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# Social media for citizen participation

| Report on the Somus project



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# **Social media for citizen participation**

## **Report on the Somus project**

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The Open Research Swarm



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**Keywords** social media, social networks, citizen participation, collaboration, self-organization, open data, co-design, open research

## Abstract

Social media is often considered to be fun and entertaining, but it also has potential for redefining the traditional ways of citizen participation – for example, by enabling more direct, real-time and networked ways to collaborate.

In the Somus project (Social media for citizens and public sector collaboration) we studied the dynamics of information, knowledge and citizenship in an open and participative media environment. We developed several social media services that enable collaboration between citizens and public agencies.

In the Participatory Media case study, high school students and researchers created a photo-based online campaign Climate Worries. In the Immigrant Media case study, we developed a virtual meeting place, Monimos, for internationally minded people in Finland. User communities were involved in the service development using both online and face-to-face methods. The Instant Media sub-project studied the phenomena of the real-time web and self-organizing networks in societal problem solving through several case studies.

The possibilities of open public data were studied by arranging an ideas and application competition for citizens and companies. Open knowledge sharing was also supported in the work to open up public sector information sources and publish a guide book for open data. A couple of online services that reuse content from different sources were developed also by the Somus project.

Regarding research methodology, the Somus team experimented with and studied ways of conducting academic research openly and transparently, for example by using social media and allocating flexible funding to the Open Research Swarm to execute microtasks. Free online tools were used for team work and communication during the project.

While the prospects and possibilities of social media and open collaboration in improving collaboration between citizens and public authorities are attractive, at

the same they are challenging and resource-consuming activities. This publication offers ideas, viewpoints and experiences of using social media for participation both in the society and in academic research work. The report reflects the multidisciplinary nature of the project by looking at the phenomenon of citizen participation from the viewpoints of sociology, communication, design and technology.

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## Tiivistelmä

Sosiaalinen media on mielletty pitkälti viihdeksi, mutta se tarjoaa uudenlaisia ja monipuolisia mahdollisuuksia myös yhteiskunnalliselle aktiivisuudelle ja kansalaisosallistumiselle.

Somus-projektissa (Sosiaalinen media kansalaisten ja julkishallinnon yhteistyöhön) tutkittiin informaation, tiedon ja osallistumisen dynamiikkaa avoimessa ja osallistuvassa mediaympäristössä. Projektissa kehitettiin useita sosiaalisen median palveluja, jotka tukevat kansalaisten ja julkishallinnon välistä yhteistyötä ja mahdollistavat suoran ja reaaliaikaisen kommunikoinnin verkottuneessa ympäristössä.

Osallistuvan median osaprojektissa kehitettiin kuvapohjainen nettikampanja IlmaVaivaa yhdessä lukiolaisten kanssa. Maahanmuuttajamedia-osaprojektissa puolestaan kehitettiin kansainvälisesti suuntautuneiden ihmisten virtuaalinen kohtauspaikka Monimos. Käyttäjyhteisöt osallistuivat palvelujen kehittämiseen sekä kasvotusten että verkon kautta. Välittömän median osaprojektissa tutkittiin reaaliaikawebin ja itseorganisoituvien verkostojen vaikutusta yhteiskunnallisten ongelmien ratkaisussa useiden tapaustutkimusten kautta.

Projektissa tutkittiin myös avoimen julkisen datan mahdollisuuksia järjestämällä idea- ja sovelluskilpailu kansalaisille ja yrityksille. Tiedon avointa jakamista tuettiin myös auttamalla julkishallintoa datalähteiden avaamisessa ja julkaisemalla avoimen datan opas. Projektissa kehitettiin myös muutama verkkopalvelu, jotka perustuvat datan yhdistämiseen eri lähteistä.

Somus-projektissa kokeiltiin myös erilaisia tapoja tehdä akateemista tutkimusta avoimesti ja läpinäkyvästi. Projektityössä hyödynnettiin ilmaisia sosiaalisen median työkaluja, ja osa projektin budjetista käytettiin mikrotaskeihin Tutkimusparven kautta.

Sosiaalinen media tarjoaa paljon mahdollisuuksia kansalaisten ja julkishallinnon toimijoiden yhteistyön kehittämiseen, mutta samalla se haastaa perinteiset toimintamallit ja vaatii aikaa sekä resursseja. Tämä raportti tarjoaa ideoita, näkökulmia ja kokemuksia sosiaalisen median hyödyntämisestä niin yhteiskunnassa kuin tutkimustyössä. Kansalaisosallistumista tarkastellaan poikkitieteellisen projektin hengessä mm. sosiologian, viestinnän, suunnittelun ja teknologian näkökulmista.



## Preface

This publication contains the results of the project ‘Social media for citizens and public sector collaboration’ (Somus). The two-year project was jointly funded by the MOTIVE programme of the Academy of Finland and the research partners. The aim of the project was *to study the dynamics of information, knowledge and citizenship in an open and participative media environment*. To achieve this goal, we developed several social media services that supported collaboration between citizens and the public sector using the fact that social media enable more direct, real-time and networked ways of acting.

The procedures for planning and running the project have been open and participative in accordance with the project topic. The proposal was drafted on the public web with participation by persons outside the consortium, the so-called research swarm, which has played an important role throughout the project. This openness made the Somus project known and well received by the target audience of active citizens and civil servants from the start. Openness and participation demand new tools, and we have therefore improved the collaboration internally and externally with tools like EtherPad and work-structuring models such as microtasking and microarticles.

The Somus project was carried out by VTT Technical Research Centre of Finland (lead), Aalto University School of Science and Technology, University of Jyväskylä, University of Tampere and the Open Research Swarm in Finland. Professors from these partners and a representative of the Open Research Swarm (ORS) formed the steering group: Caj Södergård (VTT), Petri Vuorimaa (Aalto University), Esa Kontinen (University of Jyväskylä), Risto Kunelius (University of Tampere) and Petri Kola (ORS). The project leader was Pirjo Näkki (VTT). The project group members collectively contributing to this publication were Asta Bäck (main responsibility for Section 1.3.1, 7.1, 7.2), Auli Harju (1.2.1, 1.3.2, 1.3.3, 3.1, 4.1, 4.2, 4.3, 6.1, 6.2), Kari A. Hintikka (1.2.3, 1.3.4, 2.1, 2.2,

2.3, 2.4), Petri Kola (5.1, 5.2), Pirjo Näkki (1.1, 1.2.2, 1.2.5, 1.4, 3.2, 3.3, 3.4, 3.5, 6.3), Reeta Pöyhtäri (4.3) and Teemu Ropponen (1.2.4, 1.2.6, 3.1, 3.2, 3.3, 3.5, 5.3, 5.4, 6.4). Juha Kronqvist (6.5) also participated in the writing. In addition to the authors, Jaana Björklund, Jyrki Hakkola, Riina Hautala, Tero Heiskanen, Timo Hintsala, Juhana Hokkanen, Timo Kylmälä, Sebastian Monte, Teemu Muikku, Magnus Melin, Antti Poikola, Kalle Säilä and many members of the Open Research Swarm contributed to the project and its outcomes.

Social media have great potential to improve collaboration between citizens and public authorities. This publication aims to give some hints on how this potential can be realized.

Espoo 13.12.2010

Caj Södergård  
Project Manager

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# 1. Introduction

## 1.1 Somus project

The main objective of the Somus project was to produce basic knowledge about the dynamics of information, knowledge and citizenship in the participative media environment. To achieve this goal, we experimented with online media services that supported collaboration between citizens and the public sector. In the case studies, we developed citizen-driven media services that support bottom-up processes in which people become involved in all phases of participation: a) public definition of common problems, b) collection and accumulation knowledge and other competencies, c) development of socially grounded innovations and d) actual decision-making. Social media challenge the traditional ways of citizen participation at all these levels by enabling more direct, real-time and networked ways of acting.

