts and policy operators and, on the other hand, special interest groups and to some extent the wider general public. Hence, the traditional approach of (expert) top-down policy modelling is counterbalanced and expanded with:

- Innovative ground-up participation in (narrative) scenario building
- An iterative process of identifying the parameters and features of policy models from the narrative scenarios, designing and simulating the policy models (including outputs of formal scenarios) and refining them iteratively
- Open collaboration of policy analysts, policy operators and wider interest groups (representatives of specific unions, chambers and the general public)

The process of policy modelling, which is specifically addressed by OCOPOMO, is based on narrative scenarios and related formal policy models that are constructed and modified collaboratively, by various groups of involved persons that use proper eParticipation tools for information exchange and mutual communication. This process lays the foundation for a software platform that will support the process.

In OCOPOMO, the stakeholder groups learn about newly identified facts, inconsistencies between evidence-based scenarios and model-generated scenarios, or interdependencies that these actor groups could not identify before. The aim is to reach a point where the evidence-based scenarios are consistent with the model-based scenarios (or in other words with the formal policy model). When this point is reached, the policy development exercise can terminate as there is, hopefully, an agreement on the policy for the future. If no agreement is reached, at least a clear understanding of the conflicting positions of stakeholders and the potential impacts a certain choice in the policy will have is reached. In both cases of having achieved consistent models from evidence-base and from model-base, the policy decision-makers are better informed about their policy choices, and the constituency knows about these policy choices.

The methodical concept is counterbalanced with an integrated ICT architecture. This ICT solution supports target users with a collaborative environment

for scenario generation and discussion among stakeholders. It further supports scenario and policy analysts with the extraction of relevant information and development of conceptual models. Finally, it supports formal policy development and simulation of policy models developed for a particular case. A special feature of the integrated method is that the transformation of information from narrative text over the CCD towards the simulation models is stored, and thus, users can track information evolution back and forth. This concept contributes essentially to better understanding and more trust in policy models. The narrative scenarios and conceptual models are key contributions to implement good governance principles, as these support users in understanding the policy domain using tools they are familiar with.

Further research work is aimed at improving the method (e.g. developing the transformation model from CCD to policy modelling software and finalisation of the CCD concept). Likewise, the implementation of the integrated ICT toolbox and the piloting of the toolbox in the pilot cases are planned for the next half year.

Acknowledgements OCOPOMO is co-funded by the EC within FP 7, contract no. 248128. The authors express their gratitude and acknowledge the contributions of the OCOPOMO project partners, especially Scott Moss and Paul Ormerod. The work presented in the chapter was also partially supported by the Slovak Grant Agency of the Ministry of Education and Academy of Science of the Slovak Republic within the 1/0042/10 project ‘Methods for identification, annotation, search, access and composition of services using semantic metadata in support of selected process types’. The content of this chapter represents the view of the authors, respectively. The European Commission cannot be made liable for any content.

References

- Bicking M, Wimmer MA (2011a) Concept to integrate open collaboration in technology roadmapping: stakeholder involvement in strategic e-government planning. In: Proceedings of the 44th Hawaii international conference on system sciences (HICSS)
- Bicking M, Wimmer MA (2011b) A scenario-based approach towards open collaboration for policy modelling. In: Janssen J, Scholl HJ, Wimmer MA et al (eds) *Electronic government (EGOV 2011)*, LNCS 6847, Springer, Berlin, pp 223–234
- Bicking M, Wimmer MA, Triantafillou A, Koussouris S, Charalabidis Y (2010) Project and programme evaluation. Monitoring and evaluating EC-funded eParticipation projects. In: Chappelet JL, Glassey O, Janssen M et al (eds) *Electronic government and electronic participation. Joint proceedings of ongoing research and projects of IFIP EGOV and ePart 2010*. Schriftenreihe Informatik # 33, Trauner Verlag, Linz, pp 259–266
- Carroll JM (1995) *Scenario-based design: envisioning work and technology in system development*. Wiley, New York
- Codagnone C, Wimmer MA (eds) (2007) *Roadmapping eGovernment research: visions and measures towards innovative governments in 2020*. MY Print snc di Guerinoni Marco & C, Clusone
- Decker S, Hauswirth M (2008) Enabling networked knowledge. In: Klusch M, Pechoucek M, Polleres A (eds) *Cooperative information agents XII*. LNAI 5180, Springer, Berlin, pp 1–15

- Eckerson WW (1995) Three tier client/server architecture: achieving scalability, performance, and efficiency in client server applications. *Open Inf Syst* 10(1):3–20
- European Commission (2001) European governance. A white paper, COM(2001) 428 final, European Commission, Brussels. http://eur-lex.europa.eu/LexUriServ/site/en/com/2001/com2001_0428en01.pdf. Accessed 3 May 2011
- Frigg R, Hartmann S (2009) Models in science. In: Zalta EN (ed) *The stanford encyclopedia of philosophy*. <http://plato.stanford.edu/archives/sum2009/entries/models-science/>. Accessed 19 Sep 2011
- Furdik K, Sabol T, Dulinova V (2010) Policy modelling supported by e-participation ICT tools. In: Hinkelmann K, Thoenssen T (eds) *MeTTeG'10. Proceedings of the 4th international conference on methodologies, technologies and tools enabling e-government*. University of Applied Sciences, Northwestern Switzerland, Olten, pp 135–146
- Gilbert N, Troitzsch KG (2005) *Simulation for the social scientist*. Open University Press, Berkshire
- IFC (2007) *Stakeholder engagement: a good practice handbook for companies doing business in emerging markets*. International Finance Corporation – World Bank Group
- Janssen M, van der Duin P, Wagenaar RW, Bicking M, Wimmer MA, Daws S, Petrauskas R (2007) Scenario building for e-government in 2020: consolidating the results from regional workshops. In: *Proceedings of the 40th annual Hawaii international conference on system sciences (HICSS-40)*, Waikoloa, Hawaii, IEEE Computer Society, Washington, DC
- Kersten GE (2003) e-Democracy and participatory decision processes: lessons from e-negotiation experiments. *J Multi Crit Decis Anal* 12(2–3):127–143
- Lampathaki F, Charalabidis Y, Passas S, Osimo D, Bicking M, Wimmer MA, Askounis D (2010) Defining a taxonomy for research areas on ICT for governance and policy modelling. In: Wimmer MA, Chappellet JL, Janssen M et al (eds) *Electronic government. IFIP international conference, EGOV 2010, LNCS # 6228*, Springer, pp 60–71
- Latour B (2005) *Reassembling the social: an introduction to actor-network-theory*. Oxford University Press, Oxford
- Lotzmann U, Meyer R (2011) DRAMS – a declarative rule-based agent modelling system. In: *Proceedings of ECMS 2011 – 25th European conference on modelling and simulation*, Krakow, 7–10 Jun 2011
- Macintosh A (2004) Characterizing e-participation in policy-making. In: *Proceedings of the 37th annual Hawaii international conference on system sciences (HICSS-37)*, Track 5, vol 5, IEEE Computer Society, Washington, DC
- Menda YP, Lee D, Peristeras V (2010) The WAVE platform: utilising argument visualisation, social networking and Web 2.0 technologies for eParticipation. In: Hinkelmann K, Thoenssen T (eds) *MeTTeG'10. Proceedings of the 4th international conference on methodologies, technologies and tools enabling e-government*, University of Applied Sciences, Northwestern Switzerland, Olten, pp 111–121
- Moss S (2002) Policy analysis from first principles. *Proc Natl Acad Sci USA* 99(3):7267–7274
- Moss S (2005) Sociology and simulation: statistical and qualitative cross-validation. *Am J Sociol* 110(4):1095–1131
- OECD (2006) *Applying strategic environmental assessment: good practice guidance for development co-operation*. DAC guidelines and reference series. Organisation for Economic Co-operation and Development, OECD Publishing, Paris
- OECD (2009) *Focus on citizens: public engagement for better policy and services*, OECD studies on public engagement. Organisation for Economic Co-operation and Development, OECD Publishing, Paris
- Rebedea T, Trausan-Matu S, Chiru CG (2008) Extraction of Socio-semantic data from chat conversations in collaborative learning communities. In: Dillenbourg P, Specht M (eds) *ECTEL 2008, LNCS 5192*, Springer, Berlin, pp 366–377
- Rozanski N, Woods E (2005) *Software systems architecture: working with stakeholders using viewpoints and perspectives*. Addison Wesley, Boston, MA

- Saebo O, Rose J, Flak LS (2008) The shape of eParticipation: characterizing an emerging research area. *Gov Inf Q* 25:400–428
- UNESCAP (2011) What is good governance? United Nations Economic and Social Commission for Asia and the Pacific. <http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/gg/governance.asp>. Accessed 3 May 2011
- Wimmer MA, Bicking M (2009) Qualitative data analysis of issue interrelations and interdependencies for e-government research planning. In: Wimmer MA, Scholl HJ, Janssen M et al (eds) *Electronic government. 8th international conference, EGOV 2009, LNCS 5693*, Springer, Heidelberg, pp 25–39
- World Bank (2011) What is our approach to governance? <http://go.worldbank.org/MKOG258V0>. Accessed 3 May 2011

Part III

Future Research Directions of Open, Collaborative ICT-enabled Governance

ICT as the Facilitator of Postmodern and Empowered Forms of Citizenship: Myth or Reality?

12

Tit Neubauer, Tina Vuga, and Blaž Ilc

Abstract

This chapter critically examines the pervasive notion that the use of new information communication technologies (ICTs), which are perceived as inherently democratic, will automatically empower citizens in their relations with the state and that the majority of socio-political issues can be addressed solely through citizens' technological empowerment. In the first part, we focus on the general characteristics of this universal solution frame. In the following part, the conditions of possibility of the frame are identified as neoliberal and technophilic rationality and are interrogated. The central aim of the third part is to critically evaluate the role of ICTs in empowering citizens, generating socio-political change and determining social progress through examples of recent events in North Africa and the Middle East. In conclusion, critical steps for reconceptualising the relationship between use of ICTs and empowered forms of citizenship are elaborated, and a set of factors that could be taken into consideration in future policy developments is discussed.

12.1 Introduction

Western advanced liberal societies (Rose 1996) have in recent decades experienced multidimensional, heterogeneous and paradoxical socio-political and geopolitical transformations. In this context, multiple technological innovations, particularly in the field of communication and information, played a substantial role by facilitating

T. Neubauer (✉) • B. Ilc

University of Ljubljana, Kardeljeva ploščad 5, 1000 Ljubljana, Slovenia

e-mail: tit.neubauer@fdv.uni-lj.si; blaz.ilc@fdv.uni-lj.si

T. Vuga

Entelehia – Agency for Public Support to Policies, Dražgoška 29, 1000 Ljubljana, Slovenia

e-mail: tina.vuga@entelehia.org

socio-political transformations. These transformations have taken place in the context of specific trends and perceived socio-political issues, such as the increasing circulation of populations, goods and capital, and increasing dangers as well as the perceived ever increasing citizens' apathy for participating in the formal democratic political processes, and their discontent with the present liberal-democratic political systems. In such a context, contemporary governmental and general governance reforms have been formulated and implemented.

In the last two decades, these reforms were and are increasingly aimed at facilitating and increasing citizens' activity, participation and empowerment in political and administrative processes through the use of new information communication technologies (ICTs).¹ This is perceived as central for addressing crucial issues of liberal-democratic governments and governance (e.g. democratic deficit, inefficient, unresponsive government). Solutions based upon the new ICTs developed within this context and with the aim of facilitating citizens' participation and empowerment, as well as transparency, efficiency, flexibility and openness of governments and governance, are perceived as crucial and sufficient for addressing almost every kind of contemporary socio-political issue.² The idea of new ICTs as being inherently democratic and empowering and as being sufficient tools for addressing present socio-political issues is not only present in official strategies and policies but can also be observed in academia and activist circles as well as the broader society. Consequently, a historically specific universal problem solution frame³ can be identified in the present context. This chapter will critically examine the above schematically presented historically specific universal problem solution frame in the context of advanced liberal societies and in the context of the prevalent understanding of upheavals in North Africa and the Middle East.

Firstly, it will focus upon predominant conceptualisations of the relationship between ICTs and transformation and/or enhancement of liberal-democratic political systems organised around the concept of eDemocracy that are present in scientific, public and political/policy discourse. Secondly, in order to

¹The existing literature is filled with different terms denoting the technological phenomena and innovation referred to here as ICTs. Terms like new media, the net, Internet, network of networks and cyberspace are used interchangeably to explain the same tools, applications gadgets and platforms. Clear distinctions between the terms are rarely made and according to some authors are not always fruitful (Bimber in Breindl 2010). For our purposes, the terms ICT or ICTs will be mostly used as they best characterise the broadness of the phenomena.

²For instance, the Digital Agenda for Europe (European Commission 2010a) reinforces this view by assigning ICTs a "key enabling role that the use of ICT will have to play if Europe wants to succeed in its ambitions for Europe 2020".

³The universal problem solution frame is understood as an assemblage of discursive and non-discursive practices that are based upon specific rationality, knowledge and relations of power (Foucault 1980; Nadesan 2008). It represents an assemblage of solutions that are established, implemented and perceived as the only possible ones. In this context, it frames both the issues and solutions in a specific way and establishes sites deemed appropriate for enunciating and addressing the issues and simultaneously silences oppositional understandings and solutions.

comprehensively address the wider implications of this universal problem solution frame, a broader synchronic and diachronic perspective will be adopted, critically rethinking the conditions of possibility. In this context, the underlying rationality of this universal solution frame and its implications will be addressed and questioned.

Central to the third part is our aim to place ICT tools and applications into the global, contemporary socio-political context, and present some of conceptual (epistemological), ontological and practical dilemmas with reference to a number of the contemporary events. The primary focus will be given to critically evaluating the role of ICTs in empowering citizens, generating socio-political change and determining social progress, by examining the role it played in the peoples' struggles in Tunisia and Egypt. These events present us with a rare opportunity to critically evaluate and reflect upon the use of ICTs in real socio-political contexts. The results can be used to suggest a number of critical components for reflecting and approaching postmodern citizenship. We believe it is important to clarify that the following discussion is not a reflection, directly connected to the inherent nature of ICTs, but rather addresses the prevailing discourse and views on postmodern forms of citizenship and democracy.

In the conclusions, some of the elements for reconceptualising the relationship between use of ICTs and postmodern and empowered forms of citizenship are proposed. A set of factors that should determine future policy developments will be briefly discussed and presented.

12.2 Interrogating Contemporary Conceptualisations of the Relationship Between ICTs and (Liberal) Democracy

Contemporary conceptualisations of the relationship between the new ICTs and the liberal-democratic political systems are organised predominantly around the concept of eDemocracy. Although there are substantial differences among conceptualisations, they all subscribe to the idea of the inherent transformative potential of new ICTs for the functioning of the liberal-democratic political system. The most radical conceptualisations of these democratic potentials and expected transformative effects of the Internet are those that support the thesis that the inherently democratic Internet will substantially transform the relations between the state and the citizen (Leary 1996; Grossman 1995). The thesis was based upon the understanding of the Internet as a radically different medium and socio-political space that shifts the power from states to individual citizens (Barlow 1996). The democratic distribution and flow of information throughout society, information richness, decentralisation, absence of censorship and user-generated content would bring about a new cyber-democratic society where all citizens are equal and empowered in relations with state and market powers (Breindl 2010; Van de Donk et al. 2004). In other words, these new ICTs were perceived as having the potential to establish the conditions of possibility for direct democracy (Coleman and Norris 2005).

These e-topian conceptualisations, prevalent in the first years of the Internet, have been overtaken by conceptualisations of eDemocracy understood as a crucial strategy for infusing new life into the democratic process of liberal-democratic political systems. The transformative potential of new ICTs is seen not in a sense of a radical transformation of the existing liberal-democratic political system but as its enhancement. For instance, the Digital Agenda for Europe adopts a very structured and comprehensive approach, declaring that “the great potential of ICT can be mobilised through well-functioning virtuous cycle of activity”, encompassing seven significant obstacles to be removed in order to fully harness “the transformational power of ICT” (European Commission 2010a). It shows the prevalent understanding of the European Commission that ICTs have an inherent transformative power, which could be unleashed if the bottlenecks are removed. The enhancement is perceived as crucial in the context of overall apathy of citizens, their dissatisfaction with the present functioning of the political systems and in the context of the perceived lack of responsiveness by governmental institutions faced with a rapidly changing socio-political reality (McCullagh 2003; Coleman and Gøtze 2001).

The prevailing conceptualisations understand eDemocracy as a vertical and horizontal interconnection between citizens/civil society and the government that is enabled through the use of new ICTs (Chadwick 2006). It is perceived as providing the means (e.g. eConsultations, eVoting) for a broader and increased participation of active citizens in the political process, enabled by the Internet and other technologies (Clift 2004). Faster communication between citizens and other political actors in liberal-democratic systems can supposedly contribute to an increase in the level of citizens’ participation in the policymaking process and their empowerment (Kampen and Snijkers 2003; Coleman and Norris 2005). Consequently, eDemocracy is conceptualised as a specific political system in which information and communication networks are in the democratic processes with the purpose of informing, communicating, articulating interests and decision-making (election and deliberation) (Hagen 1997).

Following Hoff et al. (2000), we can observe that conceptualisations of eDemocracy are implicitly linked to the perceived and particularly framed issues of the present liberal-democratic political system. Among issues that are framed in these conceptualisations are the problem of citizens’ limited degree of formal political participation, their apathy, their dissatisfaction with unresponsive political representative institutions, their disempowerment and non-transparency of the political and policy processes (Vedel 2006). Although at first glance these issues seem objective and neutral, they frame the issues of the present liberal-democratic political systems in a specific way. The issue of participation is understood predominantly in a sense of motivating and facilitating those who have access as well as the knowledge that is necessary in order to use these technologies for political participation. As is observed by Vromen (2008), consequently, online mobilisation results in facilitating participation of citizens who are already politically active. Jensen (2006) observes that online involvement is influenced by similar factors that determine non-virtual political participation (e.g. socio-economic position, disability, education, ethnicity).

Furthermore, the majority of eDemocracy conceptualisations presuppose an inherently democratic nature of the new ICTs, and their use in the political process is seen as automatically beneficial. But the problem presented above is also related to the limiting and limited conceptualisations of democracy present in this context. Namely, democracy is understood in a technical sense as a sum of procedures and techniques through which the best possible public decisions are formulated. In this context, a rational individual that makes rational political choices, based upon all available (needed) information, is presupposed. Moreover, these predominant conceptualisations are focused upon procedures, rules and techniques. In this context, democracy is perceived as something that has only instrumental, and not inherent, value (Sahraoui 2007).

Democracy is consequently limited to a way of decision-making. Other dimensions such as democracy as a culture defined by a specific way of life, characterised by equality among members, mutual cooperation, respect and freedom of speech (Dewey 1985; Anderson 2009), are not addressed and considered. The various socio-political conditions and personal circumstances that affect individuals and socio-political groups and have a crucial impact upon their participation and their inclusion into the democratic political processes are not reflected upon. Furthermore, the prevailing conceptualisations insufficiently address the issue of availability of new ICTs to all citizens and for the most part do not reflect upon their inherent supposition of unanimously positive effects of Internet upon the democratic processes. Negative effects of ICTs, in the sense of lowering the participation of specific groups and individuals, are predominantly not addressed.⁴ The digital divide⁵ as one of the crucial negative effects of new technologies upon the socio-political stratification is predominantly addressed only in the context of eInclusion and not in the context of conceptualisations of eDemocracy.⁶

12.3 Conditions of Possibility

The present universal problem solution frame, in which eTools and solutions are established as crucial facilitators and enablers of an active, participating and empowered citizen, appears as a set of neutral and objective assumptions regarding democracy, citizenship, technology, society and individuals.

⁴ For further elaboration of negative effects of ICTs on democratic processes, see, for instance, Chadwick (2003).

⁵ OECD defines 'digital divide' as the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access ICTs and their use of the Internet for a wide variety of activities. <http://stats.oecd.org/glossary/detail.asp?ID=4719>. Accessed 15 May 2011.

⁶ For instance, the curious case of EU strategies relating to eDemocracy and eInclusion, which are almost completely separated, results in the understanding that participation and inclusion are unrelated.

However, this appearance is a product, of its continuous articulation and dissemination as neutral and objective, not only by the EU and its member states but also by other local and global actors (e.g. businesses, researchers, scientists, non-governmental organisations, activists). The perceived neutrality and objectivity of the universal problem solution frame have specific conditions of possibility. In this context, two interrelated but distinctive conditions of possibility, namely, the contemporary and dominant neoliberal socio-political rationality and the older technophilic rationality, can be identified.

12.3.1 The Neoliberal Rationality

The neoliberal rationality is grounded upon the notion of competition as the only efficient, legitimate and fair way of regulating and managing socio-political relations (Hindess 2001). The state is considered as impotent in the face of the complexities of socio-economic relations, and as such direct state interventions are seen as unproductive or even destructive to a capitalist market and economy (Rupert 2000). Consequently, centralised expertise and direct state interventions give way to a proliferation of private and public expert authorities and decentralisation (Rose 1999).

This rationality is based upon the “autonomisation of society” (Rose 1999). The state’s role is no longer conceived as being the principal agent of achieving social equality but as oppressive and paternalistic. The concepts and practices of decentralisation, privatisation, pluralisation of expertise, competition, customer demand, social justice, individual responsibility and the language of choices, opportunities and life chances become dominant (Fitzpatrick 2001; Burchell 1993).

In this context, a new kind of individual is established: the neoliberal active citizen, who is both a target of governmental activity and its necessary autonomous partner. Such individuals are established as self-fulfilling, self-regulating, competitive and entrepreneurial subjects who are free to make consumer and entrepreneurial choices in order to maximise well-being (Foucault 2008; Banjac 2010). Their every decision is perceived as a result of a calculated action, regarding present and future costs and benefits. Addressing socio-political issues is considered the responsibility of every individual but not the responsibility of society as a whole. For instance, the Innovation Union Flagship (European Commission 2010b) openly addresses citizens as important holders of responsibility for achieving socio-political progress. It is the citizens’ responsibility to act as (pro)active, participatory and therefore empowered members of (European) society. It is the citizens’ responsibility to be a skilled, reflective user of contemporary technologies and be well familiarised with the political system and determinants of the policy processes. The individuals are established as ‘experts’ for various socio-political issues, public services, etc. Yet this adoption of a knowledgeable relationship is conceived as possible only insofar as each individual heeds the expert advice offered by multiple authorities (public, private, etc.) and through different channels (public campaigns, mass media, Internet, etc.) that promote specific images, specific framing of problems and socio-political

issues. Participation in various contexts is consequently never an unmitigated outcome of free choices. Participation is not presented and framed as a choice but as an obligation, a responsibility towards oneself and towards one's family and community (e.g. local community, organisations, business, nation, state).