**Vision of citizen participation.** The Somus project shares the vision of efficient web democracy, as stated in the Finnish Government's National Knowledge Society strategy for 2007–2015 (Valtioneuvosto, 2006). Our vision is for citizens to participate in society *easily* as part of their *everyday life* by 2015. Public decision-making starts from *grass-roots level actions*, and it is *transparent* for all citizen groups. Citizens challenge public administration and media companies to better achievements via *self-organizing networks* that support a public-citizen partnership and make communication and operation efficient in diverse situations. *Collective intelligence* is used in the public sector by delegating some issues to citizens to solve, which leads to better and more efficient solutions. The realization of the vision requires collectively built competences and *open sharing of knowledge*.

**Project implementation.** In the Somus project, we worked towards the vision in different case studies and with our own working methods, which are described briefly here and more thoroughly in Section 1.2. The relationships between the project activities can be seen in Figure 1.

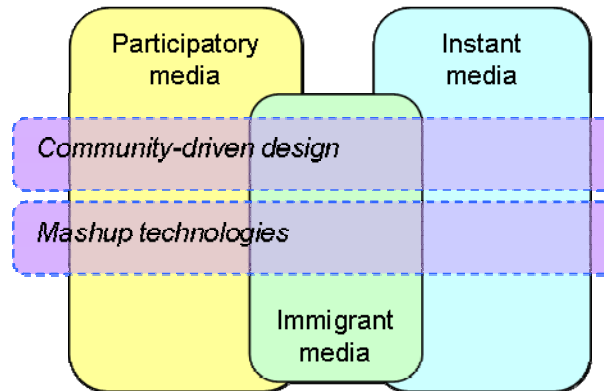


Figure 1. Somus case studies and sub-projects.

A bottom-up approach for grass-roots level actions was supported in two case studies in which we developed social media services together with the user communities. In the Participatory Media case study (see 1.2.1), the image-based online campaign Climate Worries was created together with high school students. In the Immigrant Media case study (1.2.2), we developed a virtual meeting place, Monimos, for internationally minded people in Finland. The Instant Media sub-project (1.2.3) studied the phenomenon of the real-time web and self-organizing networks in societal problem solving through several case studies.

In the mashup technologies subproject, several social media tools were developed to support citizens and public sector communication (1.2.4). Collective intelligence was used in the mashup development by arranging an ideas and application competition to find new ways of using open public data. Open sharing of knowledge was also supported in the work to open up governmental data sources and publish a guide book for open data. We also studied new ways to involve user communities in the development of social media services. Online and offline collaboration methods were used for community-driven participatory design (1.2.5).

When it comes to research methodology, the Somus team experimented with and studied ways of conducting academic research openly and transparently

using social media and allocating flexible funding for microtasks to the Open Research Swarm (1.2.6). The project has shared ideas, research problems and project meeting minutes openly on the Internet. The use of social media to invite anyone interested in taking part in project meetings and discussions led to valuable networking and guided the project towards interesting questions that would have been missed without this interaction.

## **1.2 Project activities**

In this final report, we present some of the key findings and results of the work conducted and experimented with in Somus. They are presented as microarticles, which are very short individual articles. Microarticles can define a concept, analyse a phenomenon or evaluate a principle (Tutkimusparvi, 2008). Microarticles are especially useful in the early phase of research when comments and open peer reviews are expected, before writing the final research papers. In this final report, we experiment with whether microarticles can also be used as a compact form of reporting on key results that have or will be reported more thoroughly in scientific articles.

The Somus project studied social media and citizen participation from several different viewpoints. As different research fields have different traditions of discussing and reporting results, the form and style of microarticles vary from concrete presentations of findings to more theoretical anchoring to previous discussions on the themes. Each microarticle can be read separately, though similar microarticles are grouped into sections so that the report also constitutes a whole.

### **1.2.1 Participatory media**

The Somus Participatory Media case study was based on the ideas of online knowledge building and civic engagement by young people. The research was conducted in two Finnish high schools, Messukylän lukio and Koillis-Helsingin lukio, with students aged from 16 to 18 years. We gathered a group of students at each school by offering them the opportunity to pass one of their media studies courses by attending the project course taught by one of the researchers. About ten students joined at each of the schools, but in practice the groups ended up being smaller, with four to six students.

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In the beginning, the project was linked to the theme of climate change and the Internet as a platform. Other than this, the students were given a free hand to choose the project goal. One of the students suggested a climate change challenge. The others agreed and, hence, as the project outcome, a climate change photo challenge website was developed and published in May 2010 and closed down half a year later, before the end of the Somus project. During the development process, we drew on the participatory design method (Muller, 2002) involving the students in the process from scratch with different exercises (for details, see 4.2).

The research data consist of participatory observation, and researchers' notes from the classroom and research team meetings, exercises and comments by the students at the Owela Web Lab, demo version commenting in EtherPad, and the Climate Worries website with its photo challenges and comments on them. The students also gave feedback on Owela as a working environment and on the course in general.

### **1.2.2 Immigrant media**

In the Immigrant Media case study, we developed a social media service for immigrant groups based on their everyday life needs and issues. The goals of the case study were to enable immigrant participation in the processes of knowledge building and public discussion, and to establish open interfaces and interaction between immigrants, multicultural associations and government agencies.

The case study started by creating an understanding of the immigrants' needs and current challenges in civic participation by interviewing civil servants working with immigration issues and the founder of a multicultural network in Helsinki. The issues and possible solutions were further discussed in two workshops with a group of emigrants and other people working with immigrants (NGOs, media and civil servants). Based on common interests, we started to collaborate with another research project, EPACE (Exchanging good practices for the promotion of an active citizenship in the EU), coordinated by the Ministry of Justice, and with Moniheli, the network of multicultural associations in the Helsinki metropolitan area.

The actual development project started in November 2009 together with Moniheli members. We applied a community-driven participatory design approach (1.2.5), which meant that the idea and goals for the service were created together with the user community and that the community had an active role in



the design and decision-making throughout the development process. A core team consisting of ten immigrants and two employees from the Moniheli network, a web developer, a designer, and six researchers from different fields held monthly face-to-face design workshops. Participation in the design process was also open to everyone via the online design space in Owela. Online tools were also used in the workshops to enable participation by those who could not attend the meetings face to face (see 3.3 and 3.5).

The result of the process is the social media service Monimos (see Appendix A), which was launched publicly in June 2010 as a meeting place for internationally minded people in Finland. The aim of the Monimos service is to support networking and civic participation by immigrants online and offline. Monimos provides means for associations to raise public and internal discussion, create polls and advertise events. It supports bottom-up civic activity, and it will eventually be administered by the Moniheli network. The service has already been used by immigrants, Finns and multicultural associations for networking, discussion and promoting events. An analysis of the service as a deliberative process is presented in Section 4.3.

Seven members of the core team were interviewed at the end, and a couple of short online surveys were conducted during the development process. Experiences from the case study are reported by Pöyhtäri and Harju (2010), Ropponen et al. (2010), Näkki (2010), and Näkki and Ropponen (2011). See p. 112, Additional reading.

### **1.2.3 Instant media**

The Somus Instant media case study was based on the phenomenon of open, temporary and social self-organization on the real-time Internet and, in particular, on social media, the way they work and the kind of premises and enablers they need to achieve their goals. The main methods were case study (Yin, 2005) and social network analysis (Scott, 2000).

The main approach was to apply previous theories and models of various forms of collective intelligence to emerging real-time cases on the Internet during the project 2009–2010. The most notable cases evaluated were the H1N1 pandemic tracking in 2009, the student protests in Tehran in 2009 and on-going activities around the whistleblower WikiLeaks process. At national level, the Facebook campaign ‘General strike 15.10.2010’ (‘Yleislakko’) and ‘Resign from the Church’ (‘Eroakirkosta.fi’) movement in 2010 were studied.

The second focus was on national PPPP networks (Public-Private-Peer-Partnership), such as the growing ecosystem of open data in Finland, Sometu, which is an open educational expert network on the Internet with more than 3000 members, and Finnish eLearning clusters. The catalysts for these networks and Somus were initiatives such as the Apps for Democracy Finland innovation competition and a guide book about open data for public and governance actors to experiment with catalysts for and how to facilitate open PPPP networks.

The third focus was to apply and test conceptually current theories and models of self-organizative collective intelligence as best practices for current working models of associations, the public sector, mass media and political parties. This work was carried out in several seminars and scenario workshops and by popularized newspaper articles such as *Helsingin Sanomat* during 2009–2010. Most of this material is freely available on the Internet.

Some of the results are reported in Chapter 2 of this report and more thoroughly in the Hintikka (2009). See p. 112, Additional reading (in Finnish).

### 1.2.4 Mashup technologies

The Somus project aimed to create services, platforms and tools for citizen-driven mashup development. The project also aimed for mashup development by some members of the Open Research Swarm, as well as the participants of the case studies.

Mashups in the web application context refer to a combination of data or functionality from two or more external sources, often beyond the control of these original sources, to create a new service (or service component). Moreover, mashups are typically based on easy and fast integration of data sources to create new innovative ways of visualizing or using the original data. Mashups have become a popular way to produce new services, as new mashup services can be developed with moderately little or no programming skills.

The development was carried out in interaction with other more technology-oriented projects at Aalto University School of Science and Technology<sup>1</sup> (funded by the ICT SHOK Flexible Services programme) and aimed for synergy benefits. Unfortunately, due to difficulties in this other project, Somus had to

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<sup>1</sup> At the beginning of the project, Helsinki University of Technology

steer in a new direction. Instead of developing a generic platform for citizen-driven mashup development, there were a number of other efforts:

- The KommentoiTätä (Appendix C) tool was created, its service concept and business model analysed and the services piloted in different contexts and user groups in the public sector.
- The Finnish Parliament Facebook chat (Appendix D) was created by an external company as a part of the Open Research Swarm funding.
- Two different VideoAnnotation tool prototypes (Appendix E) were developed and the HTML5 technology, in particular, was investigated.
- The Monimos service (Appendix A) combined a WordPress and BuddyPress platform to create an engaging social media service for internationally minded people that remains live and in operation.
- The Climate Worries (Appendix B) website was a campaign platform that combined photo album-like features with commentary and location, and it integrated into other social media services such as Flickr.

In fact, all the developed service prototypes incorporated interfaces to other existing services – providing an opportunity to reuse content in different services, as is typical or defining in social media services. While the Climate Worries campaign was a one-time effort, elements of the platform may be reused for other initiatives at a later time. Monimos ([www.monimos.fi](http://www.monimos.fi)) is a live service that has been handed over to Moniheli – the coordination network for multicultural associations in the capital region. It is currently used by several hundred people and tens of public agencies, NGOs and/or interest groups.

The mashup technologies sub-project was not just about *technical* tools and platforms. The Somus project challenged the Finnish public sector to open its databases for citizens to use by attending seminars and initiating public discussion (5.1). The Apps for Democracy Finland, Kansalaisosallistujan työkalut mashup innovation contest based on open data in the context of public services, was orchestrated and coordinated by Somus in its first year of 2009 (5.2). With more than 20 competition entries, some of which later spawned into start-ups and other initiatives (see, e.g., 5.3), it can indeed be claimed that the contest in itself was a platform for mashup development. The competition was continued the following year by other instances.

The results of the work related to open data can also be seen in the form of the guide book (Poikola et al., 2010).

### 1.2.5 Community-driven participatory design

Community-driven participatory design was used as a design method in the Participatory Media and Immigrant Media case studies. High school students and immigrants were chosen as the target groups of the case studies already in the project plan. More focused communities were then chosen in both cases to participate in the development projects for new social media services.

In both case studies, we used face-to-face meetings or workshops, as well as the online collaboration tool Owela<sup>2</sup> (Open Web Lab developed by VTT). The Owela tool was also developed further in the Somus project based on the specific needs of the cases. In Owela, users can participate in discussions, add their own ideas, comment and rate suggestions of others as part of a structured participatory design process (Näkki and Virtanen, 2007; Näkki et al., 2008).

Changes in participatory design in the era of social media are reported in Section 3.4. Monimos development is presented as a case example of combining online and offline design methods in Section 3.5 and in Näkki (2010). Challenges in the community-driven participatory design are also reported by Ropponen et al. (2010), and Näkki and Ropponen (2011). See p. 112, Additional reading.

### 1.2.6 Open research with the Open Research Swarm

One of the basic values of the Somus project was openness. All the project documentation was publicly available on the Internet. For the teamwork and communication, free online tools were used and flexibly changed during the project. Various online tools were also used in the Somus case studies for collaboration with the user communities. Free internet tools were prioritized, as it was easier to start using them without any installation work, and all Somus information was public anyway, which made it appropriate to use public tools.

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<sup>2</sup> <http://owela.vtt.fi>

The Somus research consortium also included the Open Research Swarm (ORS), a self-organizing group of researchers who collaborate mainly over the Internet and use social media tools in research work (Heiskanen et al. 2008). The ORS is not an official organization but can be thought of as a freelancer researcher network that operates openly. It had its own budget share, which allowed the Somus project to use the expertise of external researchers for short periods, for very specific tasks.

The concept of ‘swarming’ refers to participation in some activities and tasks without formal commitment, using Internet tools. Tasks can vary from, e.g., participation in discussion to software development. During the Somus project, we experimented with new ways of working using and involving the ORS. Experiences and challenges of working with an undefined group of people on the Internet are reported, in particular, in Section 6.3. Different aspects of open research are discussed in Chapter 6 as well as by Harju et al. (2009), and Harju and Ropponen (2010).

## **1.3 Key concepts**

The starting point of the Somus project was the relationship of social media and citizen participation. In this section, the essential theoretical concepts related to the project are explained, namely social media, openness, participation and social self-organizing.

### **1.3.1 Social media**

Social media, community media, participatory media, user-generated content (UGC), Web 2.0 and social networking are terms that are often used interchangeably to refer to applications in which user activity has a central position. In this project, we have primarily used the term social media because it captures the two key aspects of people and communication very well.

Social media can be used like traditional media just to consume content, which in itself may be created by peers, or may consist of links to traditional media shared and recommended to friends and contacts via social media. What makes social media different to traditional media is that users can easily, almost inadvertently, change their role from content consumer to content creator and participant (Shao, 2009). It is also important to emphasize that social media are not only about media but, possibly, even more about new ways of organizing

## 1. Introduction

and enabling light-weight collaboration and self-organization relating to the most varied topics and objectives.

Social media are defined by stating their three key elements: content, communities and Web 2.0 (Kangas et al., 2007; Ahlqvist et al., 2010). Content refers to, for example, photos, videos, status updates, tags, links and play-lists that users create and share. Communities refer to the opportunities for people to communicate, network and collaborate. The term Web 2.0 (O'Reilly, 2005) refers to easy-to-use technologies and applications that make communication and content sharing possible for ordinary people.

Erkkola (2008) defines social media in the following way: 'Social media is a technology bound and structural process where individuals and groups build common meaning with the help of content, communities and web based technologies through peer-to-peer production and produsage.' At the same time, social media are a post-industrial phenomenon that has an impact on society, the economy and culture because they change the established models of production and distribution. This definition adds or emphasizes the opportunities that social media offer for co-creative and collaborative work. One of the first social media applications, Wikipedia, is an example of this self-organizing, collaborative work that is possible in social media.