The neoliberal technologies of government, which promote responsabilisation of individuals and participation, therefore do not only structure the field of possible individuals' choices (e.g. only certain choices are possible and the process of choosing is almost compulsory) but also their commitments by integrating these technologies in a moral nexus of identification with specific lifestyles, communities and allegiances as obligations towards these specific communities (Burchell 1993; Rose 1999). Consequently, there is also a transformation of the perception of socio-political issues. Issues that were previously conceptualised as a consequence of socio-economic conditions are reconfigured as a consequence of poor individual choices deemed as an outcome of a culture of passivity (Fitzpatrick 2001).

12.3.2 The Technophilic Rationality

The technophilic rationality organised around notions of the inevitable enhancement of liberal-democratic political system through technological innovations is the other crucial underlying rationality of the universal problem solution frame. In this context, the perception of the tools and solutions based upon the new ICTs and especially the Internet as having an inherently beneficial impact upon the democratic process and on the policy process can be understood as the newest iteration of a succession of similar claims made in the past regarding the newest technologies of the time. The crucial characteristic of this technophilic discourses is technological determinism. New technologies are seen as inherently having power to usher in a new era of governance where technology will be used to solve almost every socio-political issue, regardless of the historical and socio-political context of issues and their consequent multiplicity and diversity (Wilhelm 2000; Campion 1989). Another crucial characteristic of technophile discourses is the prevailing silence and/or half-hearted reflection on the establishment of new means of exclusion and new divisive, discriminatory practices accompanying the implementation of new technologies. These technologies never did and never will automatically usher in the coming of the age of democratic utopia where everyone will have equal opportunities to participate because the implementation and proliferation of new technologies establish new and/or strengthen old hierarchical divisions (e.g. socio-economic) between socio-political groups (Wilhelm 2000). The latter can also be destabilised, but the point here is that the level of technological literacy becomes another element or means of division and exclusion. For example, although the problems of the digital divide are evident—like the fact that 30% of Europe's population is made up of people aged 65–74 years, people with low incomes, the unemployed and the less educated who have never used the Internet (European Commission 2010a)—the targets and measures set are surprisingly focused on the increase of ICT practitioners. On the other hand, there is a silence regarding the

ownership, commercialisation and control of every successive technological innovation, which has a profound impact on the actual 'free' use of these technologies in the democratic process and consequently on their actual benefits for addressing asymmetrical power relations. For instance, when the European Commission is setting the course of eGovernment, it sets a predominant focus on business interactions with public administration, although it is argued in the introduction that only 38% of EU citizens used the Internet for accessing eGovernment services, compared to 72% of businesses (European Commission 2010a).

What has to be stressed in addressing the technophilic rationality is that the diametrically opposed technophobic rationality functions in the same discursive field in a sense of a technological determinism that cannot be escaped or negotiated (Campion 1989). Following Richards (1993), we can observe that the perception of technology is due to hegemony of both technophilic and technophobic rationality framed in a deterministic and limited way, which to a large extent renders impossible a realistic appraisal of the political, social, economic, environmental, etc., costs and benefits of specific technologies.

12.4 Critique of the Present Universal Problem Solution Frame

We can divide the problems of the present dominant solution frame into general dimensions. Firstly, there are conceptual issues interlinked with the way the problems of the present socio-political context are framed, who or which institutions can frame them and what solutions are adopted. The issues of the present socio-political system are framed in way that it absolves the present socio-economic structures, characterised by the dismantling of the welfare state, from any responsibility. Solutions that are formulated and implemented in the context of such a framing of issues are individualistic and/or technological, and based on simple one-dimensional causal links and mechanistic understandings of complex socio-political relationships, as well as on the perception of unproblematic transference of solutions that proved effective in the business sector. Moreover, they are based on utopian conceptualisations of new ICTs and their effects on all socio-political relations.

The ontological problems, or the problems of paradoxical historical developments, address the way advanced liberal societies are governed. As Neocleous (2003) observes, attempts in recent years to achieve 'open government' go hand in hand with continuing practices of secrecy by the state, and it is the state that determines the scope of its transparency, not the citizens. We can observe this paradox in the present discourses. First, this paradox is seen in a prevalent discourse that establishes the perceived need for open, transparent, responsive and participatory forms of governance as well as the need to empower the citizen. This discourse supports and is being accompanied, supported and enabled by strategies, programmes and policies for implementing a collection of solutions and tools that enhance the liberal-democratic political system.

Second, the paradox is seen in a similarly prevalent discourse of security that establishes the perceived need for collecting unimaginable amounts of data for surveillance, the need to implement new tools or use old tools for general social surveillance and control, the need for secrecy, the need to not be constrained by democratic decisions, etc. Literally, these two discourses are materialised into measures, strategies, policies and practices that are strangely not perceived as paradoxical in the dominant media and political discourses. The most obvious examples are the laws, policies, strategies and measures adopted in the wake of 9/11 and subsequent terrorist attacks, such as the Patriot Act adopted by the US congress. It allows the US government to obtain wiretaps without identifying the target nor the method of communication that is to be tapped, to electronically monitor a person for any reason that the government deems legitimate and to get warrants for any type of record without having to declare that the information sought is in any way connected to a terrorism investigation.⁷ What the Patriot Act and similar measures demonstrate is that electronic surveillance of ordinary citizens in the name of elusive security is not only characteristic of authoritarian political systems but also of liberal democracies. In this context, the case of the not-for-profit organisation WikiLeaks and its disclosure of US Afghanistan and Iraq war logs, as well as the US diplomatic cables, is additionally illustrative. These disclosures can be seen as acts of radical transparency performed by citizens themselves, an act of actual empowerment. The fierce reactions of liberal-democratic governments to these disclosures are also illustrative for the possible reaction to broken boundaries of accepted behaviour and broken boundaries of state-ordained secrecy. It is still the state's institutions that define what can be subject to transparency and what must be kept secret in the name of national or/and international security. The citizens who cross these boundaries are exposed to extreme measures (e.g. the brutal treatment of Bradley Manning, who passed restricted material to WikiLeaks logs) that restrict fundamental citizens' and human rights as well as abolish key democratic principles, principles of due process and the rule of law (Greenwald 2010).

The problems can also be observed at the level of the individual. In this context, the limitations can be observed by focusing on the Internet solutions and tools for achieving empowerment. Empowerment through eTools is framed as a process in which an individual takes control of his and her life outside state patronage, through services, tools and information available on the Internet. Considering the present neoliberal governmental rationality, the individual is empowered in a very specific and limiting way. In the dominant framing of empowerment, it is not possible for individuals to question the underlying rationalities, to question the individualisation of causes of socio-political issues, to question the imposed responsibilities of individuals and to question the socio-political stratifications and inequalities, embedded in different contexts. Individuals are consequently empowered only in order to make 'correct' choices, informed and based upon the knowledge acquired

⁷ http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_public_laws&docid=f:publ056.107.pdf. Accessed 20 Sep 2011.

from different authorities present on the Internet. The above case of WikiLeaks is the prime example of the consequences for the individual who crosses the frame of acting imposed by the state.

12.5 Contextualising the Role of ICTs in the Evolution of Postmodern Citizenship

As indicated earlier, our aim here is to place ICT tools and applications into the global, contemporary socio-political context, presenting some of the conceptual, ontological and practical dilemmas described above with reference to some recent events. Recent global developments, particularly those in North Africa and the Middle East,⁸ have provided us with a rare opportunity to critically evaluate and reflect upon the role of ICTs in socio-political contexts.

When discussing these current events, the role of ICTs has been put into the forefront through political, media and scientific discourses. The issue raised and discussed in the literature (Breindl 2010) is whether citizens are truly empowered through the use of ICTs or whether ICTs reinforce the established political structures, empower the empowered and mobilise the mobilised (Vromen 2008). In our evaluation, particular emphasis will be given to the concept of citizenship, which will be applied from a postmodern perspective (Turner 2001; Pikalo 2010; Tolley 2010; Biesta 2011).

At first glance, it may appear paradoxical how postmodern concepts of citizenship evoke premodern forms of democracy, citizens' participation and engagement, which particularly through the use of ICTs aims to mimic the ideals of direct democracies of the ancient Greek polis. However, postmodern citizenship can also be perceived as a reaction to the crisis of the modern state (Isin and Turner 2002), which is (in part) built upon the ideals of representative democracy that are themselves in a crisis, manifested through growing political apathy and low levels of voter turnouts.

12.5.1 Premodern Democracy for a Postmodern World?

Current research has displayed a growing interest in the socio-political impacts of social networking sites (e.g. Facebook) and microblogging sites (e.g. Twitter) (Breindl 2010). The so-called mobilisation hypothesis (Stanley and Weare in

⁸ In our analysis, we will for the most part limit our reflections to the examples of Tunisia and Egypt. Other examples from the recent past, such as the example of the Iranian protests in 2009, and the present youth protests in Spain, also represent instances of ICT use for socio-political actions. Other examples will also be briefly discussed (Thampi and Kawlra 2010; Collin et al. 2011; Visan 2011), but the events in Tunisia and Egypt will nonetheless serve as primary examples.

Breindl 2010) maintains the implicitly inherent transformative potential of ICTs, and the recent events in North Africa and the Middle East have been celebrated as explicit examples of the role, impact and power of ICTs in human development and the evolution of socio-political conditions. Discourses where technology is seen as the generator of social progress and human development are not exclusively linked to contemporary ICTs (such as social media) and have been present in the past. “These discourses conceal that mythmaking is inherent to technological development and that the introduction of ‘new’ media and technology in the past (telegraph, telephone, radio, television) was also surrounded by ‘doom’ and ‘boom’ scenarios about their effects on society” (Vanobbergen in Breindl 2010). In the past two decades, ICTs have been added to the list of technologies that are understood as “forces of production taken as casually determining the conditions of human existence” (Hand and Sandywell 2002). While this perspective alone could serve as an argument against the prevailing discourse, it is important to reflect on its different aspects.

The central idea being promoted in the media and political discourse on the role of social media in the peoples’ struggles in Tunisia and Egypt is that the practices and transformations of the ICT environment will spill over and bring about the transformations of real public spaces of society (Hand and Sandywell 2002). The first interpretations of the recent events in Tunisia and Egypt noted that the tensions, fervour and government resentment that had been generated in social media transferred to the streets and in the long run created the atmosphere which led to the overthrow of the personalities, most vividly representing the governing regimes. The narrative follows the lines of a radical form of democracy, enabled by ICTs, where the representative ideal of modern democratic government will be made obsolete because of the abundance of possibilities for citizens’ direct engagement in decision-making. “The result is an e-topian fusion of an imaginary, pre-modern polis with the global technologies of the twenty-first century” (Hand and Sandywell 2002).

This vision goes beyond the conceptualisation of ICTs as a “playground” of postmodern citizenship and is recognised as nothing less than a catalyst of governmental re-articulation (Hand and Sandywell 2002) from a traditional, modern, bureaucratic, closed and top-down government structure to an open, postmodern, network-based, efficient, transparent⁹ and user-friendly governance. It is only the form of government or governance that is being addressed here, while the content is forced into the background. Suffice it to say that decision-making, particularly in the global context, was never intended to be easy, let alone “easy-going”, that is why so much emphasis throughout history of political thought has been given to civic virtues and citizens’ knowledge (Rousseau 1955; de Tocqueville 1961). The socio-political context of citizens’ engagement is largely neglected, as is the case in the mainstream discourse on the effects of ICT in Tunisia and Egypt. Morsi (2011),

⁹The metaphor and imagery of the glass city (the governing) and the informed citizen (the governed) are distinctive representations of this re-articulated form of government (Vedel 2006).

an Egyptian blogger, commenting on the thoughts of an Egyptian progressive thinker named Ahmed Abdel Muti Hijazi correctly observed that "... [the] importance of not forgetting that digitally-empowered social activism stems from, is robustly entrenched in and preceded by a vibrant social discourse and a continuous grassroots-level ideological debate. The outbreak of a popular uprising is the culmination of the collective desire for tangible change; ... It is important to keep in mind, as Hijazi explains, that those ties are already there (the common, innate human desire for freedom and general evolution of political systems into modern democracies, enmeshed with local social and political givens)".

Implicit to the prevailing discourse is the idea of democracy, reduced to mere form and understood solely as a sum of procedures and techniques through which the best possible public decisions are formulated. In this so-called e-topian rationality, the existence of spaces, channels and tools for participation and not the actual socio-political conditions for participation becomes the determining factors of citizens' engagement, particularly when social media is being discussed. The paramount example of this strain of discourse can be seen in the recent popular uprising in North Africa and the Middle East, where access to new ICTs, such as social media (Twitter and Facebook), is being portrayed as the condition of democratic citizenship and a source of socio-political reforms. This discourse has been intensified to the extent that headlines of 'digital', 'Web 2.0' and 'Facebook' revolutions have published both in the media (Shapiro 2009; Hauslohner 2011; Taylor 2011; Smith 2011) and scientific fields (Shirky 2011). Therefore, a distinction must be made between the spaces, channels and tools of participation and the socio-political conditions of participation itself. This crucial distinction determined ancient forms of citizenship (ancient Greece and Rome), which from a contemporary perspective are understood as heavily exclusive, elitist and only pseudo-democratic.

12.5.2 The Role and Impact of Social Media

What has been made evident by recent cases is that ICTs are increasingly being used as a parallel media and communication platform, which enables everyday activists¹⁰ to mobilise citizens around certain socio-political issues. The pace by which information is disseminated around the globe through social media and the consequential reduction in costs are evident benefits and have been noted by many scholars and activists themselves (Morsi 2011; Doctorow 2011; Visan 2011). Examples of Egypt, Tunisia and to some extent even Iran show the importance of ICTs as an alternative to traditional communication and media channels, which have in recent decades been the object of intense control, ownership homogenisation and

¹⁰ The term "everyday activists" is used purposely, as different scholars and studies have showed that there is no direct correlation between the development and use of ICTs and socio-political activity (Jensen 2006; Bimber in Visan 2011). Even activists themselves note that focusing on the digital in "digital activism" is an erroneous interpretation of the events in Egypt and Tunisia (Morsi 2011).

sensationalism. “The role of new technologies becomes increasingly important in a context dominated by media conglomerates, with a discourse that leaves little room for difference or ‘non-commercial’ topics” (Visan 2011).

From a citizenship perspective, some authors tend to overemphasise the resistant nature of ICTs regarding private or governmental control and censorship. For example, Visan (2011) notes that “Internet offers unparalleled access to information and resources, allows users to generate content, facilitating their interaction with the public, and is not as vulnerable to censorship as traditional media”. Others argue that one of the most attractive elements of the Internet is that it provides a platform for “direct individual participation, free of supervision and largely beyond the reach of authority” (Cameron and Gross Stein in Visan 2011). Connecting to other individuals through social media and creating new ICT-based networks and communities is pictured as evidence of new forms of political engagement of the young, disenfranchised and disillusioned generation (Collin et al. 2011).

Furthermore, in this form of discourse, ICTs are presented as an inherently democratic, un-ideological space, which naturally protects some of the most fundamental liberties of modern citizenship, such as freedom of speech and expression. The Internet in particular is depicted as a *tabula rasa* and as such represents the ideal ‘playground’ of the postmodern citizen. There is an underlying assumption of citizenship and citizens’ engagement that can be formulated from this narrative. The self-fulfilling, self-regulating, competitive and entrepreneurial subjects who are free to make consumer and entrepreneurial choices in order to maximise well-being and manage private risks (Foucault 2009; Banjac 2010) only need an apparently limitless and libertarian environment (i.e. social media) in order to fulfil their civic responsibilities of taking an active part in the decision-making process. This argument could also be viewed from a different perspective, understanding the growing popularity of social media as a retreat of the citizen from public space and thus a paradigmatic manifestation of the erosion of citizenship (Turner 2001). Some reports from Egypt further support this claim, stating that only when Egypt went offline did many ‘slacktivists’ turn into activists and join the protests on the street (Morsi 2011). It is only when this alternative space had been disrupted that the citizens reacted actively *en masse* on the ground.

The potential of ICTs to act as an alternative media platform has manifested itself through the protests in Iran in 2009. The so-called stand-alone media role of ICTs can have the most impact in pluralist democracies¹¹ (Held 1995), where a network conception of politics and decision-making prevails over the more traditional pyramid structure of classical legalist models of democracies (van Dijk 1996) or non-democratic regimes. Other authors argue that ICTs can be a source of overcoming the shortages of previous media—such as radio or television—and strengthen democracy worldwide. In sum, “it has seemed as if, in one fell swoop, the cure has been identified for suffering democracies, to the point of attributing to

¹¹ A possible indication of why use of ICTs in citizens’ engagement has different results in quasi-democratic and non-democratic states.

ICTs the power to save them” (Bentivegna in Breindl 2010). In such cases, some authors argue that the term “new media” is more appropriate than ICTs as it is “. . . generally considered as an alternative source of information” (Van de Donk et al. 2004). In this case, the “most salient characteristic of Internet-based protest groups is that communication becomes the foremost political strategy” (Breindl 2010). And where communication on socio-political issues among citizens is limited due to government limitations and legislative restrictions, it can represent a form of citizens’ empowerment and a source for political engagement.

From this strain of thought, a natural question arises. What happens to the citizens who because of different factors do not, cannot or do not wish to use contemporary ICTs? With the accounts presented above, we will try to reflect in a more dystopian manner (Breindl 2010) on some of the different social aspects of ICT use in the socio-political context.

12.5.3 Towards a New Age of Cyber-Elitism?

The reality is quite different from some of the pervasively optimistic projections of the future. Studies show that active participants in social media are rare and that most users are passive, collecting or at best disseminating the information provided. For instance, “there are critics of how Wikipedia operates, including those who point out that only a small percentage of people do a majority of the edits” (Wilson in Richards 2010). A critical reflection of the recent examples of Tunisia and Egypt supports this argument. The individuals and groups most active in utilising the advantages of ICTs in Egypt are young, educated, tech-savvy middle/upper-middle class citizens (for context, consider the 42% illiteracy rate in Egypt). In other words, those are not the truly oppressed masses, especially in an economic sense (Morsi 2011).

Furthermore, the cases of Egypt and Tunisia show the transformation of the understanding of the political field among the young generations involved in the popular protest. It is in part generated by the use of ICTs in political mobilisation and communication, and in part by the prevailing neoliberal discourse, celebrating individualisation and individual heroes. If, at first, the protests began as traditional social movements, calling for political reforms and social change, the empowering catalyst for the mass protests was closer in nature and form to a single-issue campaign, characterised by a sacrificial suicide on one side and an arrest of an activist on the other.¹² A clear connection between the general individualisation of the political process (Dahlgren in Breindl 2010) and the social environment at large and the individualistic (socio-political) nature of social media (Breindl 2010) manifested itself in the cases of Egypt and Tunisia. From salon debates to coffee

¹² The self-immolation of Mohamed Bouazizi had been portrayed as the final catalyst of mass civic engagement’ in Tunisia. Similarly, the arrest of Wael Ghonim and the activities that followed had been characterised as turning points in the peoples’ struggles against the oppressive regimes in Egypt.

house online participation, this form of democratic citizens' engagement remains (in global terms) an action of the few rather than a movement of the many.

Conclusions

The use of new ICTs and their role as facilitators of an empowered form of citizenship cannot be assumed and cannot be conceived outside larger socio-political processes, structures, asymmetrical and unequal power relations, and structural positions of specific individual qua member of specific socio-political groups. ICTs and particularly the Internet do not create an entirely new political order but are themselves imbedded in the larger socio-political processes that surround them (Agre 2002). Therefore, impacts of ICTs on the socio-political realm should not be mythologised, prophesised and romanticised in a manner consistent with other technological innovations in the past. In particular, they should not be conceived in isolation, and their impacts should not be overstated in relation to other critical factors that hinder actual citizens' empowerment.

In the participatory model of democracy, which is closest to the contemporary democratic ideals, citizenship in its deepest form is central for the process of decision-making. But as different theorists from Rousseau (1955) to Pateman (1970) warn, such a model of democracy requires a well-informed and well-educated citizenry. The socio-political role of ICTs should be reflected in close consideration to the multiplicity of actors, who assume different positions in modern relations of power and domination. Different social groups pursue different socio-political objectives and have differentiated views on how democracy should function and inherently mean. In this respect, ICTs "have to be designed and supported in such a way that they help to narrow the gap between the 'information rich' and the 'information poor', otherwise the spontaneous development of ICT will widen it" (van Dijk 1996; Breindl 2010).

We can observe powerful examples of how different individuals and social groups utilise ICTs as alternative means of information and communication in their socio-political struggles, initiatives and projects. Nevertheless, the prevailing issues of modern democracies cannot be individualised or ascribed to the question of communication, information or speed of interaction. As one European researcher in the field recently noted "Politicians and citizens cross but rarely meet on the Web. Exchanging tweets may be good communication but does not make policy" (Magniant 2011).

Recent discussions on the socio-political impact of ICTs follow the lines of either "visions of rebirth of Athenian democracy" (saviour of modern democracy) or "nightmares of Orwellian proportions" (tools for total surveillance and domination) (van Dijk 1996). Such discussions have continued for around 20 years. The role of ICTs in society is usually disputed not because of their inherent nature, but because of different visions and views on (postmodern) forms of democracy. What needs to be critically addressed are the fundamental functions and objectives of democracy, particularly in light of recent global developments, which include increasing socio-political use of ICTs on the one hand and a deterioration of elementary democratic ideals on the other.