Ease of use and immediate reaction opportunities have contributed to making social media immediate and real time. This can be seen by, for example, a cause that raises great interest and emotion quickly cumulating a large amount of activity. Many things compete for user attention, however, and the activity can die almost as quickly as it picks up.

In many cases, it is easy to tell if an application is a social media application, though sometimes it is not. Typical features of social media are permanent user profiles or profile pages, visible user connections or networks that serve to filter the content of the service and give various communication opportunities between connected users, and the opportunity to contribute new content and use user activity to pinpoint interesting objects within the service.

More recently, a large number of sites have picked popular social media features, such as commenting and user-submitted content, or integrated with popular social media applications like Facebook and Twitter, so, the line between a social media application and a non-social media application are harder to make.

Social media were first introduced to consumers for use in their leisure time, and free and easy were important characteristics. Their huge popularity also raised interest in using these tools and processes for work related to purposes in

companies, the public and third sectors, and to renew their processes (Tapscott & Williams, 2006). For these latter purposes, the applications are not always open to anyone interested, but access is restricted to defined users or user groups.

The focus of the Somus project and its interpretation and emphasis on social media have been on web-based, open applications that support collaborative work for participating in society, planning for tools and processes for participation and carrying out research on these issues (Heiskanen et al., 2008).

### 1.3.2 Openness

In Internet usage, the term *openness* is versatile indicating that something – a process or a deliverable, object or content – is not restricted but accessible to anyone interested. It refers to openness as publicity, or transparency, in the context of an organization (whether a research project or a public sector organization). Openness can also be understood as an approach and attitude, even a manifestation, such as a publicly stated argument on the importance of opening, for instance, data or processes. *Open science* is an approach in which researchers open the whole research process as much as possible from a funding and research hypothesis to results (Heiskanen et al., 2008).

In the online world, *open source* means computer program code that anyone can use and alter freely. Openness is understood as a contract between different contributors with different power positions. The most formalized form of openness is the Open Source Initiative that acts as an authority that decides who is allowed to use its definition of openness. Wikipedia is a *commons*, i.e., a synthetic or material good freely accessible to anyone. *Open data* refer to the data created by the public sector, and anyone can reuse it freely. In *open politics*, like experiments with Wiki parties, every political process and action of individuals of a politically open party are public on the Internet.

In Somus, openness was considered an ideology, and it was brought into practice by experimenting with and developing open research group work (see Chapter 6). In the project, we aimed for *inclusiveness*, which may be interpreted as yet another dimension of openness: we wanted to enable engagement and participation by those who were not part of the Somus research team but who were interested in this type of research and wanted to follow or contribute to it.

Part of this participatory approach by the research and due to the societal goal of the Somus project, i.e., the aim to facilitate interaction between citizens and

the public sector, to us, openness also meant open *public dialogue*. Our idea of collaboration with outsiders mentioned above aimed to be deliberative, and we tried to remain open for commenting and criticism.

As a research group, we worked in an agile way. *Agility* in this context should be interpreted as a partly open-ended research process. Besides using community-driven participatory design and agile software development, we also worked in a way that allowed redefinition and reprioritization of the research, constantly but in a managed way.

### 1.3.3 Participation

In the Somus project, participation has four dimensions. First, we refer to participation in the sense of citizens participating in society and having their say on issues that concern their lives. Second, participation is connected to design processes such as planning and designing web services in two of the Somus sub-projects. The third dimension of participation is linked to social media in which content and knowledge are continuously under development by those taking part in the processes of content creation. Finally, the project aimed to enable participation in the research processes.

Citizen participation in the narrow meaning can be participation in representative democracy by voting. In this sense, citizen participation relies on civic rights and duties. Another view of participatory democracy emphasizes continuous participation by citizens, not just at the time of elections, and builds on democratic discussion and debate between all parties on a subject matter.

The participatory design concept refers to a software design process in which the end-users participate actively as members of the design team. Hence, participatory design should bring together users and designers, integrate their different knowledge and provide a common design space for users and designers (Muller, 2002).

User participation in software and service planning is a specific method, whereas social media is all about participation: a combination of community, content and Web 2.0 technologies. Social media provide capabilities for various levels of participation by individuals. Users do not necessarily have to be ‘experts with insight’ to participate. An example of a strong form of participation is the creation of content. It is a small effort to edit or comment on content.

A normative aspect of participation suggests that there are some elements that make participatory processes successful. Schudson (1997) distinguishes between



the sociable model of conversation and the problem-solving model. In social media in general, participation is often of the sociable type, whereas in the planning processes the focus is on problem solving, hence, there is a need for at least some level of consensus, a definition of the goal and the reaching of an outcome with which the participants can agree.

From the grass-roots perspective, successful participation is often based on the feelings of functioning interaction (listening and being heard), openness in the sense of inclusiveness of the process and a feeling that the engagement has an effect. Another way to measure the success of a participatory project is to evaluate the end result: in what way has the participatory process made the outcome better?

### 1.3.4 Social self-organization

The term self-organization is used widely from physics to chemistry and from cybernetics to social sciences (Wikipedia 2010a). In the history of modern science, it has been approached from empirical and philosophical views. Regardless of the branch of science, it can be understood as a process in which a form, pattern or structure appears in a system without a central authority or external element imposing it through planning. In the Somus context, we studied *social self-organization* (Fuchs, 2002) on the Internet among individuals, networks and as a process.

The classic definition of organization by Max Weber is that ‘an “organization” (Betrieb) is a system of continuous purposive activity of a specified kind. A “corporate organization” (Betriebsverband) is an associative social relationship characterized by an administrative staff devoted to such continuous purposive activity.’ (1947) The main characteristics of Weber’s definition are division of labour by hired personnel with a formal hierarchical structure with the intention of continuous existence.

Here, social self-organization can therefore be understood on a general level as an opposite: it is a form of collective action without formal leaderships or roles of hierarchy between the participants. Along with the rise of the Internet for citizen activities, self-organization has also been attached as a shared value like ‘freedom’ or ‘openness’ (see 1.3), as opposed to institutions and other formal organizations.

The term pair ‘top-down’ and ‘bottom-up’ (Kelly, 1994) is often mentioned along the social self-organization. The former means that decisions and commu-

## 1. Introduction

nication come mostly from the top of the hierarchy to the masses vertically and the latter that in self-organization, the decisions and communication are made horizontally at grass-roots level. There are practical obstacles preventing social self-organization from being realized in full on the Internet. For example, Kevin Kelly later elaborated on his former thoughts that *'the bottom is not enough. You need a bit of top-down as well'*. (Kelly, 2008)

In this report, social self-organization on the Internet can be understood as a collective, voluntary, temporary and purposive informal activity of a specified kind that is open to everyone interested in it. In the Somus project, solid or pure social self-organization was not the aim in the projects conducted on the Internet or in our internal project model. It was more of an attitude, like openness, and an approach to temporary cooperation, collaboration and collective action on the Internet with issue stakeholders, new social movements, institutions, protest crowds, social issues, expert networks and crowdsourcing.

Activities in civil society in the Western World will be more straightforward between citizens and their opponents. Citizen movements and networks are not considered to need or rely as much on formal institutions and associations as before. Colin Hay offers the explanation that, for example, politics is disappearing from politics, e.g., there are fewer and fewer issues to be decided on in democratic forums such as in parliaments and governments (2007). It could also be argued that the Internet at least enables very efficient, inexpensive and convenient ways to mobilize, organize and collaborate, and formal democratic forums are therefore not needed as much anymore (Meikle, 2002; McCaughey & Ayers, 2003; Garrett, 2006; Hay *ibid.*; Hintikka, 2008b).

Similarly, the Internet provides a fruitful platform for ideal consideration: do citizens need public administrations or other public institutions like political parties or trade unions anymore? One of the key terms of such thinking is the concept of self-organization.

## 2. Premises and enablers in social self-organization

The microarticles in this chapter study some aspects of social self-organization of crowds and masses in their *temporary* and project-like existence *before* transforming into a corporative or institutional stage or phase. Here, social self-organization is therefore understood as something that is the opposite of Weberian ‘corporative association’ and has a temporary nature on the Internet (see 1.4) but wants to reach similar goals to those of ‘corporative associations’.

According to Max Weber, the bureaucracy or corporative organization has six distinguishing principles (1978). Weber’s core elements of organization can be summarized as follows: 1) rules, 2) division of labour and 3) managerial structure, in this order of complexity. These prerequisites somehow need to be solved or replaced by social self-organization if they are to have similar effects and impacts to formal organizations.

Generally, and slightly paradoxically, our findings are that social self-organization on the Internet is a functional model for temporary collective action and collaboration, but it needs something or someone to coordinate and facilitate it. The requirement to coordinate itself is scale-free, from small working groups to nationwide, large-scale networks, campaigns and movements.

It is arguable whether social self-organization really is self-organization at all and whether it is coordinated or facilitated. Recent theories such as *The Wisdom of Crowds* (Surowiecki, 2004) or *crowdsourcing* (Howe, 2006; Leadbeater, 2008; Viitamäki, 2008) actually suggest that self-organization-based collective action and collaboration imply some kind of coordinative element such as an object, communication tool or people. The former means that under the right circumstances, groups are remarkably intelligent and often smarter than the smartest people in them. The latter refers to the act and open call of outsourcing

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tasks traditionally performed by an employee or contractor to a large unnamed group of people or a crowd on the Internet.

In sociology, there are several system theories that explain self-organization at society or system level, such as that of Niklas Luhmann (1995). For example, Christian Fuchs has broadly studied this discussion on system-level self-organization and *autopoiesis*. He divides them into Structuralist, Subjective/Action-Based and Dialectical Concepts (Fuchs, 2002). These theories are far too complex to scale for studying and conducting temporary and project-like social self-organization on the Internet, for example, in a crowd, social movement or network on the Internet. There are also comprehensive theories on how a continuous self-organized volunteer movement will eventually end up as an ‘iron law of oligarchy’ and an institutionalized form (Michels, 1966).

Chapter 2 presents – or at least attempts to present – several ways to replace or imitate 1) rules, 2) division of labour and 3) management of corporative organization. To summarize Chapter 2, these premises and enablers of social self-organization on the Internet can be presented in a hypothesis typology. It is not comprehensive but illustrates the content of Chapter 2, though it does not try to be definitive about social self-organization on the Internet.

		Anchor	
		Object	Channel (Social Media)
No coordinator	Internet memes: Carrotmob video	Netcrowd: Twitter, irc, Google Maps	
Coordinator	Somus catalyst: Apps4Dem Competition	CDC Emergency: H1N1 pandemia tracking	

Kari A. Hintikka © 2010

Figure 2. Examples of how to replace or imitate essential characteristics of the corporative organization.

The horizontal factors in Figure 2 represent anchors to which people can attach to share their interests and collaborate. Section 2.1 studies the anchor object and its roles on the Internet, such as video or blog remarks. The concept of the anchor object refers to an idea that should either be shared and accepted, or resisted. The anchor object also includes rules on guidance (how to act) and reasoning (why act). It shows how the consumer movement Carrotmob was born and spread very quickly in Finland with just one video. Another two recent cases ‘General strike in 15.12.2010’ and ‘Resign from the Church’ show the importance of anchor objects.

Section 2.2 presents the concept of the netcrowd, a special form of self-organization. In many cases, netcrowds need social media tools or channels to collaborate. Anchor objects or coordinators are not needed; instead, a back channel or hub has the essential role. It has three functions in order to replace the management of corporative organization: self-organization-based division of labour, coordination and social communication. The vertical factors in Figure 1 study issues of whether there is a coordinator at all. Section 2.3 studies large-scale social self-organization and roles of coordinators. A simple collective and repetitive action is possible based on just anchor objects, but the more complex or longstanding the actions, the more coordinators are needed.

Section 2.4 studies real-timeness as an enabler of social self-organization. It also presents two cases that show the importance of the elements presented in Sections 2.1–2.3. The first case shows how the H1N1 pandemic observations were tracked and coordinated by CDC Emergency in the USA. The second case looks at how Iranian students used social media to report on the societal turbulence in Tehran.

### **2.1 Sharing an anchor object**

This microarticle studies Internet objects and artefacts, such as videos, photographs, statistics and writings stored and shared on the Internet, as enablers to mobilize and build social self-organization. Even if self-organization does not have any of the characteristics of a corporative organization (Weber, 1947; see 1.4), there still has to be something – an idea, concept or argument – for people to anchor to, gather around and collectively defend or resist. If there is nothing to share, the actions of many cannot be described as collective action or collaboration at all.

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A meme (Dawkins, 1976) is ‘a unit of cultural transmission’ that transfers ideas, trends, meanings and practices from one human mind to another through writings, video, word of mouth and other means of communication. Memes do not exist in the traditional sense, but the idea of Dawkins is supported. Memes can be interpreted as genes that can form a basis for self-organization, and self-replicate and mutate in the minds of people. The Internet carries memes extremely fast and in real time. Internet links used as pointers to locate and access an Internet resource of a meme in any form, such as blog writing, a video, speech or book, play the key role. The object itself can refer to anything such as a gathering or meeting, guide, TV interview, extraordinary situation, competition or just manifests or writings. For social self-organization, memes, Internet resources and their related links can be considered anchors to which people can attach themselves and which can be shared easily and quickly.

Compared with a meme, an *anchor object* also carries 1) an idea, but also 2) rules or a ‘guide’ on how to act and 3) arguments or a thesis on why to act. An anchor object can be described as a *material or digitized cultural product in any form that can store, transfer and anchor shared values, argumentation and guidance to practise these values*. These anchor objects (on the Internet) can be considered replacements for the rule books and documents of a corporative organization. Documented guidance is vital to support the continuity and consistency of organizations, regardless of any single person.

Here, the Carrotmob video<sup>3</sup> is used as an example of a functioning anchor object. Carrotmob is a consumer movement that asks for bids from companies to improve their ecological business solutions. The movement then accepts the highest bid to give money to a company’s own low-carbon development, and participants of Carrotmob go and use the services of this company en masse. Hence, this is the opposite of a boycott as it forms a win-win situation for both consumers and companies. In Finland, the concept of Carrotmob spread very quickly in August 2008. Just one Internet video enabled the adoption of the idea of how the concept worked and how it could be applied locally.

At the beginning of Carrotmob Finland (Porkkanamafia), there was no formal or informal organization or network of people that the mass media could interview about, for example, the movement. Later, the Demos Helsinki think-tank

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<sup>3</sup> <http://vimeo.com/925729>

started as a catalyst for the movement, a coordinative actor. The video delivered information on how self-organization works and what the values and arguments of Carrotmob were, and local Carrotmob branches started to emerge, self-organize and interact quickly around Finland. Facebook had a key role as a back channel (see 2.2) in this nationwide mobilization, especially in the beginning.