References

- Agre P (2002) Real-time politics: the Internet and the political process. *Inf Soc* 18(5):311–331
- Anderson E (2009) Democracy: instrumental vs. non-instrumental value. In: Christiano T, Christman JP (eds) *Contemporary debates in political philosophy*. Wiley-Blackwell, Malden, MA
- Banjac M (2010) Developing Tanzanian civil society: desiring democracy, self-empowerment and the World Bank. *J Organ Chang Manag* 23(6):669–688
- Barlow JP (1996) A declaration of the independence of cyberspace. Electronic Frontier Foundation. <http://homes.eff.org/~barlow/Declaration-Final.html>. Accessed 15 May 2011
- Biesta G (2011) The ignorant citizen: Mouffe, Rancière, and the subject of democratic education. *Stud Philos Educ* 30(2):141–153
- Breindl Y (2010) Critique of the democratic potentialities of the Internet: a review of current theory and practice. *TripleC* 8(1):43–59
- Burchell G (1993) Liberal government and techniques of the self. *Econ Soc* 22(3):267
- Campion MG (1989) Technophilia and technophobia. *Aust J Educ Technol* 5(1):23–36
- Chadwick A (2003) E-Government and e-democracy: a case for convergence? Paper for presentation at public policy in the e-government Era (II)
- Chadwick A (2006) *Internet politics*. Oxford University Press, New York, NY
- Clift S (2004) E-Government and democracy. Representation and citizen engagement in the information age. <http://www.publicus.net>. Accessed 15 Sep 2011
- Coleman S, Gøtze J (2001) *Bowling together: online public engagement in policy deliberation*. Hansard Society, London
- Coleman S, Norris DF (2005) A new agenda for e-democracy. *Int J Electron Govern Res* 1(3):69–82
- Collin P, Richardson I, Third A (2011) The benefits of social networking services. Cooperative Research Centre for Young People, Technology and Wellbeing, Melbourne, VIC
- de Tocqueville A (1961) *Democracy in America*. With a critical appraisal of each volume. Schocken, New York, NY
- Dewey J (1985) *The later works, 1925–1953*. Southern Illinois University Press, Carbondale, IL
- Doctorow C (2011) We need a serious critique of net activism. guardian.co.uk
- European Commission (2010a) A digital agenda for Europe, COM(2010) 245 final/2, 26.8.2010. http://ec.europa.eu/information_society/digital-agenda/documents/digital-agenda-communication-en.pdf. Accessed 30 Jun 2011
- European Commission (2010b) Europe 2020 flagship initiative innovation union, COM(2010) 546 final. http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf#view=fit&pagemode=none. Accessed 28 May 2011
- Fitzpatrick M (2001) *The tyranny of health doctors and the regulation of lifestyle*. Routledge, London
- Foucault M (1980) *Power/knowledge: selected interviews and other writings, 1972–1977*. Pantheon Books, New York
- Foucault M (2008) *The birth of biopolitics: lectures at the Collège de France, 1978–79*. Palgrave Macmillan, New York
- Foucault M (2009) *Security, territory, and population: lectures at the college de France 1977–1978*. Picador USA, New York, NY
- Greenwald G (2010) The inhumane conditions of Bradley Manning's detention, Salon.com http://www.salon.com/2010/12/15/manning_3. Accessed 10 Dec 2011
- Grossman LK (1995) *The electronic republic: reshaping democracy in the information age*. Viking, New York, NY
- Hagen M (1997) A typology of electronic democracy. http://www.uni-giessen.de/fb03/vinci/labore/netz/hag_en.htm. Accessed 15 May 2011
- Hand M, Sandywell B (2002) E-topia as cosmopolis or citadel: on the democratizing and de-democratizing logics of the Internet, or, toward a critique of the new technological fetishism. *Theor Cult Soc* 19(1/2):197–225

- Hauslohner A (2011) Is Egypt about to have a facebook revolution? *Time*
- Held D (1995) *Democracy and the global order: from the modern state to cosmopolitan governance*. Stanford University Press, Stanford, CA
- Hindess B (2001) The liberal government of unfreedom. *Alternatives* 26(2):93
- Hoff J, Horrocks I, Tops PW (2000) *Democratic governance and new technology: technologically mediated innovations in political practice in Western Europe*. Routledge, London
- Insin EF, Turner BS (2002) *Handbook of citizenship studies*. Sage, London
- Jensen JL (2006) The Minnesota E-democracy project; mobilizing the mobilized? In: Oates S, Owen DM, Gibson RK (eds) *The Internet and politics: citizens, voters and activists*. Routledge, London
- Kampen JK, Snijders K (2003) E-democracy: a critical evaluation of the ultimate e-dream. *Soc Sci Comput Rev* 21(4):491–496
- Leary T (1996) *Chaos and cyberculture*. Editions du Lezard, Paris
- Magniant S (2011) Will “Facebook generation” shape citizenship 2.0? <http://www.lospaziodellapolitica.com/2011/01/will-facebook-generation-shape-citizenship-2-0>. Accessed 20 Sep 2011
- McCullagh K (2003) E-democracy: potential for Political Revolution? *Int J Law Inf Technol* 11(2):149–161
- Morsi H (2011) Abdel Muti Hihajzi gets it: on revolutions, false miracles and social media. <http://www.hanimorsi.com/blog/index.php/archives/2011/02/24/on-revolutions-false-miracles-and-social-media/> Accessed 22 Dec 2011
- Nadesan MH (2008) *Governmentality, biopower, and everyday life*. Routledge, New York
- Neocleous M (2003) *Imagining the state*. Open University Press, Maidenhead, Berkshire
- Pateman C (1970) *Participation and democratic theory*. Cambridge University Press, Cambridge
- Pikaló J (2010) *Nova državljanstva v dobi globalizacije*. Sophia, Ljubljana
- Richards B (1993) Technophobia and technophilia. *Br J Psychother* 10(2):188–195
- Richards R (2010) Digital citizenship and Web 2.0 tools. *MERLOT J Online Learn Teach* 6(2): 516–522
- Rose N (1996) Governing “advanced” liberal societies. In: Barry A, Osborne T, Rose NS (eds) *Foucault and political reason: liberalism, neo-liberalism, and rationalities of government*. University of Chicago Press, Chicago, IL
- Rose N (1999) *Powers of freedom reframing political thought*. Cambridge University Press, Cambridge
- Rousseau J-J (1955) *The social contract and discourses*. J.M. Dent, London
- Rupert M (2000) *Ideologies of globalization contending visions of a new world order*. Routledge, London
- Sahraoui S (2007) E-inclusion as a further stage of e-government? *Transforming government: people*. *Process Policy* 1(1):44–58
- Shapiro SM (2009) Revolution, facebook-style. *Revolution* 6:40
- Shirky C (2011) The political power of social media. *Foreign Aff* 90(1):28–41
- Smith C (2011) Egypt’s facebook revolution: Wael Ghonim thanks the social network. *The Huffington Post*
- Taylor C (2011) Why not call it a facebook revolution? *CNN Tech*
- Thampi BV, Kawlra A (2010) Empowering women leaders at the local level: translating descriptive representation to substantive representation through ICTs CITIGEN. <http://gender-is-citizenship.net/node/58>. Accessed 28 May 2011
- Tolley M (2010) *Citizenship betrayed: understanding today’s threats to democratic citizenship*. Paper presented at the annual meeting of the American Political Science Association, Washington, DC
- Turner B (2001) The erosion of citizenship. *Br J Sociol* 52(2):189–209
- Van de Donk W, Loader BD, Nixon PG, Rucht D (2004) *Cyberprotest new media, citizens and social movements*. Routledge, London
- van Dijk JAGM (1996) *Models of democracy—behind the design and use of new media in politics*. *Javnost* 1:43–56

-
- Vedel T (2006) The idea of electronic democracy: origins, visions and questions. *Parliam Aff* 59(2):226
- Visan LC (2011) Houses that cry: online civic participation in post-communist Romania. *McMaster J Commun* 7(1):3
- Vromen A (2008) Political change and the Internet in Australia: introducing GetUp. In: Häyhtiö T (ed) *Net working/networking: citizen initiated Internet politics*. University of Tampere, Tampere
- Wilhelm AG (2000) *Democracy in the digital age: challenges to political life in cyberspace*. Routledge, New York, NY

Pedro Prieto-Martín, Luis de Marcos, and Jose Javier Martínez

Abstract

This chapter reflects, from a holistic perspective, on the challenges surrounding the development of eParticipation in Europe, with special focus on EU programmes. To this end, first, we assess the field's practical and theoretical achievements and limitations, and corroborate that the progress of eParticipation in the last decade has not been completely satisfactory in spite of the significant share of resources invested to support it. Second, we attempt to diagnose and shed light on some of the field's systemic problems and challenges which are responsible for this lack of development. The domain's maladies are grouped under three main categories: (1) lack of a proper understanding and articulation with regard to the 'participation' field, (2) eParticipation community's 'founding biases' around eGovernment and academy, and (3) inadequacy of traditional innovation support programmes to incentivize innovation in the field. In the context of the 'Europe 2020 Strategy', the final section provides several recommendations that should contribute to enhance the effectiveness of future European eParticipation actions.

13.1 Introduction: Public Participation for the Twenty-First Century

At the end of 1990, the first Web browser, named 'WorldWideWeb', was created by Tim Berners-Lee and the World Wide Web came into existence. As a result, the last 20 years have witnessed dramatic changes affecting most economic and social spheres. Strange as it may seem, politics stands as the field least impacted by the

P. Prieto-Martín (✉) • L. de Marcos • J.J. Martínez
Computer Science Department, Universidad de Alcalá, Ed. Politécnico. Campus Universitario,
Ctra. Barcelona km 33.8, 28871 Alcalá de Henares, Spain
e-mail: pedro.prietom@alu.uah.es; luis.demarcos@uah.es; josej.martinez@uah.es

Internet, with representative institutions still closely resembling those established during the nineteenth century. But delay does not mean immunity: the extension of social networks is expected to have a profound impact on governmental institutions and practices in the next years (Punie et al. 2009). There is widespread expectation of increased opportunities for citizens to participate in public decision-making using ICT. As a result, the pressure on public sector to prepare for these changes does nothing but grow, and official declarations in favour of transparency and a culture of engagement succeed each other through the world.

In this context, the question concerning the extent to which these intentions are being transformed into real changes becomes very relevant: how is ICT affecting the development of public participation in a region like Europe, which prides itself as a beacon of democracy and social and political rights? Is participation becoming any more effective thanks to the Internet? During the last 10 years, fruitful experimentation and research in the area of electronic participation has been carried out in Europe, mostly funded by the European Union (Panopoulou et al. 2009). This chapter critically reflects on the progress of eParticipation in Europe, with a special focus on the EU actions and projects. Our appraisal is based on an extensive analysis of distinct relevant sources, which included the most recent reports, articles and literature reviews dealing with eParticipation research, practice and theory, as well as projects' deliverables and evaluations, related databases and our direct examination of eParticipation systems. The chapter is organised as follows: Sect. 13.2 examines the main achievements and limitations of EU programmes in relation to the practice and theory of eParticipation, Sect. 13.3 diagnoses some of its most pressing challenges and Sect. 13.4 provides some final recommendations to enhance the effectiveness of future European eParticipation actions.

13.2 Assessment: The Unsettling Development of eParticipation

eDemocracy is defined as “the support and enhancement of democracy, democratic institutions and democratic processes by means of ICT” (CoE 2009). Its transformative potential is being increasingly acknowledged by governments and international institutions. The development of eParticipation is, however, proving to be harder and slower than expected. Over the past years, many experiments have been carried out worldwide that intended to use ICT to strengthen democratic processes (Peart and Ramos Díaz 2007; Coleman and Kaposi 2009), but their overall impact has been quite modest. This is not surprising: many different challenges and barriers that hinder eParticipation's advances have been identified, including political, organisational, technological, legal, economic, social and cultural hurdles (CoE 2009; Prieto-Martín 2006b). To help to deal with these challenges, the EU has promoted several eParticipation programmes as part of its research agenda. The fifth, sixth and seventh framework programmes, the eTEN and the ICT-PSP programmes and the eParticipation Preparatory Action have funded many eParticipation development, trial and deployment actions (Chrissafis and Rohen 2010). Since year 2000, the EU

has thus financed at least 74 projects in this field, whose total cost amounted to 187 million euros (European Union 2011). These aimed to address very different goals at the local, regional, national and European levels by applying various technologies and methodologies. As it is usual in EU funding programmes, the execution of the projects was mostly channelled through consortia, which were created ad hoc to implement each project and included governmental, academic and business partners coming from several EU countries. The Network of Excellence for eParticipation Research DEMO-net¹ was established in 2006 with 6 million euros funding and was later complemented with research and evaluation studies—like the European eParticipation study,² MOMENTUM³ and CROSSROAD,⁴ and with further initiatives to establish networks of eParticipation stakeholders and experts like Pep-Net.⁵ In addition to funding pilot and demonstration projects, the overall aim of the EU programmes was to strengthen and consolidate the research landscape, bring together key stakeholders and enable a structured cooperation. These objectives have indeed been achieved: an active scientific and practitioner community has emerged, which is made up of academia, governments and solution providers (Molinari 2010) and actively exchanges ideas, practices and tools through informal networks and joint projects. Several journals and international conferences are now devoted to eDemocracy, and important studies and reports were published to disseminate eParticipation knowledge to political actors and the citizenry (Albrecht et al. 2008; CoE 2009; European eParticipation 2009e).

13.2.1 Practical Achievements of eParticipation Actions

However, no systematic appraisal of the EU eParticipation actions, as a whole, has been performed so far. But a special evaluation effort was applied to the ‘eParticipation Preparatory Action’, a programme that supported 20 ‘real-life’ trial projects between 2006 and 2010 (Rambøll Management 2008; Chrissafis and Rohen 2010; MOMENTUM 2010). It is thus possible for us to depict its “archetypal project” as follows (MOMENTUM 2010): it involved seven different partners from four countries, including some academic, governmental and business partners. In some cases, NGOs or organisations with eDemocracy expertise were part of the consortium too. Each initiative typically tested its technological and methodological approaches by means of three pilot projects that were executed in three different countries. Trials were devoted to one or various issues with some kind of ‘transnational relevance’ and often incorporated a mix of offline and online activities.

¹ <http://www.demo-net.org/>. Accessed 10 Oct 2011.

² <http://islab.uom.gr/eP/>. Accessed 10 Oct 2011.

³ <http://www.ep-momentum.eu/>. Accessed 10 Oct 2011.

⁴ <http://crossroad.epu.ntua.gr/>. Accessed 10 Oct 2011.

⁵ <http://pep-net.eu/>. Accessed 10 Oct 2011.

The project focus was on experimentation rather than on supporting theoretical research. Development effort was limited, with most projects merely adapting or integrating several existing technologies, like a CMS, data mining and a visualisation tool, into a Web site. Each project lasted 2 years, had a medium cost of 715,000 euros, and paid special attention to promotion and dissemination actions like press releases, social networks and event organisation. The number of participants was however very low compared to the expectations, with just 450 registered users that submitted around 1,300 contributions (posts or signatures on petitions). The trials also failed to attract the interest of representatives and decision-makers and rarely had any measurable impact on the policy.

The evaluation reports mentioned above are unanimous in regarding the projects, as well as the whole Preparatory Action, as a success. And indeed, the trials have supported wide-ranging practical experimentation and helped to improve some valuable eParticipation platforms (like Gov2DemOSS,⁶ Demos@work,⁷ and CitizenScape⁸). But a critical reading of the project deliverables and evaluations, as well as the direct interaction with the systems, does not paint such a flattering picture. Some recurring deficiencies in many of the trials suggest that there are systemic problems in place, which need to be honestly acknowledged in order to increase the effectiveness of future eParticipation programmes. In this section, we will briefly mention just some examples of the technical, organisational and evaluation issues, which will serve as a basis for diagnosis in Sect. 13.2.

Project reports and deliverables claim that state-of-the-art technologies are being used, but the eParticipation systems were normally built upon tools and features that had already been available for several years, mostly as general purpose tools not specifically designed for eParticipation (Panopoulou et al. 2010). Based on our analysis, very short development cycles, multi-language pilots and a failure to integrate ‘agile’ development methodologies made the systems error prone, with many minor bugs reaching production (not working hyperlinks, missing documents, issues with some browsers, obscure error messages, news section with no date stamp, wrong or mixed translations, etc.). The sites’ layout and logical structure are often confusing for a casual visitor, especially when the project integrated different tools into one site. Web 2.0 mindset and tools (Chadwick 2009), though often trumpeted in the project plans, have not been successfully integrated into the systems’ design and into the participatory methodologies (CitizenScape 2010a). For example, the decision to pre-establish the discussion topics (CitizenScape 2010c) clearly contradicts the most basic Web 2.0 notions. As a result of all this, pilot Web sites look quite rigid and unappealing, lacking the friendliness of modern successful sites. Even in cases where an administrator keeps regularly posting updated information, the discussion or petition areas may seem to be non-operational when a ‘critical mass’ of participation

⁶ <http://www.gov2u.org/gov2DemOSS/index.htm>.

⁷ <http://www.demosatwork.org/>.

⁸ <http://citizenscape.org/>.

is not achieved, as is frequently the case. Consequently, it should come as no surprise that few users make a real and continuous use of the sites: why should they be willing to invest their scarce time and energy in an unfriendly Web if it does not even clearly state how or even whether their participation will have any influence on the policies at hand? In many cases, indeed, the projects had not devised any process to ensure political impact. Moreover, getting familiar with a system, extending its user base and building trust in a novel participatory avenue always take time (De Cindio and Peraboni 2009; CitizenScape 2010b). The very short period stipulated to complete all project's activities made it very hard to achieve those objectives. And hard becomes impossible when we recognise that each pilot is executed in a different country and the whole project is managed by a big international consortium, which needs to devote much energy to coordinate its work and to comply with the bureaucratic requirements associated with EU grants (European Commission 2010). Although the support action MOMENTUM was introduced to monitor and coordinate the projects and to consolidate their results, significant overlapping of the methods, concepts and tools tested by the projects could not be avoided (Ferro and Molinari 2010).

It is also interesting to notice that project owners frequently stated accessibility levels that were not attained (MOMENTUM 2010, pp. 141–142). For example, project FEED (2009) claimed an AAA level, but according to experts working in the MOMENTUM evaluation tasks, not even A was reached. Considering that accessibility is just one of the 69 requirements established for the FEED system (FEED 2009), the following disturbing question arises: how many of the projects' planned requirements and aims were really completed? It is difficult to evaluate this kind of question because many projects' deliverables are not available for public scrutiny. What is more, project evaluations are frequently performed by the project managers or are based on interviews and workshops attended by them. Reports thus tend to be rather shallow and self-indulgent, and disregard the examination of uncomfortable questions. For example, when measuring the achievements of the Ideal-EU project (2009), the registered and active users at its "Social Platform" are counted, as well as the visits to the site (Ideal-EU 2009), but no analysis is performed on the visits' high bounce rate (72%) or their very low permanence (less than 2 min), which could indicate a failure of the platform to achieve its aims. In order to assess user satisfaction, ease of use and perceived system's utility, most projects relied on surveys applied to system users, which invariably showed reasonable satisfaction levels with system's functionalities. It was not taken into account that such surveys are biased and do not show the real appreciation of the target users: to understand the systems' very low rate of participation, insights on the opinion of "those who chose not to participate" would have been more valuable. One final example: despite requests to "incorporate rigorous evaluation and cost-benefit analysis into all [eParticipation] implementation and research initiatives" (European eParticipation 2009e), no report has ever mentioned the fact that, based on the data provided by MOMENTUM (2010), the cost of each users' contribution was around 550 euros. This figure is too high, especially when compared with systems operated by non-governmental organisations whose technical standards

and operational efficiency tend to be much higher (Albrecht et al. 2008). Most of the trials were clearly conceived to last just as long as the funding lasted, and even if many projects included deliverables analysing its future sustainability, we are afraid that the political and social impact, scalability and sustainability of these systems seem questionable.

To close this section, which assessed the practical achievements of eParticipation actions, it should be noted that subsequent EU's eParticipation calls, included under the ICT-PSP and FP7-ICT programmes, continued with the trend we just showed. The calls' provisions and guiding principles have not changed much, and, actually, most of the leading institutions behind the analysed projects are currently implementing projects under the new calls. Many of the reflections we have presented maintain therefore their validity for the present moment. Current projects pay indeed much more attention to scalability and attempt to take advantage of citizens' interactions in the existing social networking services, like Facebook, to support the policy formulation processes, instead of inviting them to visit government Web sites. But their organisational and institutional arrangements are essentially the same. The most visible difference would actually be the projects' size: the 14 projects approved in 2009 and 2010 have increased their average cost to 2,775,000 euros (European Union 2011).

13.2.2 Theoretical and Academic Achievements

eParticipation, understood in a broad sense as "ICT-enhanced civic engagement that empowers citizens to influence political decisions", is considered a very dynamic and transformative area with a capacity to disrupt existing power balances (Punie et al. 2009). In Europe, it has been regarded as an "emerging research field". As we mentioned before, in the last years, several European initiatives have contributed to the consolidation of this field as a scientific and research domain (Panopoulou et al. 2009, 2010; Albrecht et al. 2008; CoE 2009; European eParticipation 2009e). A big share of recent eParticipation research papers has been linked, in one way or another, to these initiatives and EU's eParticipation trials.

However, recently published literature reviews, which analysed several hundreds of scientific articles related to eParticipation (Sæbø et al. 2008; Freschi et al. 2009; Medaglia 2007; Sanford and Rose 2007), give us reasons for concern. They depict eParticipation as an incipient field still characterised by fragmentation and lack of common definitions, theories, methods and tools. Its research and reporting standards are quite low, with a large share of research consisting of 'anecdotal' and speculative case studies, with little theoretical foundation and no comparative value. All relevant 'agendas' of research, theoretical, methodological, normative, instrumental, technological, descriptive and evaluative agendas are reported to be underdeveloped. Despite the significant amount of public resources invested to support trials and experiments, the field does not seem to have advanced as much as expected in the last years. Most initiatives apparently worked on their own to discover, once and again, a set of basic 'lessons learnt' that, in fact, should

better have been the projects' starting point. Some examples of these lessons are as follows: "eParticipation should be analysed in the context of other forms of participation; usability of the eParticipation Web sites as well as dedicated moderation of the sites are critical success factors; new media supplement traditional forms of participation rather than replacing them, and often reinforce the traditional patterns of participation; serious involvement of decision-makers throughout the participation process is a critical (and often missing) success factor; building trust with the citizens takes time; etc". (Freschi et al. 2009). Thus, we acknowledge that no real breakthrough or even any significant research milestone can be reported for the field (Sæbø et al. 2008; Freschi et al. 2009).