Along with memes, there are several other ways to study these kinds of catalysts and transformative anchor objects. The theory of the boundary object by Susan L. Star and James R. Griesemer inspires the study of anchor objects as a characteristic of social self-organization. Boundary objects are *'both plastic enough to adapt to local needs and constraints of the several parties employing them (...) They may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds.'* (Star & Griesemer, 1989)

The Actor-Network Theory (ANT) is a very versatile theory, or method, to analyse complex network structures with a diversity of actors and their relationships (Latour, 1987; Law & Hassard, 1999; Law, 2001). ANT differs from other approaches because it treats objects and artefacts, and their role in the network as equals with, for example, human beings and institutions. ANT has its own terminology, however, and the concept of the anchor object should be transposed to the ANT approach. The Actor-Network Theory is often used when studying actors in large (societal) networks, thus it is not so easily scaleable to study the inner dynamics of the self-organization of a single movement or network.

In Somus, one of the piloting and researching areas was open data. Within Somus, the open data movement in Finland was experimented with as an environment in which to study how to create a catalyst for self-organizing and the innovation PPPP network (Public-Private-Peer-Partnership). The Apps for Democracy Finland *competition* (see 5.2) was applied in 2009 and *a guide book* of open data was published by the Ministry of Communication in 2010 (Poikola et al., 2010). An anchor object forms an important integrator, catalyst or tool to facilitate open self-organizing networks in, for example, innovation networks. Anchor objects have a key role in the early phase of a rising network (or ecosystem) when people (and institutions) do not know each other, there are no roles for actors, etc.

There were two almost overlapping cases in Finland in autumn 2010, both of which received nation-wide media publicity on the Internet and in mass media,

forming a very fruitful test bed on which to reflect on some hypotheses of the Somus project plan. The Facebook fan page ‘General strike in 15.10.2010’ (‘Yleislakko’) was created about a month before the intended strike. It was aimed at the extended salary increment for the members of parliament. As a catch, the strike was said to take place if there were 100,000 people ‘Likes’ for the protest in Facebook. This number of fans was reached well before the intended event (Pullinen, 2010), but only about twenty people attended the real-life event on October 15th in front of the Houses of Parliament (Yle, 2010a).

An ongoing discussion has been launched by Malcolm Gladwell (2010) on whether social media tools have any significance in mobilizing masses in society. It is obvious that for many Facebook users ‘Liking’ a Facebook Page, for example, is lightweight ‘civic participation’ or just entertainment similar to ‘*identity megaplex*’ in which an individual can easily select and mix social and political offerings at any time and act on them without any commitment (Hintikka, 2008a). The self-organization – or mobilization – of Yleislakko lacked almost every premise and enabler presented in this chapter.

Another case analysed here is the ‘Resign from the Church’ (Eroakirkosta.fi) campaign. The association Vakaumusten tasa-arvo (VATA) has hosted an Internet service since 2003 that offers official online resignation from the Evangelical Lutheran or Orthodox Church. Resigners have increased steadily from 10,459 to 39,200 in a year (VATA, 2010). VATA has occasionally campaigned for its site, and the Evangelical Lutheran Church has an opposite web service ‘Sign on to the Church’ (Liitykirkkoon.fi).

The National Broadcasting Company Yleisradio broadcasted a live television panel discussion ‘The Gay Evening’ on gay rights and same-sex marriage in Finland on 12.10.2010 (Yle, 2010b). This television debate triggered a huge resignation movement on a Finnish scale. People also started to share real-time statistics on how many had resigned so far. In the beginning of November 2010, 40,495 had left the Lutheran Church via the Eroakirkosta.fi website. In a web survey accompanying the resignation form on the Eroakirkosta.fi website, a third of the respondents gave their reason for the resignation as having to do with gay rights issues. Other reasons included, for example, the parish tax and a lack of faith (Helsingin Sanomat, 2010).

Yleislakko and Eroakirkosta both gained nationwide media publicity for weeks, which also served as catalysts for activities on the Internet, causing even more media publicity. The Yleislakko mission was only anchored in its Facebook fan page and in the general discussion on the ‘oversized’ salaries of politi-



cians, without any background material. The founders of the Yleislakko fan page later said that it was only meant as a joke. The Eroakirkosta case had several anchor objects: the Bible as broader background referral and ‘The Gay Evening’ television debate (values) archived on the Internet for one week. It also had a website (guiding) and a private online resignation form (action), and people voluntarily shared links to these on the Internet. If Yleislakko had had even one more means of action besides the ‘Like’ button on the Facebook page, or otherwise offered more objects for anchoring, the result could have been more influential.

Anchor objects can be created by accident or on purpose, and their influence depends strongly on circumstances. Naturally, even a good anchor object is not necessarily a catalyst for social self-organization. An unintended or ‘poorly’ designed anchor object, however, can have widespread influence on society. The significance of anchor objects should be studied further for a more detailed explanation, but in the light of these preliminary findings their role in social self-organization seems to be essential, especially, if there are no other premises or enablers. Further research could analyse, categorize and reflect further on the features of anchor objects and their relation to other premises and enablers presented in this chapter.

## 2.2 Netcrowds and back channels

This microarticle studies the functions of back channels or hubs. They are important to social self-organization on the Internet if no anchor objects (see 2.1) or coordinators (see 2.3; 2.4) are present. They also play a crucial role in every kind of collective intelligence action (Surowiecki, 2004; Viitamäki, 2008).

Back channels and hubs are communication channels or tools in which all the participants and followers of the self-organized crowd or network can communicate easily and share their opinions, findings, background information, achievements, etc. Even if social self-organization has a back channel or hub, the choice of it (Facebook, IRC, Twitter, etc.) can affect the kind of collective action it supports or prevents (Hintikka, 2010). The hub is used to refer to an aggregator of opinions of collective intelligence (Surowiecki, 2004), while the back channel refers to tools for communication, coordination and collaboration.

Temporary citizen collectives have begun to organize themselves in new and significantly more efficient ways than before using information networks. This form of self-organization can be called a *netcrowd* (Hintikka, 2008b). It moves

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between the spheres of citizen activism, production of goods and problem solving, depending on the nature of the self-agreed goal. Current theories on new societal movements, Internet-based activism and crowd intelligence are not suitable for explaining this phenomenon comprehensively. One of the central features of a netcrowd is that, unlike societal movements, it does not act as a pointer to societal problems and questions, and it has no opponents in the traditional sense. Its main aim is simply self-agreed and efficient problem solving.

A netcrowd can be described as follows: *a great and arbitrary mass of people can self-organize as a project and act without a set hierarchy or coordination in an agile, efficient, temporary and global manner towards the achievement of a common self-agreed and concrete objective via the use of information networks.*

A netcrowd is an emerging form of self-organization. It comes out of extraordinary situations. This happened, for example, in the text message revolution in Manila in 2001 (Rheingold, 2002), after Hurricane Katrina when people looked for each other in different parts of the USA in 2005 (Tapscott & Williams, 2006), in Finland during the self-organized discovery processes of the identity of the Myyrmanni bomber in 2002 and when tracking the names of the Finnish victims of the tsunami disaster in 2005.

These phenomena can be viewed as forms of Internet-based, complex collaboration. Netcrowds can consist of thousands of participants and often, though not always, have objectives that can be interpreted as societal. Sometimes the objective is financial gain. In some cases, the media or administration is successfully surpassed by netcrowds.

These examples of netcrowds in action can be seen as consisting of four phases. Instead of the waterfall project model and its linear proceeding (Toikkanen, 2005), the phases run iteratively and simultaneously. Here, it is suggested that these phases form a *funnel project model* as opposed to a waterfall project model.

First, there are observations from eyewitnesses, news sources or social media that something extraordinary has or may happen soon. (1) This transforms observations from Internet noise to buzz (see 2.4). When people start to buzz, it is essential that they use communication tools such as IRC channels or bulletin boards that support long discussions and split them into easily readable sub-topic threads. In this phase, the netcrowd autonomously starts to define the problem to be solved.

The netcrowd (2) starts to collect data, evidence, rumours and other information related to solving the problem and, at the same time, evaluate this data. (3)

The material that is collected and evaluated then starts to be distributed on the Internet and social media services. Finally, (4) the results are finalized into a compact entity and anchor object(s) such as Wikipedia articles or lists of missing people, and the netcrowd disappears (see Figure 3).

### Netcrowd - Funnel project model

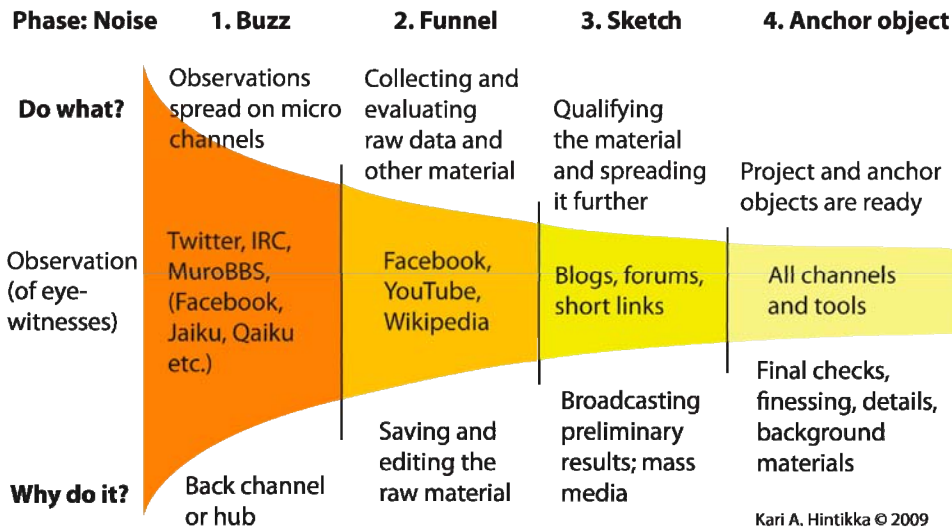


Figure 3. Funnel model of a problem-solving netcrowd.

A netcrowd has three premises for Internet tools to appear and succeed for self-organization. These are also important to other forms of self-organization: 1) a back channel for coordination, communication and division of labour, 2) collaboration tools, e.g., wiki and 3) distribution channels for final anchor objects.

A back channel (hub) (1) has three functions to replace the management of a corporative organization: self-organization-based division of labour, coordination and social communication. First, people know via the hub what others are and have already done in order to prevent duplicate work. Second, newbies can immediately join the action via the hub. It has links to background materials and other relevant information. Third, a hub creates a feeling of collectiveness. People think they are doing something that connects the participants.

Next, the netcrowd needs tools (2) to collaborate, evaluate results and enrich them from data pieces into solid information such as a Wikipedia article or a list

of victims after a disaster. In the case of the H1N1 tracking, possible observations were collected in Google Maps mashup. The last premise (3) is to document the results of the project and share them easily like an anchor object on the Internet. A final anchor object may be an article in Wikipedia, a map, personal bio of the suspected criminal, etc.

As we can see from Figure 2, each phase and form of collaboration needs its own types of tools. It is critical for netcrowds to find and select suitable tools. If, in the beginning, the activities do not thicken into a suitable social media channel or service, or a selected channel is unsuitable for the needs of each phase, the netcrowd will not form a collective and people will just keep buzzing on the topic. Interestingly, these tools and their functions are generally scale-free to every size of self-organization group, from small research groups to thousands of people.

### 2.3 Self-organized by someone

This microarticle addresses two key obstacles to social self-organization in continuous, large-scale activity in which a corporative organization shows strength in its continuity with hierarchy, responsibilities and management. The more complex and continuous the collective actions and collaborations on the scale of self-organization are, the greater the need for ‘someone’ to coordinate them.

Clay Shirky classifies collaboration on the Internet in the order of difficulty or complexity as follows: 1) Sharing (e.g., sharing links on the social bookmarking site Del.icio.us), 2) Sharing and Conversation (e.g., the conversation is ignited by interesting images appearing on the photo-sharing site Flickr), 3) Collaboration, which requires team work (like subtitling Japanese anime by anime fans) and 4) Collective Action, such as complex tasks (e.g., self-organization in the nationwide campaign for a Fliers’ Bill of Rights) (2008).

In social media, whether it is sharing or collaboration, an efficient *hub* and other tools can sometimes replace rule books and management as the means of organization presented in the organization theory by Max Weber (1978; see 1.4). In simple self-organization-based collective action, such as spreading a meme and acting in the way the meme suggests, an anchor object may be enough for self-organization. Sometimes, in complex but short projects, a netcrowd is a potential way of self-organization, but, in general, complex continuous tasks need a coordinator, ‘someone’ to carry on the task. Wikipedia has been considered an example of successful self-organizing, but, in practice, there is a tradi-

tional decision-making process behind the Wikipedia articles and only 1-2 per cent of users actually write, edit and maintain the whole of Wikipedia (Nielsen, 2006; Swartz, 2006). In the Weberian context, Wikipedia functions by somewhat corporative rules, management and self-organization-based division of labour (see below).

In the introduction to collective action, Shirky remains on a general level. In his case studies, collective action on the Internet consists of teamwork by a core group and repetitive collective action by the masses. The former includes planning and negotiation and the latter actions such as signing petitions, clicking Like buttons on Facebook, forwarding a link of a meme link or a link to a plea to sign a petition, changing one's own profile image to green to support the student movement in Tehran 2009 (see 2.4), etc.

One of the key premises for self-organizing is to solve the communication problem that has been addressed by the so-called 'birthday problem' (Shirky *ibid.*): three people can quite easily decide and select, for example, which film to go to as they have  $2 + 1$ , e.g., three mutual relationships to negotiate. Ten people have  $9 + 8 + \dots + 1$ , i.e., 45 mutual relationships, however, and hence 100 people have 4950 relationships to solve. It would be very time-consuming, especially if there were no mechanisms such as voting to limit the options. Even if voting is arranged by self-organization-based action, there is still a need for some kind of coordination or management in order to select and decide on the available choices.

According to the scale-free network theory (Barabási, 2002), in every given (social) network or population, there are about 1–2 per cent of very active or highly connected participants, 9 per cent sometimes active or connected participants and roughly 90 per cent who mostly just follow the participants with a few or no connections at all (Nielsen, 2006; Swartz, 2006). This phenomenon is called the 1-9-90 rule. To give an example, Sometu is an informal social network of educational experts in Finland (Sometu.ning.com). In 2009, the contacts of each of the 841 members of Sometu were divided as follows (Figure 4):

## 2. Premises and enablers in social self-organization

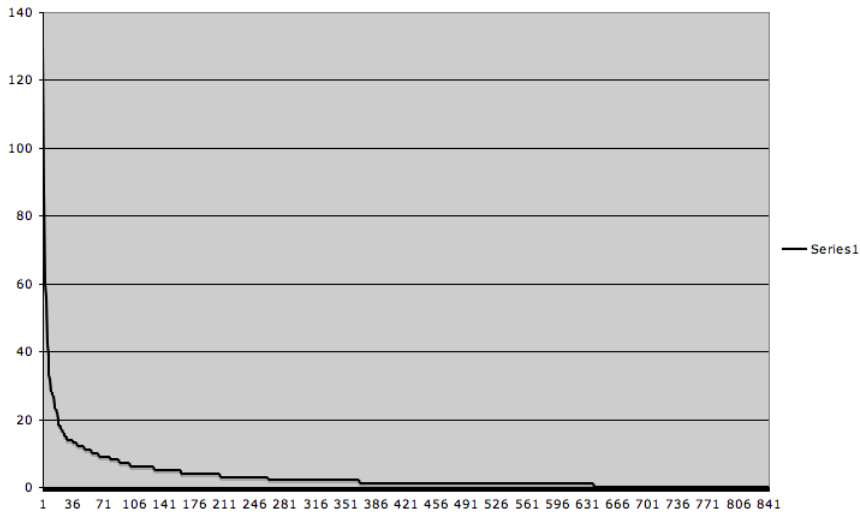


Figure 4. Contacts of each of the members in the Sometu network 4.3.2009.