In an article that appraises the development of eParticipation over the last decade, Macintosh et al. (2009) reflect on what they call eParticipation "research gaps". Their aim is to identify the field's main challenges and barriers in order to establish future research directions. According to them, eParticipation research is suffering from being seriously undertheorised, with analysis lacking critical distance and conceptual clarity. Some basic elements that would be required to consolidate eParticipation as a functional research field, like agreed definitions for eParticipation, are still missing. They also acknowledge an "institutional and political resistance to introduce, use and act on eParticipation applications", as well as frequent methodological shortcomings in the research designs that, all the same, tend to focus upon government initiatives and undervalue the importance of spontaneous participation driven by citizens and pressure groups. No clear demarcation has been established between the conduct of eParticipation and its study: the same team that designs, promotes and manages a project is often responsible for observing, researching and reporting on it. Traits like disinterestedness and critical distance, which are essential for researchers to question the political, technological and cultural assumptions upon which projects are based, are thus often missing. Nevertheless, the most pressing and important challenge of the field is the fragmentation and dispersion of research, which is considered responsible for triggering a number of other obstacles. This fragmentation is closely related to the interdisciplinary character of eParticipation, which has a very technical foundation but at the same time encompasses mainly political, cultural and social implications. Consequently, its research is necessarily linked to a wide range of disciplines, like democratic theory; political science; and communication, information and technology studies. But alas, literature reviews show that interdisciplinarity is not really working: cross-fertilisation between disciplines is still rare (Freschi et al. 2009), and works that refer several disciplines do not as much combine them, but gather them together. Even though all eParticipation researchers no doubt praise interdisciplinarity, "paying more than lip service to interdisciplinary research" (Westholm and Wimmer 2007) continues to be too hard a challenge.

It must be recognised that the eParticipation scientific community has done a hard work trying to establish methodological, analytical and theoretical frameworks for the field, as well as providing ontologies and evaluation models, which aim to guide research, design and practice (Lippa 2008; Westholm and Wimmer 2007; European eParticipation 2009a). But the fact is that these frameworks are still too

exploratory and it is difficult to apply them to “real-world” initiatives (Aichholzer and Westholm 2009). eParticipation research seems thus to be trapped in a kind of vicious cycle: since there are no truly functional eParticipation systems or experiences, it is difficult to research empirically or to perform comparative analysis to test hypotheses, but at the same time, the lack of clear concepts and theories means that experiences’ and systems’ designs are not adequate.

Propelled by the boom of social networks, the autonomous advances in eParticipation practice are speeding up, and eParticipation research and theory may soon not be able to keep pace with them (Handler et al. 2008). Experts are increasingly conscious that the approaches used by governments for promoting and implementing eParticipation need to change, and are making different proposals as to what should be done (e.g. Charalabidis et al. 2010; Maier and Reimer 2010; Johnston 2010; Howe 2009; Bruns and Swift 2010). But the sole willingness to reform, if not informed by a proper understanding of “what went wrong and why”, may very well leave the problems’ root causes untouched. For this reason, the next section will present some institutional and holistic explanations that partially account for the current situation and thus illuminate the best ways to move forward.

13.3 Diagnosis: Untying eParticipation Troubles and Challenges

Our assessment of eParticipation theory and practice suggests that some of the problems that have hampered its progress have a systemic, overarching character. Handling this kind of “elephant in the room” issue is always problematic, as their very existence tends to be denied because of their complexity or the embarrassment they cause and, as a result, they cannot be acknowledged or discussed. This ‘diagnosis’ section will concentrate on identifying and illuminating some of these “relevant but unspoken” problems as a way to complement and deepen the valuable reflections previously referred. To enquire how these problems relate to each other and how they contributed to lower the profile of eParticipation research and practice, the assumptions of eParticipation researchers, practitioners and promoters will need to be scrutinised and challenged.

13.3.1 The Missing Foundation of the eParticipation Research Domain

As odd as it may sound, most problems of eParticipation’s research and practice, as well as most of the paradoxes afflicting eParticipation as a scholarly domain, are ultimately related to a very special repeating decimal, whose relevance has not been sufficiently recognised, so far, by the eParticipation scientific community: 0.076923.

This rational number expresses the mathematical relation existing between the ‘e’ and the ‘participation’ portions of the term ‘eParticipation’, as measured by their

amount of letters: one thirteenth (1/13). This means that 92.9% of the domain's name corresponds to 'participation', while the 'e' represents just a 7.1% of its extension. Based on these figures, the natural expectation would be that eParticipation, as an academic domain, would maintain a close and privileged relationship with the participation (or 'civic engagement') domain (Brodie et al. 2009). In fact, it would make a lot of sense to consider eParticipation as a sub-domain of participation—a sub-domain which concentrates its research on those specific issues related to the utilisation of ICT for participation while relying upon the bigger, older and more developed domain for all the rest. This way, it would not be necessary to create for the field, from scratch, a whole corpus of concepts, theories, methods, evaluation approaches, etc. By accepting all knowledge on 'participation' as its own legacy and inspiration, the new field would not need to solve on its own issues that are probably better approached from the main field. After identifying its specific areas of competence, those where eParticipation can comparatively offer more value, a lot of creative cooperation and knowledge exchange between researchers and practitioners from the core 'participation' field and the peripheral 'eParticipation' field would be easily attained.

Let us take, for example, the problem of fragmentation of research that was mentioned as the main barrier for the eParticipation domain. Interdisciplinarity is not a problem restricted to eParticipation, but rather an issue that has affected the whole participation domain for decades. With the emergence of the Internet, new ICT domains need to be added to this interdisciplinary landscape. Nobody doubts that ICT components are acquiring a critical relevance for the development of the field. Public participation without an 'e'-backing will soon become a 'contradiction in terms', as any participatory exercise will need to include some 'e(lectronic)' supporting infrastructure. Consequently, the eParticipation scholars' task of articulating these new ICT fields into the main domain is truly essential. But in order to accomplish this mission, they need to comprehend and leverage all previous knowledge about participation and interdisciplinarity. Ignoring these advances would lead to a situation like the one described in the previous section.

Paradoxically enough, the analysis of last years' eParticipation experiences and literature reveals some kind of undeclared attempt to develop the eParticipation domain as if the 'citizen participation' domain would not exist. From the moment it emerged, eParticipation was presented by its proponents as a new and eclectic research field that brings together a number of different disciplines, fields and research areas (Sæbø et al. 2008; Macintosh and Coleman 2006), with frequent mentions to sociology, political sciences, law, information systems, psychology and social sciences (Freschi et al. 2009). But very rarely, 'participation' or 'civic engagement' is mentioned as a research field that requires consideration. It could be argued that this kind of relation goes without saying and does not need to be explicitly mentioned. But this seems dubious. In fact, the special connection between the fields should be one of the initial topics to be clarified in any attempt to establish eParticipation as a (sub-)research field. It is remarkable that the relationship of eParticipation with the eGovernment domain is more frequently mentioned than the linkages with the participation field. Article selection strategies

used to perform literature reviews are also revealing, as they tend to exclude any work on participation that does not include ‘e’, ‘electronic’ or ‘eGovernment’, no matter how relevant its theories and methods could be for the (e)Participation area (Freschi et al. 2009; Sæbø et al. 2008; Sanford and Rose 2007).

What is more, the weaknesses that literature reviews have repeatedly attributed to most eParticipation works, like conceptual vagueness, dominance of descriptive approaches and lack of theoretically grounded contributions, are at best explained as resulting from a poor understanding of the problems and dynamics associated with traditional ‘offline’ participation. Thus far, the most important theoretical influences in eParticipation literature came from political philosophy and political science, mainly referring to the Habermasian ideal of a deliberative public sphere and to theories on democracy models (Sanford and Rose 2007; Macintosh et al. 2009). This kind of ‘romanticised’ and rudimentary understanding of participation has contributed to narrowing the debate and has burdened eParticipation research and practice with unrealistic assumptions (Chadwick 2009), which are in turn partially responsible for the unsatisfactory results obtained so far.

The participation field has indeed a lot of useful concepts, theories, methods, etc. that could benefit eParticipation researchers, if only they cared enough to read further, but these understandings have so far been just partially and inconsistently transferred to the eParticipation literature (Sæbø et al. 2008). Most of the knowledge developed lately [in the areas of participatory processes’ evaluation, typologies of public engagement mechanisms, or the critical appraisal of participatory governance schemas, to name but a few (Cornwall et al. 2008; Gaventa and Barret 2010; NCDD 2009; Parés et al. 2007; Prieto-Martín 2010; Pruitt and Thomas 2007)] has a direct application for the eParticipation domain and should be strongly considered for future attempts. This need to reach out becomes even more apparent when one considers that the own European Union has been investing a lot of resources to develop this field, as part of its socio-economic sciences and humanities (SSH) programme. Within the last 10 years, we could identify at least 37 projects with direct relation to the (e)Participation field, with a total investment of around 74 million euros (European Union 2011).

13.3.2 The Founding Biases of a Brave New Domain

How could it be that the insights and expertise coming from such an adjacent and crucial domain have not been properly considered and leveraged by the eParticipation community more than 10 years after the first EU’s eParticipation initiatives were launched? In our view, the most revealing explanation is the one that regards innovation support programmes as “path-dependent” processes, much influenced by phenomena like institutional inertia and self-serving and self-reinforcing dynamics (Pierson 2000; Sydow et al. 2009). Path dependency means that choices made on the basis of transitory conditions can persist long after those conditions change. In order to understand the present situation, it is thus necessary to pay attention to past conditions and choices, rather than simply

looking at current conditions and preferences. In regard to the eParticipation research field, it is critical to consider how its first seeds were sown and, equally important, by whom.

The first European eParticipation projects were started in the late 1990s long before terms like eDemocracy, eParticipation or social software became fashionable. These initiatives were mainly funded as part of EU's eGovernment research agenda, which had a marked technical and academic character. Not surprisingly, the initial projects were thus implemented by scholars and companies that were formerly working in eGovernment and eBusiness fields, who already had experience of working in EU research programmes and were willing to transfer their knowledge and expertise to the incipient and promising eVoting and eDemocracy fields.

eGovernment policy has for a long time been characterised by its focus on individualistic service delivery, a technocratic top-down approach and a proclivity towards system deployment without much previous theoretical reflection and a measurement strategy based on supply-side benchmarking of eServices availability and sophistication (Verdegem et al. 2010). eGovernment has thus traditionally lacked the user centricity and the broad understanding of governance (Zouridis and Thaens 2003) that underlie eParticipation as a research field. And indeed, most of the institutions that first 'colonised' the eParticipation field had less knowledge and/or research experience in relation with the socio-political dimensions surrounding democratic and participatory practices, and were also lacking in connections with social movements, participation practitioners or elected representatives, the stakeholders more interested in benefiting from the incorporation of ICT into their participatory practices. The way in which "[eGovernment and eParticipation initiatives] are implemented and the factors that might be used to evaluate their success should be significantly different. In this respect, eGovernment and eDemocracy are incompatible processes that should be subject to very different strategies" (Pratchett 2006). As eParticipation is "counter-cultural to the prevailing ethos in eGovernment" (Scherer et al. 2008), it is not surprising that the initial initiatives did not properly consider 'participation' and its troubles: the social, political, organisational and technology issues associated with public engagement contexts were rarely integrated in a holistic view of the design, application and research of eParticipation technologies (Macintosh et al. 2009). Thus, European programmes were not able to promote a 'citizen-oriented/people-empowerment-centred' eParticipation. Instead, they adopted a 'government-oriented/tools-centred' approach which envisaged civil society as an 'external factor' (European eParticipation 2009e), asymmetrically focused on government-driven eParticipation and did not succeed in devising "analytical frameworks that took into account the values and preferences of the various stakeholders and civil society groups involved in eParticipation" (Freschi et al. 2009).

In this way, European eDemocracy experiments were typically "more aligned with the requests and requirements of formal political bodies than with those of citizens' and civil society organisations" (Maier and Reimer 2010), even though these actors have shown that their initiatives are more innovative, agile and mobilising than top-down projects initiated by governments (Albrecht et al. 2008). As Stephen Coleman expressed, it in a speech: "If you had asked me

10 years ago, I would have said very firmly: ‘we need government to take the lead in this area’. I now do not think that anymore. Cause I’ve watched government trying to do it. I take the view that the best initiatives always come from citizens themselves. And the best two things governments can do are: first, get out of the way; second, give them some money. . . In reverse order” (Coleman 2006).

Despite the increasingly perceived need to change the research approach and partners, the institutional inertia affecting innovation programmes made it difficult to attend any call to align eParticipation research and funding with citizens and civil society needs (Prieto-Martín 2006a). It has taken several years till projects like CROSSROAD gain enough momentum as to propose essential changes in the ways ‘ICT research in Electronic Governance’ is conducted (CROSSROAD 2011, 2010). CROSSROAD final deliverables overtly recognise, for example, that the current public support programmes do not match the rapidity of today’s innovation processes, do not remunerate novel and risky ideas, do not take into account the citizen’s (end-client) views, are too technology-led and tend to favour bigger and more experienced organisations rather than the best ideas and implementation. The aforementioned ‘ministerial declaration on eGovernment’ calls now, similarly, for an “active collaboration with businesses, civil society and individual citizens in order to develop user-driven eGovernment services” (European Commission 2009). It is thus becoming more and more clear that “traditional policy tools to stimulate public innovation do not work very well in the context of 2.0 public services” (Osimo 2009), where innovation is very much bottom-up, emergent, design-driven, serendipitous and multidisciplinary.

This kind of problem affects not only eParticipation but also many other research fields; however, because of its multidisciplinary, nascent and disruptive nature, eParticipation arises as one of the fields that better expose the limitations of the broad European innovation landscape. In fact, it is the entire European ‘research and innovation funding programmes’ which are currently being scrutinised as part of the ‘Europe 2020 strategy’. The ‘green paper’ recently presented by the EC to launch the overhaul of its funding programmes openly recognises that existing instruments are too complex, over-bureaucratic and lacking in transparency (European Commission 2011a). It also acknowledges the limitations of collaborative networks of researchers “in achieving the necessary flexibility, creativity and cross-disciplinary research needed”. On its part, the seventh framework programme interim evaluation recommends that the research agenda is set by Civil Society Actors for those areas mostly related to ‘society’, like eParticipation (European Commission 2010). The next years will show to what extent this new awareness is translated into meaningful policy changes. Aiming to support this reflection process with practical observations, we now finalise this ‘diagnosis’ section by identifying some dynamics and characteristics of EU programmes that, in our view, have contributed to lowering the profile of the eParticipation research field.

13.3.3 The Stick or the Carrot: Framing (Dis)Incentives

In marketing, as with innovation policies, two basic approaches can be used to develop a ‘market’, namely push and pull strategies. Pull strategies attempt first to understand final users’ characteristics and needs as a basis for tailoring the products to their necessities, and then try to motivate users to demand these products from the ‘providers’. Push strategies, on the contrary, concentrate the incentives on distributors, stimulating them to provide users with the products that better suit the producer’s interest. European innovation policies have traditionally followed this kind of top-down ‘push strategy’: the research aims and the range of expected results are established upfront, conditions to access the funding are determined, and thus a certain kind of participants, in most cases, established organisations with resources allocated to write proposals and cope with EU programmes’ bureaucratic requirements (CROSSROAD 2011), is commissioned to provide the research products, which are later fed to the final users.

But money is not the most relevant factor in order to promote Web 2.0 and eParticipation initiatives. No matter how much public funding is made available, it will not stimulate innovation if it is not channelled in a way that is consistent with the research topic and with the objectives, motivations and the environment in which the domain’s ‘trendsetters’ operate. Moreover, the availability of too much money could be counterproductive, as it often “attracts the wrong kind of applicants, the opportunists, and the consultants able to build any kind of project by paying lip service to the right buzzwords” (Osimo 2009). Hence the way in which monetary as well as non-monetary incentives are framed to align the stakeholders’ efforts and to catalyse advancements is by far more important than “how much” funding is pooled. Our previous assessment section evidenced that EU’s mechanisms have not been very successful in attracting and incentivizing the assortment of projects and participants that would have been required to boost innovation despite having invested millions of euros. During the last decade, most government-driven eParticipation projects have typically shared several important weaknesses (Charalabidis et al. 2010), like topics being distant from people’s priorities, Web sites unknown to the general public, tools not appropriate, methodologies not scalable, usage much lower than expected, very limited impact, poor evaluation, unrealistic assumptions all-around, etc. The assessment section provided examples of these kinds of generalised and systemic problems, which seem to derive from a severe inconsistency between the constraints established for the projects and the character of the field being supported. Important project characteristics, like the project size and duration, the multi-country consortium requirements, the kind of partners involved, the dispersedness of the trials or the focus on ‘experimentation’ disconnected from theoretical research, are better understood as an expression of EU programmes’ idiosyncrasy than as a conscious attempt to align the programme incentives with the state and characteristics of the eParticipation field.

Thus, the ‘push strategy’ dominated and forced the eParticipation “cart to be put before the horse”. At the same time, our investigation of several critical project

dimensions, like sustainability, scalability, replicability and comparability of the tools and experiences developed, concluded that they were not properly considered, what in turn seriously hampered innovation and scientific progress in the field. For example, one common complain about eParticipation experiences is that they differ so much that it is very difficult to perform empirical and comparative research. This ‘inherent difficulty’ is worsened because of the soft spot EU programmes have for multi-country consortiums. These consortia frequently implement their pilot projects in distinct countries, and, as a result, their topics, partners, methods, resources, etc. are all different. In many cases they diverge so much that even the comparison of trials within the same project becomes “like comparing apples and oranges” (Aichholzer and Westholm 2009). The projects’ short duration and the focus on initiatives and consortia that depend on the funding to remain operational prevent the projects from nurturing the trust and learning processes that eParticipation requires to blossom (De Cindio and Peraboni 2009; CitizenScape 2010b) and also make longitudinal research impossible (European eParticipation 2009b).

Innovation in ‘ICT for Governance’ fields, like eParticipation, has been characterised as being demand- and user-driven, highly multidisciplinary, serendipitous, and tightly amalgamated with research; all of them are characteristics which are “not always fully compatible with an existing FP7 type of research” (CROSSROAD 2011). Attracting the best innovators and researchers for the field and motivating them to perform superbly require funding programmes that provide them with appropriate lures and bridles. But the “sticks and carrots” supplied by the existing mechanisms have not been framing incentives fittingly nor have been really attracting the right kind of innovators (Osimo 2009).

eParticipation is certainly an area that would benefit especially from the involvement of creative ‘activist-researchers’, heartily committed to advance and develop their projects and the field “no matter what”, even if this means setting aside their own personal interests. But current funding programmes appeal more to scholars and a kind of ‘consultant-researchers’. As we analysed in the assessment section, project managers in EU programmes are often not just responsible for writing the project proposals, designing, promoting and managing the project, and coordinating the consortia, the partners and the stakeholders. They are furthermore expected to observe, evaluate, research and report on the whole project. As a result, participants frequently have “difficulties in distinguishing between areas of their work in which they were establishing and running eParticipation projects and aspects of their work in which they were researching such projects” (Macintosh and Coleman 2006). Researchers are clearly burdened with too many and too conflicting responsibilities: they are asked, on the one hand, to manage the projects ‘successfully’, but on the other hand they are requested to critically report on the projects’ failures and mistakes. The kind of hands-on ‘activist-researcher’ we previously mentioned, when confronted with some unexpected problem, is motivated to openly acknowledge the issue, as the best way to trigger a change of route, quickly adjust the system and its procedures, and thus continue advancing with no delay. “Build early and fail fast to succeed sooner” is a mantra for Web 2.0 entrepreneurs (CROSSROAD 2011, p 29). But confronting failure is much more difficult for ‘consultant-researchers’, as

they are committed to fulfilling the project plan and do not want to jeopardise their future funding and/or their academic publications. If the project ends up not fulfilling its objectives, they will need to recognise it, but there is always enough room in evaluations to present additional reasoning and evidence that justify a moderate satisfaction with the poor results obtained.

Actually, one of the most important obstacles for the development of eParticipation as a scientific domain is the virtual inexistence of sound evaluations. Although its need has been stressed for years, “evaluations are very rare and, at best, carried out in a methodologically questionable manner, so that there is neither well-founded knowledge of success factors nor any quality standards” (Albrecht et al. 2008). The first reason for this underdevelopment derives from the intrinsic difficulty of evaluating eParticipation: all evaluation methodologies that have been proposed so far are quite complex and have not provided satisfactory results (Aichholzer and Westholm 2009; Panopoulou et al. 2010). But the aforementioned ‘misaligned and conflicting incentives’ provided by the innovation support programmes have also contributed to strongly aggravate this problem. Not just because of the practice of commissioning the project’s evaluation to someone affected by conflict of interest, the consortium responsible for implementing the project, generally, but also because the research programmes have frequently not demanded, nor, consequently, really desired, critical and insightful evaluations as a standard tool to measure the cost-effectiveness of the investments performed.

13.4 Treatment

The aim of the previous section was to diagnose the most relevant weaknesses and problems of EU-funded eParticipation and thus focused more on ‘lacks’ than on ‘haves’. Needless to say, there were also remarkable experiences and projects that offered a significant ‘value for investment’ like the CitizenScape project (CitizenScape 2010a, b) or Pep-NET, a network of eParticipation practitioners and researchers swarming around a collaborative blog. But it must be acknowledged that, in general, the innovation environment promoted by the EU was not conducive to incentivize similar good results. The objective of this “treatment” section is to present several recommendations for improving the research and innovation policies in this field, based upon our previous assessment and diagnosis.

As we have mentioned before, during recent years, a lot of self-questioning has been already happening in Europe. In fact, the European Commission is currently appraising and reframing the whole European research and innovation programmes. The aim is to develop a radically new approach to EU’s research and innovation funding (European Commission 2011b), “bringing together current funding instruments under a common strategic framework that will offer a seamless set of financing instruments, supporting the whole chain from blue sky research to demonstration and financing of SMEs”. A key element of this strategy will be a radical simplification and harmonisation of procedures, as well as a stronger focus on tackling societal challenges (European Commission 2011a, b).

And indeed, a great deal of reflection has been specifically devoted to the eParticipation field. We want to stress the relevance of four far-reaching studies that aimed to orient public action in the eParticipation domain. They are as follows: (1) the ‘recommendation on electronic democracy’ (CoE 2009); (2) the study on the ‘electronic participation of citizens and the business community in eGovernment’ (Albrecht et al. 2008); (3) the ‘study and supply of services on the development of eParticipation in the EU’ (European eParticipation 2009c, d, e); and finally, (4) the ‘participative roadmap for ICT research in electronic governance and policy modelling’ (CROSSROAD 2010, 2011). These studies concur in their general analysis and conclusions, like considering that eDemocracy should be inclusive, deliberative and empowering; that its focus should not lie so much on technology but on ‘democracy’ and its many stakeholders; that it is necessary to integrate electronic and non-electronic forms of democratic engagement; etc. All studies come to evidence the unsatisfactory development of the field, and together supply more than 70 wide-ranging guidelines and recommendations for policymakers; many of these recommendations are, again, aligned among the studies.

Their most important conclusion, for the purposes of this chapter, is the corroboration that current European funding models are not working well for the eParticipation field. Research in such rapidly developing, complex and demand-driven applied research fields cannot be planned linearly (CROSSROAD 2011). But European instruments are characterised by tedious bureaucratic procedures, long selection processes and lengthy documents required to be submitted. They thus tend to favour bigger, established research organisations, grouped in wide international consortia rather than the agile and small ‘pioneer organisations’, which are garnered with the best ideas and are capable to plough and harvest the serendipitous innovation that characterises the domain (CROSSROAD 2011; European eParticipation 2009c). European programmes have also favoured a top-down vision of eParticipation, much centred in one-shot government-oriented initiatives, which rarely generate ground-breaking advancements because of their lack of technical competence and because of the strong level of administrative and political coordination required, that hinders innovation (Albrecht et al. 2008). In such a context, existing mechanisms must be reformed and complemented with more flexible and open funding models, applied to both basic and applied research (CROSSROAD 2011).

Thus, the policy recommendations demand the creation of “specific funding programmes that tap the innovative energy of NGOs”, ensuring that low-level financial support is available to innovators on the periphery and funds are not monopolised by the major research centres (European eParticipation 2009b, c). Many of these initiatives suffer from limited visibility and face funding problems to ensure sustainable operations (European eParticipation 2009e; Albrecht et al. 2008). The EU should devise mechanisms for identifying and supporting such exceptional initiatives and help to subsidise the creation and experimentation with new system and tools which could then be replicated (European eParticipation 2009e). Governments should be proactive in order to integrate, and eventually

support, bottom-up social innovation initiated by emerging actors, like individuals, civil society organisations, start-ups and civil servants (Punie et al. 2009).

Since Web-based innovation does not require extensive investment, it is now possible, even in the case where no public funding is available to start up projects with small development teams and tiny budgets that can be presented to financiers as a ‘proof of concept’. Through competition-based funding, the innovators and researchers can be incentivized to achieve stretching targets through the prospect of securing a financial award (European Commission 2011a), a follow-up grant, a temporary fellowship or some kind of institutional support for the project. Public funding should thus be used to encourage the creation of basic prototypes, and subsequently to integrate the best ones in a multi-staged process of improvement, deployment, replication and sustainability, conditioned to the achievement of progressively more demanding outcomes. In this way, small grants could be given to a large number of applicants to enable them to develop advanced prototypes of the proposed applications, and following waves of funding would only be available for the most promising applications. This kind of “create-then-fund” mechanism makes money follow results, not the opposite, crowding away the “experts in proposal writing” and attracting the innovative “doers” (Osimo 2009; CROSSROAD 2011). These instruments allow much open-ended innovation, as they do not normally demand any specific solution but simply define the problem to be solved. With no money provided upfront, they reward the best actual result and not the best-written proposal, and thus “open up the often self-referential circles of government-funded projects” (CROSSROAD 2011).

Governments are finally encouraged to help establish and/or support independent and trusted third party services for eParticipation, better than attempting to run them on their own (Albrecht et al. 2008; Millard and Meyerhoff Nielsen 2010). This way, the credibility and neutrality of the participatory processes are increased, encouraging public acceptance and wider participation, which are both necessary to get valuable outcomes. Governments should therefore provide and support frameworks for building citizen participation from the bottom, and maintain a strong commitment to participate in the citizen engagement process and to seriously consider its outcomes as potential policy initiatives, but avoid any attempt to directly control the eParticipation avenues (Bruns and Swift 2010).

Most of the recommendations provided by the studies are thus, overall, consistent with the analysis we have performed in previous sections. We would like, nevertheless, to supplement them with several succinct suggestions, which stem directly from the issues we highlighted in our diagnosis section.

Our first recommendation is quite obvious: in order to promote the development of the (e)Participation field, the EC should stop considering Participation and eParticipation as different things. They are not just the two sides of the same coin; in the twenty-first century, they are simply one and the same thing. If the (e)Participation dwarves hope to see farther than ever before, they must be willing to stand on the shoulders of the Participation giants. Existing research and project-funding silos need to be mixed together: EU programmes should encourage sociologists and political scientists to devote a significant part of their energies to

integrate ICT at the core of the citizen engagement initiatives they devise; correspondingly, technical and socio-technical researchers should not be allowed to impersonate participation practitioners, but forced to dialogue and partner with them. Experimentation needs to be linked to theoretical reflection and research: the strategy of ‘short pilots’ that the EU intensively promoted has proved unable to advance the field. Cross-disciplinarity must become real, and scholars need to recognise that academia cannot be the source of agile innovation in this field. Yet researchers, once released from the burden of having to design, manage and report on whole projects, can nevertheless play an essential role for maturing the eParticipation field, by acting as advisers, theorists, inquirers and evaluators of real-world eParticipation systems and experiences. The best way to make eParticipation research effective is to open it up to social innovators, giving them the lead and putting research and projects to the service of Civil Society needs (Prieto-Martín 2006a).

Accordingly, the EU would need to abandon its previous ‘push’ approach, in which it acted as the field’s biggest contractor and main driving force. It now needs to favour a ‘pull’ scheme in which the EU plays a supporting—but still essential—role. Instead of directly leading, the EU should become the ‘catalyst’ of the dialectical and endogenous change processes happening within the eParticipation domain. EU’s aim should paradoxically be “to achieve much more, by spending much less”. In order to achieve it, it should cultivate a profound understanding of the field and devise an innovation support framework that effectively articulates the various actors and aligns their incentives, with the explicit intention of shaping their behaviour towards an effective cooperation that truly advances the field. Each actor should concentrate their work in the areas where they have real value to add. Ideally, each actor should work in the topics that intrinsically motivate them.

A focus on impact evaluation is also required: the contributions of each actor need to be regularly assessed by independent evaluators with metrics that adequately measure their performance and impact (eGovMoNet 2010). Evaluations cannot just be a collection of hardly comparable measurements, which supposedly identify strengths, weaknesses and improvement opportunities, but finally fail to provide enough insight as to detect the projects’ core problems. Impact evaluations should, actually, be the foundation for decision-making; most particularly, the decision to continue or discontinue the funding of a project or an action within a project would be derived from the evidence concerning its impact. New data-driven evaluation models need to be devised, which go beyond the benchmarking strategies used to date in the eGovernment domain (Verdegem et al. 2010; eGovMoNet 2010), and are able to better capture and judge the goals and achievements obtained. To establish an ‘innovation environment’, the EU should remain open-minded, act agilely and be willing to partner with any institution that can provide relevant expertise and capacities.

Conclusions

All in all, what we have been describing so far in this chapter corresponds, to some extent, with an attempt to apply the notions of “positive deviance amplification” (Pascale et al. 2010) to the research and innovation support landscape. This approach requires that the “positive deviants” operating within a system are firstly identified. In our case, positive deviants are those institutions and individuals that already embody the kind of innovation and/or research excellence that the EU desires and that have results and working prototypes to show. The quality, the depth and the potential (especially in terms of scalability, sustainability and replicability) of these projects would need to be assessed. Then, the focus would be placed on increasing the visibility and impact of positive deviants by helping them to make their projects successful and facilitating the establishment of empowering partnerships for them.

In summary, what the EU needs to do is to commit itself, assume its responsibility for “putting the horse before the cart” and thus start acting as a catalytic force that stimulates eParticipation change makers, links them together and empowers them to boost their most relevant scientific and creative endeavours, both theoretical and applied. Only in this way, the EU will be able to influence, for the better, the holistic development of this crucial research domain.

References

- Aichholzer G, Westholm H (2009) Evaluating eParticipation projects: practical examples and outline of an evaluation framework. *Eur J ePrac* 7:1–18
- Albrecht S, Kohlrausch N, Kubicek H (2008) eParticipation – electronic participation of citizens and the business community in eGovernment. University of Bremen, Bremen
- Brodie E, Cowling E, Nissen N (2009) Understanding participation: a literature review. *Pathways Through Participation*, London
- Bruns A, Swift A (2010) g4c2c: enabling citizen engagement at arms’ length from government. *EDem* 3(1):57–69
- Chadwick A (2009) Web 2.0: new challenges for the study of e-Democracy in an era of informational exuberance. *I/S J Law Policy Inf Soc* 5(1):9–41
- Charalabidis Y, Gionis G, Ferro E (2010) Towards a systematic exploitation of Web 2.0 and simulation modeling tools in public policy process. In: Macintosh A, Tambouris E (eds) *LNCS 6229, proceedings of ePart 2010*. Springer, Lausanne, pp 1–12
- Chrissafis T, Rohen M (2010) European eParticipation developments: from ad hoc experiences towards mass engagement. *J eDemocr* 2(2):89–98
- CitizenScope (2010a) D2.1.2: monitoring and evaluation report. <http://citizenscope.org/consortium-area/wp3.3-project-management-coordination-liaison-with/deliverables>. Accessed 5 Oct 2011
- CitizenScope (2010b) D3.4: final report. <http://citizenscope.org/news/citizenscope-public-final-report>. Accessed 5 Oct 2011
- CitizenScope (2010c) Lessons learnt from CitizenScope Pilot trials. <http://citizenscope.org/news/lessons-learnt-from-citizenscope-pilot-trials>. Accessed 5 Oct 2011
- CoE (2009) Electronic democracy (e-democracy). Recommendation CM/Rec(2009), adopted by the Committee of Ministers of the Council of Europe. Council of Europe, Strasbourg
- Coleman S (2006) Democracy in the Internet age (speech). e-Governance Academy, Tallinn

- Coleman S, Kaposi I (2009) A study of e-participation projects in third-wave democracies. *Int J Electron Govern* 2(4):302–327
- Cornwall A, Romano J, Shankland A (2008) Brazilian experiences of participation and citizenship: a critical look. Discussion Paper. IDS, Brighton
- CROSSROAD (2010) Final roadmap on ICT for governance and policy modelling. http://crossroad.epu.ntua.gr/files/2010/02/CROSSROAD_D4.3_Final_Roadmap_Report-v1.00.pdf. Accessed 5 Oct 2011
- CROSSROAD (2011) Final policy recommendations on ICT for governance and policy modelling. http://crossroad.epu.ntua.gr/files/2010/02/CROSSROAD_D4.4_Policy_Recommendations-v2.00.pdf. Accessed 5 Oct 2011
- De Cindio F, Peraboni CF (2009) e-Participation at the urban level. In: Macintosh A, Tambouris E (eds) LNCS 5694, proceedings of ePart 2009. Springer, Linz, pp 112–124
- eGovMoNet (2010) D3.3: eGovernment monitor network, impact measurement methodology. eGovMoNet Consortium
- European Union (2011) Online database of EU research projects. <http://cordis.europa.eu/>. Accessed 5 Oct 2011
- European Commission (2009) Ministerial declaration on eGovernment. Malmö. <http://www.egov2009.se/wp-content/uploads/Ministerial-Declaration-on-eGovernment.pdf>. Accessed 5 Oct 2011
- European Commission (2010) Interim evaluation of the seventh framework programme. Report of the expert group. European Commission, Brussels. http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/fp7_interim_evaluation_expert_group_report.pdf. Accessed 5 Oct 2011
- European Commission (2011a) Green paper. From challenges to opportunities: towards a common strategic framework for EU research and innovation funding. Brussels. http://ec.europa.eu/research/csfr/pdf/com_2011_0048_csf_green_paper_en.pdf. Accessed 5 Oct 2011
- European Commission (2011b) <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/59&type=HTML>. Innovation – key issues for the European Council. European Commission, Brussels. Accessed 5 Oct 2011
- European eParticipation (2009a) D1.1: major factors shaping the development of eParticipation. European eParticipation Study. <http://islab.uom.gr/eP/>. Accessed 5 Oct 2011
- European eParticipation (2009b) D1.3: main benefits of eParticipation developments in the EU. European eParticipation Study. <http://islab.uom.gr/eP/>. Accessed 5 Oct 2011
- European eParticipation (2009c) D5.1: eParticipation recommendations – focusing on the European level. European eParticipation Study. <http://islab.uom.gr/eP/>. Accessed 5 Oct 2011
- European eParticipation (2009d) D7.5: final report. European eParticipation Study. <http://islab.uom.gr/eP/>. Accessed 5 Oct 2011
- European eParticipation (2009e) Summary report. Study and supply of services on the development of eParticipation in the EU. European Commission, Brussels. <http://islab.uom.gr/eP/>. Accessed 5 Oct 2011
- FEED (2009) D1.1: end-user characteristics and system actors. http://www.feed-project.eu/files/FEED_D1_1_End-user%20Characteristics%20and%20System%20Actors.pdf. Accessed 5 Oct 2011
- Ferro E, Molinari F (2010) Framing Web 2.0 in the process of public sector innovation: going down the participation ladder. *Eur J ePrac* 9:20–34
- Freschi AC, Medaglia R, Nørbjerg J (2009) eParticipation in the institutional domain: a review of research. DEMO-Net, Bergamo
- Gaventa J, Barret G (2010) So what difference does it make? Mapping the outcomes of citizen engagement. Citizenship, participation and accountability. IDS, Brighton
- Handler J, Shadbolt N, Hall W, Berners-Lee T, Weitzner D (2008) Web science: an interdisciplinary approach to understanding the web. *Commun ACM* 51(7):60–69
- Howe C (2009) Building the virtual town hall: civic architecture for cyberspace. Public-i, Hove
- Ideal-EU (2009) D6.9: final dissemination report. Ideal-EU Consortium

- Johnston P (2010) Transforming government's policy-making processes. Why encouraging more and easier citizen input into policy-making is not enough. *JeDEM* 2(2):162–169
- Lippa B (2008) eParticipation evaluation and impact. DEMO-Net, Bremen
- Macintosh A, Coleman S (2006) Multidisciplinary roadmap and report on eParticipation research. DEMO-Net, Bergamo
- Macintosh A, Coleman S, Schneeberger A (2009) eParticipation: the research gaps. In: Macintosh A, Tambouris E (eds) LNCS 5694, proceedings of ePart 2009. Springer, Linz, pp 1–11
- Maier E, Reimer U (2010) Process support for increasing participation in eParticipation. *J eDemocr* 2(1):46–55
- Medaglia R (2007) The challenged identity of a field: the state of the art of eParticipation research. *Inf Polity* 12:169–181
- Millard J, Meyerhoff Nielsen M (2010) European status of e-participation and what is needed to optimise future Benefits? Paper presented at the EDem 2010, Krems
- Molinari F (2010) On sustainable participation. In: Macintosh A, Tambouris E, Glassey O (eds) LNCS 6229, proceedings of ePart 2010. Springer, Lausanne, pp 126–139
- MOMENTUM (2010) D2.7: eParticipation projects consolidated results V.3. <http://www.ep-momentum.eu/LinkClick.aspx?fileticket=T8o4VgJp7oU%3D&tabid=57&mid=492>. Accessed 5 Oct 2011
- NCDD (2009) Core principles for public engagement. National Coalition for Dialogue & Deliberation, Boiling Springs
- Osimo D (2009) A short history of government 2.0: from cool projects to policy impact. In: Götze J, Pedersen CB (eds) State of the eUnion. Government 2.0 and onwards. 21gov.net, Copenhagen, pp 97–107
- Panopoulou E, Tambouris E, Tarabanis K (2009) eParticipation initiatives: How is Europe progressing? *Eur J ePract* 7
- Panopoulou E, Tambouris E, Tarabanis K (2010) eParticipation initiatives in Europe: learning from practitioners. In: Macintosh A, Tambouris E, Glassey O (eds) LNCS 6229, proceedings of ePart 2010. Springer, Lausanne, pp 54–65
- Parés M, Pomeroy M, Díaz L (2007) Observing the local participatory democracies. IOPD, Barcelona
- Pascale R, Sternin J, Sternin M (2010) The power of positive deviance. Harvard Press, Boston, MA
- Pearl MN, Ramos Díaz J (2007) Comparative project on local e-democracy initiatives in Europe and North America. e-Democracy Centre, Zürich
- Pierson P (2000) Increasing returns, path dependence, and the study of politics. *Am Polit Sci Rev* 94(2):251–267
- Pratchett L (2006) Understanding e-democracy in Europe. Ad-hoc committee on e-democracy (CAHDE), Council of Europe, Strasbourg
- Prieto-Martín P (2006a) Putting e-participation research on the service of civil society. In: Rose J (ed) European research workshop: mapping eParticipation, MCIS 2006. DEMO-Net, Venice
- Prieto-Martín P (2006b) Virtual environments for citizen participation: principal bases for design. In: Remenyi D (ed) ECEG 2006. Academic Conferences Limited, Marburg
- Prieto-Martín P (2010) Las alas de Leo. La participación ciudadana del siglo XX. Asociación Ciudades Kyosei, Panajachel
- Pruitt B, Thomas P (2007) Democratic dialogue – a handbook for practitioners. IDEA, OAS & UNDP, Stockholm
- Punie Y, Lusoli W, Misuraca G, Broster D (eds) (2009) The impact of social computing on the EU information society and economy. IPTS, Seville
- Rambøll Management (2008) Evaluation of the e-Participation preparatory action. EC
- Sæbø Ø, Rose J, Flak LS (2008) The shape of eParticipation: characterizing an emerging research area. *Gov Inf Q* 25:400–428
- Sanford C, Rose J (2007) Characterizing eParticipation. *Int J Inf Manag* 27(6):406–421

- Scherer S, Schneider C, Wimmer M, Shaddock J (2008) Studying eParticipation in government innovation programmes: lessons from a survey. In: 21st Bled eConference – eCollaboration, Bled
- Sydow J, Schreyögg G, Koch J (2009) Organizational path dependence: opening the black box. *Acad Manag Rev* 34(4):689–709
- Verdegem P, Stragier J, Verleye G (2010) Measuring for knowledge: a data-driven research approach for eGovernment. *Electron J e-Gov* 8(2):227–236
- Westholm H, Wimmer M (2007) Interdisciplinary framework to address the socio-technical and political challenges of eParticipation. DEMO-Net, Bremen
- Zouridis S, Thaens M (2003) E-government: towards a public administration approach. *Asian J Publ Admin* 25(2):159–183

Yannis Charalabidis, Sotiris Koussouris, Fenareti Lampathaki,
and Gianluca Misuraca

Abstract

The role of government in the society is undergoing continuous change, accelerated in the recent years due to the widespread adoption of Information and Communication Technologies (ICTs). The legitimacy of governments' actions is increasingly put into question, and it is recognised that the emergence of new and complex problems requires governments to collaborate with non-governmental actors in addressing societal challenges, for example, related to climate change or the financial crisis, moving into a new era in which the provision of public services is oriented towards the creation of public value and user empowerment. In recent years, we have assisted to a flourishing of user-driven ICT tools addressing public service delivery and administrative processes. But yet, this domain is still very much uncharted, led by bottom-up initiatives, with little consolidation, with mostly small-scale experiments, at the margin of government's initiatives. In this context, consensus is starting to build around the potential that collaborative

Disclaimer The views expressed in this chapter are purely those of the authors and may not be regarded as stating an official position of the European Commission.

Y. Charalabidis (✉)

Department of Information & Communication Systems Engineering, University of the Aegean, Lymeris Building, 83200 Karlovassi, Samos, Greece
e-mail: yannix@aegean.gr

S. Koussouris • F. Lampathaki,

Decision Support Systems Laboratory National Technical University of Athens, Iroon Polytechniou 9, 15773 Zografou, Athens, Greece
e-mail: skous@epu.ntua.gr; flmap@epu.ntua.gr

G. Misuraca

European Commission, Joint Research Centre, Institute for Prospective Technological Studies Information Society Unit (JRC-IPTS), C/ Inca Garcilaso 3, 41092 Seville, Spain
e-mail: gianluca.misuraca@ec.europa.eu

technologies have in the field of governance and policy modelling. However, in order for effective citizen empowerment and participation to become mainstream at a greater scale, several challenges will have to be faced, which will require new tools to be developed. The major research questions that come to the forefront concern which new ICT-enabled governance models and methods of monitoring, interaction, collaboration for policymaking and enforcement are emerging and which are the appropriate policy-modelling mechanisms that will effectively re-engage citizens in the decision-making process.

14.1 Introduction

Reviewing the recent developments of the past century, it is more than obvious that the role of government in the society is undergoing fast and continuous change. This change is more evident in the last 20 years mainly because of the widespread adoption of Information and Communication Technologies (ICTs) in conjunction with the growing processes of state liberalisation and economic globalisation. Governments are constantly confronted for the impact of their actions and are increasingly put under pressure bringing to the fore the need to redefine their role in areas where they were directly involved in service provision, such as utilities but also education and health. The recent worldwide financial crisis and some failures of privatisation, as well as the emergence of alternative approaches mostly exploited in emerging countries (such as the BRIC group), and also a mixed approach in the USA, have further contributed to questioning whether this delegation of service provision will continue in the future or will take a different shape.

As an OECD (2005) review puts it: “Government has a larger role in the OECD countries than two decades ago. But the nature of public policy problems and the methods to deal with them are still undergoing deep change. Governments are moving away from the direct provision of services towards a greater role for private and non-profit entities and increased regulation of markets. Government regulatory reach is also extending in new socio-economic areas. [...] This expansion of regulation reflects the increasing complexity of societies. At the same time, through technological advances, government’s ability to accumulate information in these areas has increased significantly. As government face more new and complex problems that cannot be dealt with easily by direct public service provision, more ambitious policies require more complex interventions and collaboration with non-governmental parties”.

However, this is not simply a matter of privatisation or of a linear trend towards a smaller government. Indeed, even before the recent financial turmoil and nationalisation of parts of the financial system, the government role in the European societies was not simply ‘diminishing’. At the same time, it is increasingly recognised that the emergence of new and complex problems requires government to increasingly collaborate with non-governmental actors in order to understand and

address these challenges. Moreover, they also need to enhance cooperation between multiple levels of government, especially considering the emerging pressure to a wider ‘regionalisation’ and the need to get closer to the citizens, involving them directly in the governance process and contributing to the decision-making system in a participatory manner, moving into a new era in which the provision of public services is oriented towards the creation of effective public value and user empowerment.

In addition to these emerging complex challenges, legitimacy of government action and citizens’ trust in government are both disputed. Existing institutional structures struggle to keep up with citizens’ will to scrutinise government behaviour and to have a greater say in the design and implementation of policies. Mass democratic parties are changing their structure in order to shorten the feedback loops and simplify hierarchical structures, while citizens’ engagement in parties and traditional politics appear to fall. At the same time, citizens are very much involved in bottom-up, non-profit kind of initiatives, addressing concrete needs rather than ideological issues (see, for instance, Tapscott 2008). In short, some signals of change in the way public governance is delivered appear, and it is expected to be a complex, non-linear change that goes beyond the traditional categories of big/small, right/left, open/closed, public/private. In the words of Barack Obama, “the question we ask today is not whether our government is too big or too small, but whether it works”.

At the same time, however, governments face the paradox of being able to gather unprecedented amounts of information coming from sensors, mobile phones or social media themselves but being largely unable to turn this information into insight and effective action and problem solving.

In this context, the consolidated policy trends and normative visions of experts and researchers (CROSSROAD 2010) are identified as key challenges for governments to ensure that the decision-making process is:

1. Truly inclusive and participative, involving all relevant stakeholders and representing the interests of all citizens
2. Evidence-based and high-quality, even in very specialised fields and taking into account the complex system and self-reflective nature of intervening variables involved in social systems
3. Timely and efficient, able to regulate and prevent disasters and crisis before they happen, in the face of ever-accelerating evolution and continuous emergence of unexpected situations

Traditionally, these goals have often been seen as alternative or not easily achievable altogether, especially when it comes to balance between short-term political agenda and long-term societal impacts.

This chapter aims to tackle these issues by defining the problem statement and discussing the changing role of the government in the information society by presenting the current technological trends, the major research challenges as well as future research directions in the field of ICT for governance and policy modelling.

14.2 Towards a Conceptualisation of ICT for Governance and Policy Modelling

ICT for governance and policy modelling is an umbrella term indicating the interplay between a number of technologies that are applied in order to achieve the target of participative, evidence-based governance and the related organisational and social processes associated with them, in view of improving the quality and effectiveness of policies and governance models.

Although there is a general anticipation that ICTs shall improve various forms of citizen participation in the social and political process, the question of how this can be achieved and how can we measure the success factor of ICTs and their impact is still open. In fact, it is very likely that such attempts may lead to a transformation regarding the use of ICT in governance through the introduction of new and innovative solutions. A transformation, although it is part of a historical evolution with its own rationale and momentum, is in our age strongly supported and enabled by ICTs. Indeed, the two are clearly linked and drive each other as ICTs have today become a commodity and a useful and necessary tool for carrying out everyday tasks in each business domain and in the public sector as well (Botterman et al. 2008).

As stated before, the multiple dimensions of governance are constantly evolving, and these changes are strongly conditioned by historical transformations in society's underlying values and organisations and can be analysed from both a long- and short-term perspective (Misuraca et al. 2011). In this context, some consensus is starting to be built around the potential that open and collaborative technologies have in the field of governance and policy modelling. However, there is a long way to go until one can claim that these are mature for enabling massive and effective citizen empowerment and participation and that they can be integrated into the governance processes and policymaking systems at a greater scale.

In order to arrive to the desired destination, there is a need for dedicated research in a domain that is far from consolidated and relies on very diverse perspectives and approaches since it is highly multidisciplinary, bringing together different cultural approaches to research and development. The ultimate goal and overarching research question in planning future research is to explore and understand the likely impact of ICT-enabled governance and policymaking processes that will most likely have an influence in the coming years on our society at large. This question cannot be answered in a straightforward manner. Rather, it has to be regarded in its full complexity and be analysed in sub-issues that correspond to different perspectives. The following research questions are therefore addressed by the different components of the overall research:

1. Which new ICT-enabled governance models and methods of monitoring, interaction and collaboration for policymaking and enforcement are emerging and which are the implications for policy and research?
2. Which policy-modelling mechanisms can be implemented in order to effectively involve citizens in decision-making? And furthermore, to what extent do these

new mechanisms interact with older forms of governance and democracy and with what effects?

3. How to conceive methods and design scenarios that may help us capture the developments of this domain for the years to come?

The research carried out by the CROSSROAD¹ project, whose main results are presented in the next sections, addresses these issues and attempts to answer the research questions underlined above.

14.3 Innovating Governance with ICTs: State of the Art and Limitations

As stated by Huijboom et al. (2009), “In European policy, high standards in public services are considered a key driver in realising inclusion, social cohesion and quality of life, all cornerstones of the Lisbon goals of the European Union. Overall, a well functioning public sector is expected to be a crucial precondition for economic growth and for making Europe one of the ‘most competitive knowledge economies in the world’. ICTs in this context are considered to be the most promising instruments for the improvement and innovation of public services and the public sector in general and in application fields such as public administration, healthcare and education”. Statements like these emphasise and stress in full bold that the future of governmental progress lies in successfully adopting and incorporating ICTs in the actual operation of public organisations. Thus, it is explicitly stated that there is a huge potential in the eGovernance domain, which currently suffers from fragmentation and underdevelopment.

During the last decade, governments have realised this potential and decided to invest in introducing ICT-enabled public services; however, the results were, if not disappointing, of low impact to say the least (Huijboom et al. 2009) as the take-up of ICTs has been relatively low and the anticipated transformation of the administrations not as rapid and radical as was anticipated (OECD 2004). The key factors that hold back evolution are, according to the report drafted by Huijboom et al. (2009), “barriers such as organisational fragmentation, institutionalised distrust and misalignment of financial incentives . . . deep-seated cultural political and social organisations and processes, which make it difficult to introduce new transformative measures such as ICT applications too rapidly”.

Thus, it is nowadays a common belief that the domain of ICT-supported governance and policy modelling has to be redrawn and realised from a complete new perspective. A prerequisite for these actions in the complete and spherical knowledge of the domain under research, and in order to be able to effectively understand the potential and the limitations of any domain, one has to have a clear picture of the current status of knowledge of the domain under investigation and

¹ <http://www.crossroad-eu.net>. Accessed 10 Jun 2011.

then proceed to the necessary amendments or innovations. Following this line, CROSSROAD had performed a thorough state-of-the-art analysis covering research approaches, practical guidelines and strategic visions that have emerged upon studying the underlying research initiatives, projects, positions, strategies and implementations in a number of technologies which can be applied in order to achieve a better, participative, evidence-based and timely governance.

Following this approach, a taxonomy of five research themes (RTs) as broad thematic categories that contain and classify a number of research areas at lower levels has been formulated, in an effort to map and reach consensus for the first time on the diverse domain of ICT for governance and policy modelling (Lampathaki et al. 2010). These five research themes are presented in the following paragraphs.

14.3.1 Research Theme 1: Open Government Information and Intelligence for Transparency

This research theme (RT) appears as the data- and knowledge-oriented research theme. It tries to incorporate next-generation lightweight semantic technologies into the governance and policy-modelling context by promoting the principles of open data and PSI reuse, as well as the philosophy of linked data and visual analytics. Open Government Information and Intelligence for Transparency gained a lot of momentum in the last years as it summarises the vision for openness, accountability and collective intelligence, leveraging the underlying data plethora in order to make sense of hidden and unexpected ideas and take appropriate action. Although being firmly associated to the ICT for governance and policy modelling, it suggests at first sight that it is a practitioners' playground and that there are actually few research approaches, typically built on top of open data. Upon investigating the state of the art, it appears that there are research questions in this context that mainly concern Timely Publication, Open Data Quality Agreements, Open Data Communities Building and Transparency and Reputation Management. In order to achieve public sector information openness and reuse, strong political will, together with changes in regulatory and legal frameworks, is further required.

As far as Linked Data is concerned, the scientific community is now paving the way to the Web integration, moving from the current Web of Documents—made by and for people—to the Web of Data—where machines can play a crucial role in knowledge management. In general, access to high quality, timely, open linked data is central to facing the societal challenges, yet such data are not now seamlessly embedded in the policy models in an automatic way. Despite the current availability of open data, techniques and tools for curing, annotating and publishing open data, as well as for data provenance, are still lag behind the vision of the Web of Data and, in most cases, do not comply with the Linked Data principles. However, in order to achieve real-time interconnectedness of data from unlimited sources and devices for a common purpose, there is a great need for tracking original data sources and managing data and links evolution. Although linked data is very

important to achieve data interconnection and information reuse, the current standards and tools require high technical and scientific skills and thus cannot be used by the average users in an out-of-the-box manner or in a practical timeframe.

Finally, Visual Analytics, which utilises results from established areas such as information visualisation and data mining, has seen unprecedented growth in its first 5 years of mainstream existence. Although state-of-the-art visualisation tools and prototypes are already in place in the market, there are also clear indications that there is a need to reconsider visualisation ways and to think about new visualisation paradigms, representation standards, interaction and sophisticated automated reasoning techniques in order to provide people with better and more effective ways to understand and analyse large datasets, while also enabling them to act upon their findings immediately, in real time. Such techniques should automatically understand how human users search for information and how visualisation storyboards and scenarios should be designed in order to cover their needs. Intuitive, easier visualisation ways that bridge the gap between the research community's offerings and the stakeholders' needs in governance and policy modelling also need to be specified in order to assess their efficacy in conveying information and their rhetorical effect on policymaking.

14.3.2 Research Theme 2: Social Networks, Citizen Engagement and Inclusion

This theme infuses the social dimension of the Web into governance and policy modelling by investigating the Social Computing phenomenon that has already revolutionised the way people communicate, exchange content and knowledge, raise their opinions and influence each other, by exploiting engagement and eParticipation tools and techniques and by extracting people's opinion from the Web in order to reach collective wisdom. This research domain can be characterised as quite virgin, since most of the technologies are quite young, and as such, there is a lot of space for research until these tools can be applied in a systematic and coherent way to policy modelling.

In more detail, Social Computing in the public sector is a novel research field, with little tradition and structure. First of all, social media present a unique yet not adequately and efficiently exploited potential to connect people, problems and solutions in the context of policymaking. Moreover, social networking sites encourage users to put their publicly available data into the given proprietary platform and tend to make the portability of the user's own data to another site or even their computer difficult, if not impossible, leading to the creation of large social networks' data silos, while continuous interaction with large number of people is highly resource intensive and encounters the limited availability of civil servant time. As social media are becoming pervasive, increasingly real time, more available on mobile devices and integrated with location data, the challenge is to make sense of gigantic quantities of qualitative data.

Furthermore, the quality of input that can be gained is highly variable, and filtering this content is still very much a resource-intensive task. Harnessing collective intelligence has gathered significant research interest to date, without reaching any profound, well-recognised solution. Sentiment analysis and opinion mining techniques, if based on real-time aggregated content, would though generate a more free and open conversation between policymakers and citizens. Apart from that, quality, reliability and accountability of user-produced content are important issues that must be tackled as not all information available on the Web is good for feeding policy models. When tracking policy discussions, provenance information identifying when and how something came to be posted in social media is also an unresolved issue. In cases when data required for running a policy simulation or for model verification is not available, new sources of data are often not identified and promoted efficiently across social media.

Moreover, at the end of the review on eParticipation stages and tools, one could conclude that the fact that our knowledge of citizen participation has increased and become more sophisticated cannot be disputed. However, despite our increased understanding and despite continue efforts in both the areas of research and implementation, researchers and practitioners continue to overlook one of the important elements of any participatory programme: the objectives that one hopes to accomplish by implementing a programme of citizen participation. One lesson learned for governments is that it is difficult to achieve a high participation rate. One reason stated is a lack of culture for participation; another lesson learned is that the application must be very simple to use.

As for sentiment analysis and opinion, mining research should focus on finding the appropriate language-related formulae and algorithms to read appropriately into the Web users' sentiment. This issue is still very much open although new researchers and programmers are coming up with new solutions every day. Chances are that a one-size-fits-all solution will not be feasible so research ought to find the elements that will be unique to opinion mining in policymaking-related matters. Furthermore, not all information available on the Web is good for feeding sentiment analysis and opinion mining and certainly not all of it will be useful to the policymaker; therefore, a number of prerequisites will have to take account of, for instance, Authority, Credibility, Domain Independent and Multimedia Content Extraction. Finally, research will need to focus on identifying the main areas of policymaking that will most benefit from sentiment analysis and opinion mining.

Last but not least, from a privacy and security perspective, the challenge in social media and participatory sensing is to ensure full privacy while maintaining usability and users' experience and giving users control over their privacy.

14.3.3 Research Theme 3: ICT-Supported Policymaking

Clearly positioned towards ICT-enabled policymaking, this theme initially analyses the economical, social and environmental context as a preparatory stage for policy modelling which then actually represents the problem and its proposed solution.

Policy Simulation testing out the various models in an effort to pre-evaluate the application of a specific policy in a controlled, artificial environment is also studied, while at the last stage in the policymaking process, Policy Evaluation provides the necessary qualitative and quantitative assessment mechanisms to monitor the actual policy application.

There is evidence that during the last years, policymakers, researchers and practitioners tried to import best of breed methodologies and solution from various neighbouring scientific domains in order to support policy design and development with the use of ICT tools and infrastructures. However, current approaches to policymaking still include major drawbacks. As a fact, the current tools available for policy design, implementation and evaluation are ill-suited for capturing the society's complex and interconnected nature. To date, the potential of policy modelling and simulation, as a means for effective policymaking, has not been fully realised, with a number of factors that have limited its adoption, including the following facts:

- Policy modelling appears as a particularly interdisciplinary domain with very little market penetration so far.
- The current solutions available for policy design, implementation and evaluation have significant limitations not only to capture the society's complex and interconnected nature but also to accommodate large-scale datasets and to offer automated data discovery and utilisation from multiple data sources.
- Policy-modelling tools have remained fragmented and unable to be combined at the level required to assist policymakers.
- Policy-modelling applications exploit a small part of the currently available and future ICT principles and capabilities.
- Policy modelling and simulation environments are restricted to high-level engagement and for those with specialised expertise.
- Policy-modelling applications still cannot cope with too much or too little data.
- The policymaking cycle and its accompanying methods need to be adjusted to the new conditions provisioning for new citizen-centric policy models with societal characteristics that can be exploited by all stakeholders.

14.3.4 Research Theme 4: Identity Management and Trust in Governance

This theme is driven by the need to safeguard citizens' and public authorities' digital presence from misuse. In this context, identity management with federated identities, access control and authentication mechanisms in ubiquitous environments, as well as privacy and data protection has proved to contribute in building trust among citizens and public authorities.

The role of Identity Management is indeed vital in the context of ICT for governance and policy modelling. The importance of addressing identity-related issues such as secure public service provision, citizen record management and law enforcement has made identity management a strategic issue for governments at

both local and international levels. Research for the design and implementation of a digital identity as well as for its supporting management infrastructures has reached a quite satisfactory level; nevertheless, one of the greatest problems in Identity Management is lack of interoperability of digital identities and identity management systems between organisations and governments. This is far from a technological issue since the specifications and nature of a Digital Identity is often dictated by the social and political environment of the country of issuance.

Moreover, strong regulations and policies are required in order to address the increasing number of electronic identity-related crimes. These issues call for policies, directives and frameworks that fully defend and guarantee the legitimacy of eIdentities and respect the human rights.

Furthermore, Privacy is firmly associated, cooperates and overlaps with Identity Management but clearly from a citizen's point of view. The plethora of existing technological standards and infrastructures are insufficient to protect the fundamental human right of privacy without the support of governmental policies and regulations. One of the challenges for governments is finding a balance between storing and utilising personal, sensitive information that advanced technological systems, restructuring actions and innovations need and protecting the privacy of citizens. Governments have traditionally had a central role in providing information and public services to citizens through the issuance of documents such as birth and death certificates, passports, social security numbers or driving licences. Today, they need to be concerned over respect for privacy, data protection and security and respond to difficulties posed by new technology advances by setting up frameworks that are beneficial first of all to citizens.

Lastly, Trust, namely, the extent to which one party is willing to depend on something or somebody, depends considerably on the presence of a robust and well-grounded legal framework with efficient dispute resolution mechanisms. In the digital world, the development of such a framework is associated with two fundamental areas: digital rights and legal informatics. During the last years, most researchers and practitioners have focused only on the area of Digital Rights Management due to the great interest and direct value for private organisations. Research on defining, protecting and promoting the digital rights of citizens in view of a valid and secure Digital Life is still in an early stage.

14.3.5 Research Theme 5: Future Internet for Collaborative Governance

The fifth and last research theme embraces the internet evolution and entails transparent and multichannel service provision via the Internet of Services, low cost cloud infrastructures emerging from Cloud Computing advancements, better human-computer interfaces and seamless interaction with non-conventional Web devices that communicate in the Internet of Things.

In the last years, researchers, practitioners and the industry have invested a lot on the Cloud Computing paradigm. From a policy perspective, the cloud concept is

promoted by governments since the perspective of lowering IT infrastructure and maintenance costs and providing seamless services in a platform-independent manner and increased service interoperability are expected to be the driving factors for the migration of Public Sector services into the Cloud. Although many governments have already implemented their own government clouds, perhaps the most significant obstacles in the wide adoption of Cloud Computing concern cloud interoperability, data privacy and security issues with national legal frameworks being often revised to provision for such issues.

Internet of Things is another emerging technology, which although still in its infancy, is mainly driven by researchers and has many applications designed and developed for industrial and commercial use. The potential hindered behind the exploitation of smart objects and ambient intelligence is still investigated both generally and specifically for the public sector, while standardisation aspects need to be more emphasised in the years to come. Participatory sensing techniques focusing on motivated groups willing to engage themselves as digital pressure groups are also anticipated to provide to the policymakers data on the right level and of the right type to simulate or assess their policies.

In the direction of the Internet of Services, services are converging and moving from the physical into the digital world, universally accessible on any device, such as smartphones, tablets, personal computers, digital radios or high-definition televisions. By general confession, conventional services have just been “electronified” without any concerns for their actual impact to the citizens and enterprises. In parallel, constructive practitioners’ research in the direction of interoperability, service repositories, cross-country and cultural alignment of public services does not streamline or inject into public services the current research streams towards service mash-ups, service quality agreements, service infrastructures and multichannel delivery which are often empowered by other research communities.

Finally, Human–Computer Interaction has been, to date, an extensive research and practice area especially for issues concerning Web Accessibility in the public sector. Various approaches and standards have been already developed, and the future seems to hold further advances, especially in relation to research for ubiquitous HCI interfaces, Computer-to-Computer Interaction, User-Centred Design, Augmented Cognition and Human Senses Recognition.

14.4 Emerging Trends and a Glimpse into the Future

In line with the major ICT trends in the public services, public sector institutions are recognising the need to shift to services that are closer to people’s everyday life, to use innovative tools to reach citizens and to better engage employees and to share information and knowledge within and between organisations (IPTS 2007). In particular, there is widespread recognition that ICT-enabled public services have been too supply-driven and should focus more on addressing user needs and demands (IPTS 2007). According to Tsui (2011), “public services delivery is

becoming to be recognised as not being necessarily a business of the government on its own”, and governments are becoming day-by-day providers of reliable data which are offered to the general public. This approach would in principle empower users to express their needs and choices and shape service delivery tools (Misuraca 2009).

At the same time, it is accepted that the opportunities offered by ICT in government are in line with experts’ visions of future public services and emerging trends (Di Maio et al. 2005; IPTS 2007). Ordinary citizens and public servants as users are expected to play an essential role to the decision on the delivery channels, while services are envisioned to be delivered mostly by private and non-profit intermediaries, as the role of users as innovators is, especially in the Web 2.0 era, recognised as a crucial aspect, both in terms of organisational empowerment and in reshaping the relations and communication channels with the public service customers (Pascu et al. 2007).

Such trends can be easily identified; however, they do not offer any significant information for future research. Therefore, it is essential to group trends that start from a common point and derive to visionary scenarios that are able to present a more holistic and broad picture of how the future could look like, taking into account the current trends both in technology and in society. To this end, CROSS-ROAD developed a set of visionary scenarios for Digital Europe 2030, which are presented in the following sub-sections, aiming to describe on how governance and policy modelling, supported and enhanced by the use of ICTs, could develop by 2030. The purpose of this exercise was to identify the research needs and policy challenges to be addressed (Misuraca et al. 2010a) which are presented in the next sections and are group under the term ‘Grand Challenges’.

The scenarios are internally consistent views of what the European governance and policymaking system could become by 2030 and of what the resulting implications for citizens, business and public services would be. Accordingly, the key impact dimensions were classified on two axes as illustrated in Fig. 14.1: Openness and Transparency and Integrated Policy Intelligence (Misuraca et al. 2010b).

14.4.1 Open Governance Scenario

Open governance scenario is characterised by high openness and transparency and high integration in policy intelligence. In this scenario, users will enjoy full access to information and knowledge. By shifting cognitive capacities, the work of memorising and processing data and information will be passed onto machines, while humans will focus on critical thinking and developing new analytical skills. This will enhance collective intelligence (both human and ICT-enabled). Humans will be able to use policy-modelling techniques to help solve global challenges. Possibilities for the provision of personalised and real-time public services will be opened up. The online engagement of citizens and various governance stakeholders will increase. All stakeholders will have direct access to data they need, and this

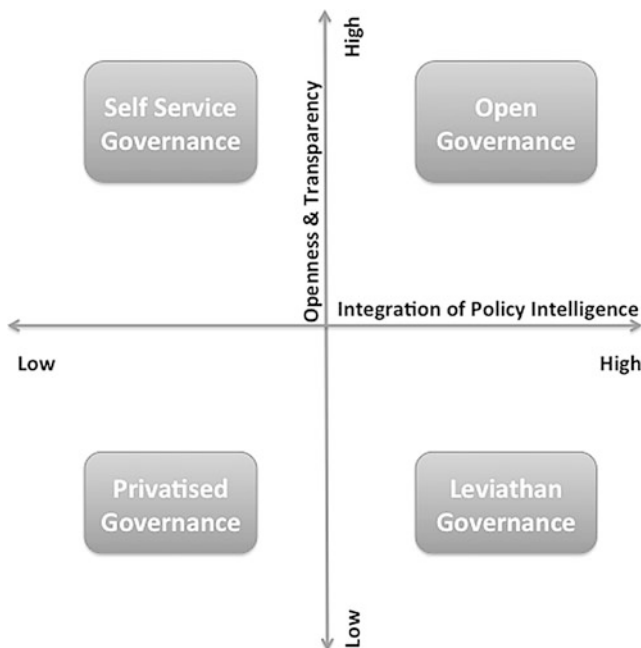


Fig. 14.1 Visionary scenarios for Digital Europe 2030

will create new opportunities for people to interact with and influence governance and policymaking processes and make progress in solving societal problems. Governance processes and policymaking mechanisms will be based on ICT-enabled simulation and visualisation intelligent systems, able to find meaning in confusion and solve novel problems, independently of human-acquired knowledge. New, open ways of producing and sharing knowledge will radically change traditional governance processes and decision-making. This will herald an era of open innovation, with unimagined opportunities for research and technological development.

14.4.2 Leviathan Governance Scenario

Leviathan governance scenario is characterised by low openness and transparency and high integration in policy intelligence. This scenario assumes that an ‘enlightened oligarchy’ will emerge that uses high-tech tools and systems to collect and manage public information and services. Judgement and decision-making will be based on analytical processing of factual information from the many by the few for the benefit of all. Full-scale 3D automatic simulations and policy intelligence tools will facilitate decision-making, and the oligarchs will simply approve the recommendations of these tools for the best policy option for the majority of

citizens. 'Real-time governance' will be possible, where the government/citizen relationship is under total control. Public service delivery will be personalised without people having to ask, thus saving a great deal of time. In this context, citizens will trust the government and will be willing to delegate their right of initiative, as they will be persuaded to be happy with this situation, as no human-caused problems will exist; emotions and thoughts will be controlled and directed towards the public good. However, citizens will be passive recipients of decisions taken by information systems; choice will be restricted by predefined and pre-calculated algorithms that optimise people's performance. No active participation by citizens in everyday decision-making will be required or sought. In this scenario, circulation within Europe and across its borders will have been greatly limited. Information overload or potential failure of information systems to respond to critical, unforeseen situations would result in chaos, with humans and devices not knowing how to respond.

14.4.3 Privatised Governance Scenario

Privatised governance scenario is characterised by low openness and transparency and low integration in policy intelligence. In this scenario, society will be shaped by decisions taken by corporate business representatives. Discussion on social issues and about the role and behaviour of citizens will be muted, as people will be pawns whose needs and desires are managed by large corporations. Interactive and participatory governance mechanisms will be sidelined, along with democracy as we know it today. Decision-making will depend on ICT. ICT-enabled modelling and decision-support systems will be highly developed by individual companies but not necessarily integrated. Simulations based on data gathered by sensors and collected from continuous monitoring and analysing networks, businesses, customers and the environment will produce global information that will still be fragmented and owned by corporations. Systems will be threatened by frequent attacks from independent groups and dissident communities. It will, however, be possible to prevent these attacks by the deployment of ICT systems able to forecast cyberattacks by running social simulations. The media will be owned by the large corporations and will generally support them. Misinformation and jamming campaigns will be launched, making it necessary to verify all information and data. In this scenario, there will be opportunities for high innovation and development due to the pressure of competition on a free market in areas such as telework and telemedicine, early warning systems to avoid global pandemics and disaster management assisted by real-time decision support systems. These will be very useful for the limited number of users able to afford them. Risks will arise due to private interest and fragmentation of the public good, especially as regards the use of ICT for health, education, energy efficiency, environmental protection and prevention of natural disasters. This will lead to a fragmented society where social welfare services will not be guaranteed to all, thus exacerbating possible social tensions and conflicts.

14.4.4 Self-service Governance Scenario

Self-service governance scenario is characterised by high openness and transparency and low integration in policy intelligence. This scenario envisages a society where citizens will be empowered to play the role of policymakers. Citizens will devise policies in accordance with the do-it-yourself principle; they will choose from a menu of public services those they need and consent to. This ICT-enabled, self-organised society will be able to address emerging problems faster, and its creative, contextual solutions could prove more robust and resilient in a crisis. Nevertheless, the diversity of opinions between discrete communities may result in the deepening of existing divides and a lack of social cohesion. Insularity will afflict migrant and ethnic minorities most severely, as they lack local social networks and may run into communication problems due to language and cultural differences. However, thanks to efficient translation tools, the dissipative communities may in the end create a vibrant cross-cultural and multi-language society. The difference between success and failure will be marked by the distinction between effective and creative group thinking and ‘crowd stupidity’ and lack of knowledge transfer. The process of gradual disappearance of institutions and lack of trust in government will result in the need for new trust providers. Reputation management, for content and people, will play a significant role in service provision. People’s identities will be made up of different layers shared with different groups and individuals on a case-by-case basis. Authentication will be granted by communities, which may hinder the transferability of trust across people and groups. As the majority of citizens will not be interested in participating in governance due to the lack of engagement culture, new leaders may emerge who unify disparate groups but damage the subtle equilibrium between self-serving and collaborative cultures.

14.5 Challenges Ahead and Future Research

The research domain of ICT for governance and policy modelling includes very different research areas, which are not traditionally linked. The domain of Web 2.0 and collaborative governance is largely practice-led and market-driven, with lots of experimentation happening on the ground, through learning by doing and perpetual beta approach, with very short, iterative feedback loops from users. The domain of policy modelling includes very different academic tradition: from the econometric forecasting tools, to the sociology of social networks analysis and societal simulation, to the engineering, mathematics and artificial intelligence involved in system dynamics and multi-agent modelling.

In this connection, it is important to understand how to promote ICT-enabled innovations in public services and how to develop new and sustainable business models and ICT-enabled governance mechanisms for public service delivery. In spite of the emerging trends, there are still limitations in the practical implementation of emerging ICTs in government. In particular, limitations exist when

addressing the issue of ICT-enabled innovation in public service and, in particular, emerging technologies (such as Mobile and Social Computing).

The roadmap on ICT for governance and policy modelling (CROSSROAD 2010; Lampathaki et al. 2011) identified a list of grand challenges (GC), accompanied by specific research challenges (RC) that aim to provide a solid and clear picture of the issues that lay ahead and should be tackled by 2020 in order to derive to a paradigm shift in policymaking. Those are the following:

- *GC1-model-based collaborative governance* dealing with the development of advanced tools and methodologies, following the vision of a radically different context for policy modelling and simulation, where standardisation and reusability of models and tools, system thinking and modelling applied to policy impact assessment have become pervasive throughout government activities. The research challenges for this Grand Challenger are the following:
 - RC1.1: Integrated, composable and reusable models to create more comprehensive and complex models by using smaller building blocks or existing objects/models. This implies both model interoperability and the definition/identification of proper modelling standards, procedures and methodologies.
 - RC1.2: Collaborative modelling encompassing participation of all stakeholders in the policymaking process through the implementation of Internet-based easy-to-use tools for all the levels of skills.
 - RC1.3: Easy access to information and knowledge creation with a particular focus on elicitation of information which, in turn, during the overall model building and use processes will help decision makers to learn how a certain system works and ultimately to gain insights and understanding in order to successfully implement a desired policy.
 - RC1.4: Model validation in order to guarantee the reliability of models and, consequently, of policies that are crucial for policymakers who need and use information that results from the simulations to develop more effective policies.
 - RC1.5: Interactive simulation concentrating on the fact that the larger is the model in terms of size and complexity, the larger is the resulting amount of data to analyse and visualise. In particular, this challenge refers to the issue of integration of visualisation techniques within an integrated simulation environment, in order to dramatically increase the efficiency and effectiveness of the modelling and simulation process, allowing the inclusion and automation of some phases (e.g. the output and feedback analysis) that were not managed in a structured way up to this point.
 - RC1.6: Output analysis and knowledge synthesis refers to output analysis of a policy model and, at the same time, to feedback analysis in order to incrementally increase and synthesise the knowledge of the model (and consequently of the policy).
- *GC2-data-powered collective intelligence and action* for satisfying the need for more intuitive collaborative tools that are able to engage all people, maximising the impact of short attention span and low engagement, as well as for ICT-based

feedback mechanisms that encourage real action and behavioural change. The research challenges for this Grand Challenger are the following:

- RC2.1: Privacy-compliant participatory sensing for real-time policymaking refers to the use of sensors, usually embedded in personal devices such as smartphones allowing citizens to appropriately feed data of public interest.
- RC2.2: Real-time, high-quality, reusable open government data call for simplification and lower costs of open data publication.
- RC2.3: Federated dynamic identity management addresses the eIdentity-related issues for secure public service provision, citizen record management and law enforcement.
- RC2.4: Peer-to-peer public opinion mining points out to the explosion of user-generated content, which widens the application scope of public opinion mining tools and to the fact that these tools need to become more pervasive and available to the majority of citizens.
- RC2.5: Intuitive, collaborative visual analytics of data for policymaking refers to the research focused on making sense of large datasets, such as those provided as open government data.
- RC2.6: User-generated simulation and gaming tools for public action underlines that serious gaming is still requiring high level of engagement and, therefore, progress in usability and attractiveness in order to widen the group of participants is needed.
- RC2.7: New institutional design of collaborative governance recalls that collaborative governance is developing without an appropriate reference framework.
- *GC3-government service utility* which adopts the key concepts of a utility, such as Ubiquitous nature, Usability, Federation, Cogeneration and Deregulation, and is aligned to the philosophy of collaboration, openness and innovation. It aims to cultivate a vision of the Internet of the Future, where public organisations, citizens, enterprises and non-profit organisations can collaboratively shape public services at design time and runtime, in order to be delivered as a utility-like offering at their own ends, to the channels they prefer and in the context and situation they are. The research challenges for this Grand Challenger are the following:
 - RC3.1: User-driven innovation shaping Public Services during their whole life cycle in order to be delivered to their beneficiaries at their own ends, in ways and means they prefer.
 - RC3.2: Change the DNA of Public Services in the direction of the 1-1-1 concept that supposes that “Every public service can be provided in one-stop, within one second, with one euro (or minimum) cost, to any device and by anything”.
 - RC3.3: Digital Public Services Value Proposition for All which defines and assesses the impact for all stakeholders within a complex public services ecosystem.
 - RC3.4: Massive Public Information as a Service promoting a service-oriented attitude to the public sector information (PSI).

- *GC4-scientific base of ICT for governance and policy modelling* aiming to establish ICT-enabled governance as a rigorous scientific domain, by providing formal methods and tools, complementing those of Informatics and Political Science, which is envisaged to benefit from all developments of the neighbouring scientific disciplines. The research challenges for this Grand Challenger are the following:
 - RC4.1: Multidisciplinary issues and relations with neighbouring domains, which investigate possible links with other scientific areas and attempt to structure the domain according to other successful domains
 - RC4.2: Metrics and Assessment Models, Decision Support, and Modelling and Simulation Tools that aim to bring together the technological and the societal aspects of the domain of ICT for governance and policy modelling towards more concrete, holistic and accurate decision support models
 - RC4.3: Formal methods and tools, which aim at setting the foundations for the new proposed scientific domain

Yet, some common trends are visible across all research areas. All recognise that the present challenges of governance are characterised by complexity and unpredictability. But the traditional vision of ICTs as tools to automate human processes work well only for well-defined and specific problems. These tools do not supply users with means to identify and name new concepts. The new frontiers of ICTs lie much more in cooperation between human and machine, each with their distinct capabilities. This is necessary in order to allow for complexity and unpredictability to emerge and be used in a meaningful manner. As Osimo (2008) quotes Pang, "...the brilliance of social-software applications like Flickr, Delicious, and Technorati is that they recognise that computers are really good at doing certain things, like working with gigantic quantities of data, and really bad at, for example, understanding the different meanings of certain words, like 'depression'. They devote computing resources in ways that basically enhance communication, collaboration, and thinking rather than trying to substitute for them".

To put it briefly, today society is facing unprecedented opportunities to leverage technology to ensure a more inclusive, efficient and effective governance. In the United States, opening up new channels of political participation (as seen in Barack Obama's campaign) is raising enormous expectations, and research is required to understand what is the effective use of ICT tools for democratic governance and decision-making. EU is on the same track, launching a broad ICT research agenda exercise, aiming at showing that government can stimulate ICT innovation not only in the field of defence and security but also in quality and openness of public governance.

Conclusions

As presented above, it seems essential that research looks at instantiating the depth, relevance, effectiveness, consistency of the concepts, models and tools that correspond to the trend of ICT-enabled and participatory governance supported by mass collaboration tools and policy-modelling mechanisms. As societies worldwide are constantly becoming dependent on ICTs, policymakers

need evidence-based and strategic understanding of the (current and future) role and meaning of ICTs in society and the economy in order to develop policies that would grasp the benefits and minimise the risks that are coming with ICTs, for addressing future challenges, both in economic terms and societal terms.

At this time, there is a limited use of policy-modelling and policymaking tools by governments, despite the obvious advantages that these tools can offer towards assessing, designing, deploying and monitoring policies. One of the major obstacles is the immaturity of policy-modelling concept which still needs to be further explored and defined, especially based on the needs that emerge from the various specific domains that it affects and the underlying technological developments. The pressing question thus becomes what categories of model, what underlying theories or disciplinary contributions or, also, for what kind of problems models can function best and contribute to get better policymaking and implementation?

Answering these open questions depends heavily on our perception of policy modelling; is it an extension of already deployed modelling approaches, or is a radical new view required, accompanied with new methods and tools? The answer behind this question is quite tricky, and all this reveals a set of research challenges that should be explored and assessed as dimensions of a coherent and unified problem issue, with a future-oriented perspective. This will help us understand the potential contribution of ICTs for enhancing governance processes and support policy modelling, while at the same time trying to predict and minimise the impact (or even avoid) of the risks for the Information Society of tomorrow.

Acknowledgements Part of this work was inspired from project CROSSROAD ‘A Participative Research Roadmap on Future Research on ICT for Governance and Policy Modelling’.

References

- Botterman M, Millard J, Horlings E, van Oranje C, van Deelen M, Pedersen K (2008) Value for citizens—a vision of public governance in 2020, European Commission
- CROSSROAD (2010) Deliverable D4.4—Final Policy Recommendations. http://crossroad.epu.ntua.gr/files/2010/02/CROSSROAD_D4.4_Policy_Recommendations-v2.00.pdf. Accessed 12 Jul 2011
- Di Maio A, Kreizman G, Harris R, Rust B, Sood R (2005) Government in 2020: Taking the Long View. Gartner Research. <http://www.gartner.com/DisplayDocument?id=487442>. Accessed 20 May 2011
- Huijboom N, van den Broek T, Frissen V, Kool L, Kotterink B, Meyerhoff Nielsen M, Millard J (2009) Key areas in the public sector impact of social computing. http://www.tno.nl/downloads/social_computing_impact_220609_final_report.pdf. Accessed 18 May 2011
- IPTS (2007) The future of e-Government: an exploration of ICT-driven models of e-Government for the EU in 2020. <http://ftp.jrc.es/EURdoc/eur22897en.pdf>. Accessed 10 Sep 2011
- Lampathaki F, Charalabidis Y, Passas S, Osimo D, Wimmer M, Askounis D (2010) Defining a research areas taxonomy around ICT for governance and policy modelling. *Lect Notes Comput Sci* 6228:61–72

- Lampathaki F, Charalabidis Y, Osimo D, Koussouris S, Armenia S, Askounis D (2011) Paving the way for future research in ICT for governance and policy modelling. IFIP EGOV 2011 Conference, LNCS 6846, Springer, Delft, Netherlands, pp 50–61
- Misuraca G (2009) The Impact of Social Computing on the EU Information Society and Economy-Social Computing and Governance, JRC Scientific and Technical Report, European Commission, Joint Research Centre, Institute for Prospective Technological Studies, Luxembourg
- Misuraca G, Broster D, Centeno C, Punie Y, Lampathaki F, Charalabidis Y, Askounis D, Osimo D, Szkuta D, Bicking M (2010a) Envisioning digital Europe 2030: scenarios for ICT in future governance and policy modelling. In: Misuraca G, Lusoli W (eds) IPTS JRC Scientific and Technical Reports. EUR 24614
- Misuraca G, Broster D, Centeno C (2010b) Envisioning digital Europe 2030: scenario design on ICT for governance and policy modelling. In: Proceedings of the 4th international conference on theory and practice of electronic governance (ICEGOV2010), ACM International Conference Proceedings Series, ACM Press, pp 347–356
- Misuraca G, Giuseppe Alfano G, Viscusi G (2011) Interoperability challenges for ICT-enabled governance: towards a pan-European conceptual framework. *J Theor Appl Electron Commer Res* 6(1):95–111
- OECD (2004) The economic impact of ICT. OECD, Paris
- OECD (2005) Modernising government: the way forward. OECD, Paris
- Osimo D (2008) Benchmarking eGovernment in the Web 2.0 era: what to measure, and how. *Eur J ePract* 3(4):33–43
- Pascu C, Osimo D, Ulbrich M, Turlea G, Burgelman JC (2007) The potential disruptive impact of Internet 2 based technologies. IPTS, First Monday, 12(3)
- Tapscott D (2008) Grown up digital: how the net generation is changing your world. McGraw-Hill, New York
- Tsui H-D (2011) Heterogeneous social computing: a government's dilemma. *Adv Inform Sci Serv Sci* 3(7):179–186

Authors' Details

Mirko Antino holds a Ph.D. in social psychology and a magister in methodology in the behavioural and health sciences. He has been visiting SKEMA Business School in Paris for a postdoctoral specialisation period. His current research deals with psychometrics qualities of perfect scales and measurement issues in organisational context. He is research assistant in the department of social psychology and acting professor in the department of Social Psychology of the Faculty of Psychology at the Universidad Complutense de Madrid.

Dimitrios Askounis is an assistant professor in National Technical University of Athens (NTUA)—School of Electrical and Computer Engineering. He is responsible for the teaching of a number of postgraduate and undergraduate courses. In addition, he holds key positions in numerous R&D projects funded by National and International donors, dealing with a variety of issues, such as: e-government, knowledge management, interoperability, Future Internet Enterprise Systems, etc.

Melanie Bicking received her M.Sc. degree in information management in 2005 and her Dr. rer. pol. degree in 2010 from University of Koblenz-Landau. Since January 2006, she is with the Research Group E-Government, University of Koblenz-Landau, Germany. She worked in the projects CROSSROAD, eGovRTD2020, MOMENTUM and now in eGovPoliNet and OCOPOMO. She is member of several programme committees (e.g. EGOV, I3E and ICEGOV). Her main research interests are strategic planning and governance in the public sector, electronic participation and democracy, citizen engagement, international research collaboration and cross-boundary information sharing and integration.

Peter Butka received his M.Sc. degree in 2003 at the Department of Cybernetics and Artificial Intelligence, Faculty of Electrical Engineering and Informatics at Technical University in Kosice. His Ph.D. thesis on text mining and semantic technologies was defended in 2010 at the same department. Since 2006, he has been working as a researcher at the Faculty of Economics and Faculty of Electrical Engineering and Informatics. His research interests include text mining, knowledge management, semantic technologies, applications in e-Government and information retrieval.

Yannis Charalabidis is an assistant professor in the 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), planning and coordinating high-level policymaking, research and pilot application projects for governments and enterprises worldwide. He has published more than 100 papers in scientific journals and conferences, and he writes and teaches on eParticipation, eGovernment Information Systems, Interoperability and Standardization, eParticipation and Government Transformation in NTUA and the University of Aegean. During the last 15 years, he has gained significant expertise acting as a project manager, scientific or research manager in more than 50 large-scale research and development projects in the field of ICT, in Europe, Asia and North Africa. He is a contributing member in several eGovernment and eBusiness international standardisation committees, including CEN/ISSS eGov, ETSI/B2B Interoperability Standardization, NIST/Interoperability Global Testing Network, OASIS/ebMS WC, INTEROP-VLAB Standards Committee, NESSI iGOV Working Group, DEMONET eParticipation Network, European Commission Interoperability Cluster, IFIP WG 8.5, European Commission IDABC/EIF and European Commission/SEMIC.

Noella Edelmann completed her Psychology degree at the University of Strathclyde, UK, and masters' degrees at the University of London, UK, and the Danube University Krems, Austria. She is presently working on her Ph.D. at Leeds Metropolitan University, UK, where she focuses on lurkers and e-participation. Noella is a research fellow at the Centre for E-Government at the Danube University; her main research interests are the psychological aspects of behaviour on the Internet, e-participation and Open Access. Besides conducting research, Noella is a co-chair of the Conference for E-democracy and Open Government and managing editor of the international Open Access eJournal for E-Democracy and Open Government (JeDEM). Noella is also a guest lecturer at the Technical University in Vienna.

Tony Elliman is a professor in the Information Systems and Computing department at Brunel University with particular interests in eParticipation and ICT for Ageing. His research interests are in the architecture and evaluation of information systems, particularly within the public sector. He is also interested in the design and evaluation of systems using simulation techniques. He is currently the strategy work package leader for the EU-funded global digital governance and policy modelling research and practice community (eGovPoliNet), a member of IFIP WG 8.5 and the ICT programme director of the Brunel Institute for Ageing Studies. In the late 2000s, he co-ordinated the EU-funded DIADEM project and co-chaired the UK evaluation of eGovernment in the VIEGO project. His previous research has included both medical and legal systems, and since becoming a lecturer in 1972, he has taught many aspects of Computer Science. He is a Chartered Engineer and Chartered IT Professional.

Konstantinos Ergazakis is an Electrical and Computer Engineer, National Technical University of Athens (NTUA) and also holds a Ph.D. in Knowledge Management and Decision Support Systems. Dr. Ergazakis has long professional

experience as a consultant/project manager for projects funded by EU and Greek National Bodies in different fields: formulation of digital/knowledge Cities strategies, e-participation, re-organisation techniques, monitoring and evaluation, design and development of management information systems, business development activities, etc. Dr. Ergazakis has more than 35 publications in Scientific Journals and presentations in International conferences.

Meritxell Fernández-Barrera is a researcher at the Centre d'Études et de Recherches de Sciences Administratives et Politiques (CNRS, University Paris 2). She holds a degree and a master in Law at the Autonomous University of Barcelona, and a Postgraduate diploma on Cognitive Science and Linguistics at the same university. She also did a Ph.D. at the European University Institute in Florence on modelling legal knowledge through formal and lexical ontologies for the intelligent processing of legal information.

She is currently interested on methodologies for representing legal knowledge through ontologies, on the relationship between discourse and conceptual models, on the semi-automatic extraction of ontologies through NLP techniques, on the distance between expert knowledge and common-sense knowledge and on the relationship between Web 2.0 and Web 3.0.

Karol Furdik graduated (M.Sc.) in 1993 at the Department of Cybernetics and Artificial Intelligence, Faculty of Electrical Engineering and Informatics at Technical University in Kosice. His Ph.D. thesis on information retrieval, natural language processing and knowledge modelling was defended in 2005. Since then, he was working for several IT companies in Slovakia as analyst, programmer and development team leader. Currently, he is on the position of analyst and project manager in InterSoft, a.s., a Slovak-Finnish software company providing solutions in the areas of Web technologies, knowledge management and sophisticated Internet-based information systems. Scientific interests of Karol Furdik include artificial intelligence, knowledge representation and management, applications in e-Government, text mining, natural language processing, semantic technologies and information retrieval.

Marko Grobelnik is an expert in the areas of analysis of large amounts of complex data with the purpose to extract useful knowledge. In particular, the areas of expertise comprise Machine Learning, Data/Text Mining, Link Analysis, Semantic Technologies and Data Visualization. Marko works at 'Jozef Stefan Institute', the national research institute for natural sciences in Slovenia where he manages a research group of approximately 30 researchers. He collaborates with major European academic institutions and industries such as Bloomberg, British Telecom, European Commission, Microsoft Research, New York Times. Marko is also a co-author of several books, co-founder of four start-ups and is/was involved in over 25 EU projects.

Johann Höchtel graduated from Vienna University and Vienna University of Technology in business informatics. He is a research fellow at Danube University

Krems, Centre for E-Government where he is e-government programme coordinator for the M.Sc. programme. His research projects include EU-funded FP7 security projects and national grants in the domain of social media application in administration. He is former member of OASIS SET TC standardisation group. His current research focus is in the topic of e-participation, Open Data, the semantic Web and Web 2.0. His ongoing doctoral thesis is in the realm of digital communication among administrative units and design elements of an open government data strategy.

Blaž Ilc is a researcher and a teaching assistant at the Faculty of Social Sciences at the University of Ljubljana. His research interests include eDemocracy, eGovernance and eHealth in its socio-political dimensions and historical constitution of racism. He delivers courses on comparative politics, political philosophy and political anthropology. He worked in several EU projects, among others, project AGORA (the concept of open environment for comprehensive e-Participation at the local level) (2009–2010) and Citizen(ship) in a New Era—Citizenship Education for a Multicultural and Globalised World project (2010–2011). Blaž Ilc is a co-founder of the think tank Entelehia—Agency for Scientific Support to policies.

José Javier Martínez has a Computer Sciences Engineering degree by Polytechnics University of Madrid (1993) and a Ph.D. from University of Alcalá (2004). Currently, he is a professor and the director of the Computer Science Department of the University of Alcalá. He is an experienced software engineer in industry (11 years) and academia (15 years). He is author and co-author of more than 80 scientific works including papers in relevant conferences, journals and books. He has directed two important (public funded) projects in Spain during the last 2 years, which are related with e-commerce, digital rights and the automated negotiation of electronic goods. His research interests focus not only on distributed architectures and tools for e-learning, tutoring systems, e-learning standardisation, but also in data mining and data warehousing.

Martin Karlsson is currently a Ph.D. student in political at the Örebro School of Public affairs, Örebro University in Sweden. His research interests include the utilisation of information and communication technologies in processes of citizen participation and political representation. Particularly, he is interested in the relationship between established institutions of representative democracy and new forms of participation and political communication. Martin participated in the organisation and evaluation of the European Citizens Consultations 2009, a pan-European citizen consultation initiated by the EU commission as part of the Plan-D programme. Martin's earlier work has been in books from Nomos Verlag, IGI-global and Springer Verlag.

Simone Kimpeler is a senior researcher at Fraunhofer Institute Systems and Innovation Research (ISI), Karlsruhe. She studied media and communication studies, sociology and economic policy in Münster, received her doctorate in 1999 and has been working in the field of innovation studies at Fraunhofer ISI since 2000. Her work focuses on socio-economic impacts of ICT-based innovation, success factors for ICT innovations, ICT trend analyses and foresight, and Creative

Industries. Simone Kimpeler has been engaged in several projects for policy actors at European and national level, e.g. 'E-Participation Pilot Project: Hub Websites for Youth Participation (HUWY)', 'Role of the Creative Industries in the innovation system in Austria', 'FAZIT—Future of IT and Media Technologies in Baden-Württemberg'.

Panagiotis Kokkinakos is an Electrical and Computer Engineer currently employed in the National Technical University of Athens (NTUA). He is a member, research associate and researcher at the Laboratory of Decision Support Systems by early 2010 and has participated in various research projects (funded by Greek and European funds) for governance, decision-making, energy, electronic participation, project management, etc.

Sotirios Koussouris holds a Ph.D. in Information Systems and Business Process Management, a Dipl. Eng. in Computer and Electrical Engineering and a MBA in Techno-Economic systems. He has over 8 years experience in information systems and telecommunication technologies with special skills in areas like eGovernment technologies and applications, eParticipation, Social media Business Process Re-engineering and Business Process Modelling for organisations seeking at installing and operating high-end IT systems, IT Consulting in private and public sector, Telecommunications Management, Management and Monitoring of domestic EC co-founded Projects mainly for the public sector. Over the last years, he has worked in numerous EC- and Domestic-funded projects including the MOMENTUM project (eParticipation Specific Support Action), WEB.DEP, the Greek eGif, and GENESIS, the Greek Interoperability Centre, and also in various private sector projects. His work has been published in journals such as IJPR, IJEG, eJETA and major conferences such as ePart, I-ESA, eChallenges and eGOV.

Fenareti Lampathaki holds a diploma—M.Eng. degree in Electrical and Computer Engineering (Specialisation: Computer Science) from the National Technical University of Athens (NTUA) and a MBA in Techno-Economics from NTUA, University of Athens and University of Piraeus. She is currently finalising her Ph. D. at the Decision Support Systems Laboratory (DSSLab), NTUA. During the last years, she has been involved in several EU-funded and national R&D projects, including GENESIS, the Greek e-Government Interoperability Framework (eGIF), the Greek Interoperability Centre (G.I.C.), CROSSROAD, ENSEMBLE and webinos. Her research interests lie on e-Government and e-Business Interoperability, Semantics, Services and Data Engineering, Business and Legal Rules Modelling, Electronic Governance and Policy Modelling, Future Internet Enterprise Systems and Social Computing and Web 2.0. Her research results have been published in several international journals, edited books and conference proceedings (e.g. EGOV Conference 2008—best paper award, HICCS 2009—best paper nominee).

Euripidis Loukis is an assistant professor of Information Systems and Decision Support Systems at the Department of Information & Communication Systems Engineering, University of the Aegean, Greece. Previously, he has taught at the Postgraduate Programme "Athens MBA" of the National Technical University of

Athens and the Athens University of Economics and Business, and at the University of Thessaly, in the area of information systems, and also at the postgraduate programme of the National Academy of Public Administration, in the area of eGovernment. Dr. Euripidis Loukis is the author of numerous scientific papers in international journals and conferences, and of several book chapters, in the areas of eGovernment, eParticipation, ICT-induced structural changes of firms and decision support systems. One of his papers has been honoured with the International Award of the American Society of Mechanical Engineers (ASME), while another has been honoured with the best paper award of the European and Mediterranean Conference on Information Systems. He has an extensive experience as Information Systems Advisor at the Ministry to the Presidency of the Government of Greece (1991–2002). Formerly, he has been Scientific Director of the Programme of Modernisation of Public Administration of the Second European Community Support Framework, ICT Advisor of the Ministry of Culture and Sports for ICTs issues and National Representative of Greece in the programmes ‘Telematics’ and ‘IDA’ (Interchange of Data between Administrations) of the European Union.

Marian Mach graduated (M.Sc.) in 1985 at the Department of Cybernetics and Artificial Intelligence at the Technical University in Kosice. His Ph.D. thesis on uncertainty processing in expert systems was defended in 1992. He is an associate professor at the Department of Cybernetics and Artificial Intelligence of the Faculty of Electrical Engineering and Informatics at the Technical University of Kosice. His scientific interests are knowledge management, data and Web mining, classification of text documents, information retrieval, semantic technologies and knowledge modelling.

Jose Manuel Robles Morales holds a Ph.D. in Sociology from the Complutense University of Madrid. His field of research is the information society and knowledge and, crucially, digital political participation and political theory and inequalities digital technology (digital divide). He has been visiting research and teaching in academic institutions as the University of California-San Diego, Juan March Foundation and the Institute IN3 Open University of Catalonia. He has directed research projects, among others, the Centre for Sociological Research (CIS), the Ministry of Science and Technology (National Research Plan) or the Higher Council for Scientific Research (CSIC) where he worked for several years coordinating the area of Information Society and cooking. He has over 30 publications and is a member of various research groups. He is currently an acting professor in the department of Sociology Section III of the Faculty of Economics and Business Administration at the Universidad Complutense de Madrid.

Stefano De Marco is a Ph.D. candidate in Sociology in the University Complutense of Madrid. He earned a degree in Social Psychology (2007) in the University of Milan-Bicocca (Italy). He is a researcher of the CSIC (Higher Council for Scientific Research) and of the CIS (Centre for Sociological Researches). During the years 2006 and 2007, he worked at the same university (Department of Social Psychology, Faculty of Psychology) in research projects on political

discourse analysis. From January 2010, he is a member of the research group 'Digital Citizenship and politics and digital divide: An empirical analysis of the impact of Internet use policy'. He is currently an honorary associate of the Department of Sociology at the Faculty of Economics and Business Administration in the University Complutense of Madrid.

Luis de Marcos has a B.Sc. (2001) and a M.Sc. (2005) in Computer Science from the University of Alcalá, where he also completed his Ph.D. in the Information, Documentation and Knowledge programme in 2009. He is currently working in the Computer Science Department as an assistant professor. He has more than 70 publications in relevant conferences and journals. He has also been a research fellow at the Lund University (Sweden), the University of Reading (UK) and the Monterrey Institute of Technology (Mexico). His research interests include intelligent agents, evolutionary computation, adaptable and adaptive systems, e-learning, competencies, learning objects, and mobile and ambient learning.

Gianluca Misuraca is currently a Scientific Officer at the Institute for Prospective Technological Studies of the European Commission's Joint Research Centre (JRC-IPTS) in Seville, Spain, where he is part of the Information Society Unit focusing on research in the area of ICT for Governance and Policy Modelling. Gianluca is also a research associate at the Ecole Polytechnique Fédérale de Lausanne (EPFL) where, before joining IPTS, he was the Managing Director and Scientific Coordinator of the Global Executive Master in eGovernance (eGov), organised by EPFL in collaboration with prestigious institutions worldwide. Previously, he worked for the United Nations Department of Economic and Social Affairs (UNDESA) acting as Liaison Officer for Africa in knowledge management and e-Governance. During his career, Gianluca held several positions as policy advisor for different International Organisations and bilateral cooperation agencies as well as working with various consulting and industrial organisations in the areas of public administration reform, eGovernment, regional development, research and innovation.

Tit Neubauer is a researcher at the Faculty of Social Sciences at the University of Ljubljana. His research interests encompass policy analysis and research, policy model development and analysis of the socio-political impacts of social media, citizenship, equal opportunities and religion. He has extensive experience in national and EU projects, among others, working as a researcher on the Citizen (ship) in a New Era-Citizenship Education for a Multicultural and Globalised World project (2010–2011) and Simbioz@—increasing digital literacy through intergenerational cooperation (2010–2011). Tit Neubauer is a co-founder of the think-tank Entelehia—Agency for Scientific Support to policies.

Panagiotis (Panos) Panagiotopoulos holds a Ph.D. in Information Systems and is a part-time lecturer in Information Systems at Brunel University where he completed his Ph.D. in 2011. He is also the scientific coordinator for the EU-funded project Di@logos Net: 'Achieving more Inclusive European Social Dialogue through Networking Technologies'. His research generally examines the

institutional perspective of ICTs in governance, with online petitioning being one of the main focuses. He has undertaken a number of case studies with political organisations and is also an advocate of online and mixed-methods research approaches for understanding the impact of digital engagement technologies. His background is in Computer Engineering from the National Technical University of Athens. He is a member of the IFIP working group 8.5 Information Systems in Public Administration.

Pedro Prieto-Martin is a Ph.D. candidate at the Computer Science Department of the University of Alcalá. He holds a M.Sc. in Computer Science from the Universidad Complutense de Madrid (1998), a B.A. (Hons) in Business Administration from the Universidad de Alcalá (2000), a first degree in Philosophy from the Universidad Autónoma de Madrid (2001) and an M.A. on Information Society from the Universitat Oberta de Catalunya (2004). He worked 5 years as software engineer at Hewlett-Packard Germany and spent 5 years in Brazil and Guatemala, where he researched Civic Participation in the Latin American context. His research and publications focus on Civic Participation, Participatory Budgeting and eParticipation. He is the founding president of the NGO 'Symbiotic Cities' (Asociación Ciudades Kyosei), which aims to provide Civic Software tools to foster municipal civic participation both in developed and developing countries.

Pille Pruulmann-Vengerfeldt is an associate professor and head of the institute in the University of Tartu, Institute of Journalism and Communication. She also works as a part-time researcher in Estonian National Museum. Her research interests are focused on Internet user typologies, user-friendly online spaces as possible venues for participation in political and cultural life. Her practical interests are mostly focused on public engagement and user participation in public institutions and politics. She is a leader of research projects: 'Developing museum communication in the twenty-first century information environment' and been the Estonian partner for e-Participation project 'HUB websites for Youth participation'. She also participates in projects: EuKidsOnline and 'Estonia as an Emerging Information and Consumer Society: Social Sustainability and Quality of Life'. She has recently published in Journal of Baltic Studies, Journal of Computer-Mediated Communication and Journal of Children and Media.

Tomas Sabol received his M.Sc. degree in 1981 and Ph.D. degree in 1986 in technical cybernetics at the Department of Cybernetics and Artificial Intelligence of the Faculty of Electrical Engineering and Informatics at the Technical University in Kosice. Currently, he is a professor of Artificial intelligence, working for the Faculty of Economics and Faculty of Electrical Engineering and Informatics. His research interests include artificial intelligence, knowledge management, semantic technologies, e-Government and project management.

Michael Sachs studied at the University of Vienna and the University of Nottingham and received a master degree (Magister philosophiae) in English and American Studies as well as in History and Political Education including secondary modern school accreditation. Since 2009, he is a research fellow at the Centre for

E-Government, Danube University Krems. Besides regular academic work at a university, he is presently involved in national and European projects, ranging from public sector innovation to cross-border e-participation. He is a manager of the Conference for E-Democracy and Open Government and runs the social media activities of the centre. Michael's research is on the impact of ICT on society with focus on open government and related fields.

Johanna Schepers, M.A., is a project manager for international projects in the field of e-government and media competence at MFG Baden-Württemberg. Next to general project and consortium management, she is responsible for website development, network management, dissemination and public and stakeholder relations. She holds a bachelors degree in European Studies from the University of Maastricht and a masters degree in Contemporary European Studies from the Universities of Bath, Prague and Siena. Her studies were complemented by work experiences in different European institutions and media companies in Brussels.

Sabrina Scherer is a researcher at the University of Koblenz-Landau. She studied Computer Science at the Saarland University, Germany. After her graduation as Dipl.-Inform., she worked as a software engineer. Since June 2007, she works in the research group e-government at University of Koblenz-Landau, Germany, focusing on e-participation. In DEMO-net, she worked with her colleagues on a knowledge base for e-participation. In LEX-IS, she was involved in the requirements analysis and was responsible for the implementation of the pilot in Austria. Further, she was responsible for the evaluation of the pilot in VoicE and the requirements analysis, evaluation and dissemination in the follow-up project VoiceS. In OCOPOMO, she applies her experience in the conceptualisation of an e-participation platform for collaborative scenario building and policy modelling. Her research interests cover in particular e-participation and modelling.

Sinan Sen is a scientific researcher at Research Center for Information Technology (FZI) in Karlsruhe (Germany). His main research interests are Complex Event Processing, Real-Time Systems and Semantic Web. He received his M.Sc. degree in Computer Science from the University of Saarland and his BSc from the University of Applied Sciences Wiesbaden.

Nenad Stojanović is a project leader in IPE. He received the M.Sc. in computer science from the University of Nis/Serbia and the Ph.D. degree from the University of Karlsruhe (thesis on Ontology-Based Information Retrieval). He has worked in and has had the technical management of several EU as well as bmbf projects (national German funding) in the areas of complex event processing and applying semantic technologies for knowledge-based systems. He published more than 70 technical papers in international journals, conferences and workshops. He is an initiator and co-chair of the workshop serials on several prominent research conferences

Ella Taylor-Smith is a senior research fellow in Edinburgh Napier University's Institute for Informatics and Digital Innovation (IIDi). Over the last 10 years, she

has worked on a series of eDemocracy and eParticipation projects within IIDI's International Teledemocracy Centre, aiming to find good ways to use the Internet to increase people's meaningful involvement in governance and democracy. Ella's research has primarily been applied: investigating methods which encourage people to interact both with information on policy topics and with each other in online communities and deliberative groups. Most of these research projects have focused on young people; all the projects have been collaborative. Ella holds an M.Sc. in Information Technology (Multimedia: Napier, 2002) and an M.A. in Fine Art (Edinburgh University and Edinburgh College of Art, 1993).

Daniela Tiscornia is Director of Research at the Institute of Legal Information Theory and Techniques (ITTIG), Department of the Italian National Research Council (CNR), where she leads the Research Unit: 'Legal ontologies and Legal Language Processing'. Her research activity is in the area of ICT & LAW, with specific references to legal information processing, legal language analysis and in the application of AI techniques to the representation of legal knowledge. Current research interests deal with the application of Semantic Web tools to the legal domain and with the development of ontology-based models of legal knowledge. She has been acting as scientific coordinator/partner in national and European projects: ICT4Law (Converging Technologies, project of the Piedmont Region) (2008–2011), Dalos (Drafting Legislation with Ontology-based Support) (eParticipation 2007–2008), Lois (Lexical Ontologies for Legal Information Sharing) (eContent 2002–2004) and ePSInet (e-Public Sector Information) (eContent 2002). She is currently participating to the European Project eCodex (E-justice Communication via Online Data exchange, ICT PSP 2010). She is a member of the editorial board of the International Journal Artificial Intelligence and Law, Amsterdam, Kluwer and a member of the editorial board of the International Review: Informatica e Diritto, Napoli, ESI

Mitja Trampuš is a Ph.D. student at the Jozef Stefan Institute in Slovenia. He works in the area of natural language processing; his interests so far include (multi) document summarisation, information visualisation and semantic information extraction with its various applications to text mining tasks. His work has been presented at several international venues. He has served as an external reviewer for multiple conferences and publications, among others, ICDM, KDD and WWW. Currently, he is pursuing a data mining internship at Facebook.

Anastasios Tsitsanis is an Electrical and Computer Engineer and he also holds an M.Sc. in the production and management of energy. He has participated in numerous projects in sector such as eParticipation, eGovernment, interoperability, etc.

Tina Vuga is a co-founder and an analyst at the think tank Entelehia—Agency for Scientific Support to policies based in Ljubljana, Slovenia. She worked in a number of national and EU projects, among them ERA-NET project NORFACE (2007-), OMC-NET FP7 project ERA-PRISM (2010-) and OMC-NET FP6 project BIS-RTD (2007–2008), conducting policy analyses in issues ranging from equal opportunities, social inclusion to research and technological development. She

currently works at the Slovenian Research Agency in the field of R&I analysis, international cooperation and as national coordinator for the European Science Foundation (ESF).

Maria A. Wimmer is a full professor for eGovernment at University of Koblenz-Landau, Germany. She studied Computer Sciences at the University of Linz, Austria. After a 2-year research fellowship stay on designing safety critical systems for train traffic control at the CNR and University of Siena in Italy, she turned her focus onto ICT in the public sector (Linz, 1999–2004, research and teaching with the University of Linz; Vienna, 2005–2005, with the Austrian Federal Chancellery; Koblenz, 2005—now). Her main research focus lies on e-government, open government and e-participation with various facets (e.g. holistic design, enterprise architecture, conceptual modelling, ontology and knowledge management, procurement, standardisation and interoperability, stakeholder involvement, technology use, evaluation, policy development). With her research group, she was/is engaged in a number of EC-funded research projects. Maria Wimmer co-organises several international conferences such as the annual international EGOV conferences. She chairs the IFIP WG 8.5 on Information Systems in the Public Sector and the German Society of Informatics working group on Informatics in law and governments (RVI). Apart from that, she is a member of ACM, IEEE, AIS and the Austrian Computer Society. She published a number of papers in the field.

Index

C

- Civic participation, 81
- Collaborative, 21
- Collaborative policy development, 199
- Collaborative scenario building, 199
- Conditions of possibility, 223
- Consistent conceptual description (CCD), 209
- Criteria and indicators, 47

D

- Democratic legitimacy, 3
- Digital Agenda, 226
- Digital Europe 2030, 274
- Digital political participation (DPP), 61
- Discourse, 225
- Discussion forums, 157
- Discussion groups, 182
- Discussion trends, 157
- Distant decision-making, 140
- Distributed discussion, 181

E

- eDemocracy, 224
- eMPower, 52
- Engagement activities, 80
- Engagement tools, 79
- eParticipation, 3, 139
- eParticipation in Europe, 242
- ePetition, 39, 80
- ePetitioning, 79
- Europe 2020 strategy, 241
- Evaluating eParticipation projects, 95
- Evaluation, 95
 - framework, 41
 - methodology, 40

F

- FEED, 108
- Focused evaluations, 95
- Formal policy models, 199
- Fragmentation and dispersion of research, 247
- Framework, 141

G

- Governance, 224
 - models, 264
 - and policy modelling, 264
- Grand challenges (GC), 278
- Grassroots petitioning initiatives, 80
- Guideline for eParticipation, 142

H

- Hub web sites, 182
- HUWY, 181

I

- ICT for governance and policy modelling, 266
- Information and communication technologies, 63
- Information overload, 157
- Innovation, 22
- Innovation support programmes, 241
- Integrated ICT toolbox, 199
- Internet in politics, 63

L

- Law, 120
- Legal content, 120
- Legal ontologies, 126
- Legislative information, 120

- LEXIS, 109
Linked data, 120
Local, 139
Lurkers, 25
- M**
Measurement model, 62
- N**
National regulatory and institutional context, 120
Normative environment, 120
- O**
OCOPOMO, 202
Ontology learning, 127
Open and collaborative production systems, 21
Open government, 21, 199
- P**
Participation of stakeholders, 202
Petitioning, 39, 79
Political engagement, 81
Procedural model, 142
Progress of eParticipation, 241
Public administration, 21
Public participation, 242
- R**
Recruitment of participants, 4
Regional, 139
Regional participation, 139
Research themes, 268
Roadmap, 278
- S**
Semantic technologies, 120
Structured eForum, 95
- T**
Technology adoption, 45–46
- U**
Universal problem solution frame, 224
User participation, 25
- V**
VIDI, 157
Visionary scenarios, 274
Visualisation, 158
VoicE, 139
VoiceS, 139
- W**
Web-based tool, 158
- Y**
Young people, 181
Youth, 181