The most networked member had 140 contacts or ‘friends’ of the 840 contacts available, but the number of contacts of the next most networked members decreased rapidly: 87, 60, 56, 56, 42, etc. In the end, many members had just a few or no contacts at all. The number of contacts does not automatically translate into the most networked people being the most active, but it can be assumed, to some degree, that popularity and activities in the social network are at least partly connected. As more and more people join, however, the founders of the network simply do not have time to interact as profoundly as in the early stages (Shirky *ibid.*). Self-organization needs the means of mass communication, and this enhances the split to ‘leaders’, activists and followers, as a foundation for divided corporative or management roles. Basically, it is possible to solve the communication problem with the Internet if there is a back channel or hub in proper use.

Another issue is that even if collective and collaborative action is somewhat self-organized, it still requires someone to take care of and proceed with the routine actions. This someone is also familiar with the daily actions of corporative organizations, for instance, someone is needed in order to send invitations for meetings, writing meeting memos and sharing them with the participants, etc.

On the Internet, when social media is used for a collective action, someone is needed, for instance, to keep a Facebook page updated, organize wiki content,

send status updates, upload files, etc. whether the collective in question is a movement, network, association or interest group. For instance, in our project, we soon discovered that someone was needed to copy weekly meeting memos from EtherPad to our wiki, transfer texts into the wiki markup language, add wiki pages to the index of weekly meetings, etc. Even the simplest task required a responsible person.

Internet and social media tools enable new ways of dividing work (Howe, 2006). Noam Cohen (2007) describes the case of the Virginia Tech incident in the USA, the way people self-organized themselves in order to collaborate and create a large and detailed article about the incident in Wikipedia. *'Imagine a newspaper with more than 2,000 [2,074] writers, researchers and copy editors, yet no supervisors or managers to speak of. No deadlines; no meetings to plan coverage; no decisions handed down through a chain of command'*. This self-division of labour was enabled by those 1–2 per cent of the most devoted maintenance volunteers of Wikipedia.

When operating in scale-free networks with a high diversity of actors, such as national ecosystems of open data, the combination of coordinated self-organization is one possible solution. A coordinator may be, for example, an individual, a formal, independent organization or even a local or national authority that activates and is a catalyst and facilitates the self-organization-based network. Roy, Nair and Venema (2009) call this type of cooperation adaptive policymaking.

### **2.4 Self-organization on the real-time web**

This microarticle studies the relationship between the real-time web and self-organization. With regard to the definition of organization by Max Weber (1947; see 1.4) used in this chapter, the real-time web can be thought as an 'infrastructure' for self-organization, like physical buildings with their infrastructure (electricity, devices, Internet connections) to corporative organizations.

In the original Somus research plan, this phenomenon was called *instant media* and referred to an entity formed by real-time updated data streams, mobile devices, location information and social media. During the Somus project, this phenomenon started to be coined *real-time web* in 2009. Thus, the latter term is used here. According to Wikipedia (2010b), real-time web means *'a set of technologies and practices which enable users to receive information as soon as it is*

## 2. Premises and enablers in social self-organization

*published by its authors, rather than requiring that they or their software check a source periodically for updates [asynchronous data transfer].'*

Basically, the real-time web automatically increases openness. Data resources, status updates, comments, publications, etc. become visible and instantly available to all Internet users almost in real-time as they are published without any pre-moderating or filtering. The possibilities for automation of the Internet, such as simultaneous distribution of data, opinions and facts via dozens of communication channels, forwarding and recycling of the data, etc., enhances this openness and increases the speed of it. This phenomenon has already started to affect, for example, the mass media from which common people obtain information from the Internet, sometimes more quickly in extraordinary situations than from professional journalists or public authorities, or that in turn activates people on the Internet (see cases in 2.1).

The real-time web is a very efficient trigger of social self-organization. People can see, for example, each other's status updates and tweets globally at any time. This entity of user-generated content is occasionally observed via lenses of a *signal-to-noise ratio* in Internet jargon. Here, the notion of noise does not refer to the information theory by Claude Shannon in the 1940s of the means of a ratio for *understanding* a message; instead, it means the *relevance* of one signal to a single user in the ocean of simultaneous and often contradicting signals. In the millions of data streams of users in social media, valuable information can often disappear in the noise.

When an extraordinary situation is, has just or may happen, people independently start to resend and thus amplify this special signal about, for example, the earthquake in China in 2009. When people realize that others are transmitting the same signal, they start a self-organized *buzz* on the topic, just as an audience starts to harmonize its applause to the same rhythm (Watts, 2003). Buzzing can also be understood as a form of social filtering. It is very common in, for example, the consumer market when consumers start to speculate about products and services months in advance. Overrated buzz is called *hype*.

The stock market has been a key example of the implications of the real-time web. In the stock market, there has been recognized crowd behaviour, from rationality or wisdom to Dumbness of Crowd (Surowiecki, 2004), the way people react to each other's acting. Now, this real-time feature with its implications for collective actions is entering daily life via the Internet, starting from social media tools, such as Twitter and an Internet search, like Google.



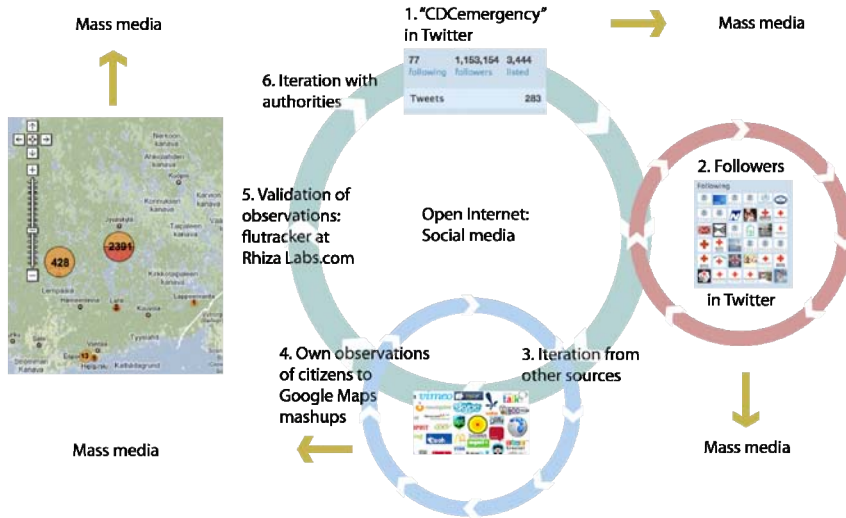


Figure 5. A schema of the way the Centers of Disease Control and Prevention in the USA tracked the H1N1 observation with people on Twitter.

The tracking of the H1N1 pandemic observations globally in spring 2009 is an example of the combination of the real-time web and coordinated self-organization (see Figure 5). The Centers of Disease Control and Prevention of the USA (CDCemergency in Twitter) started to send real-time information on Twitter about the global spread of H1N1 (1). The CDC rapidly gained tens of thousands of followers on Twitter (2). People received validated information about H1N1 observations and resent it (amplify). People also started to map validated (3) as well as their own non-validated observations (4) in the map services on the Internet, e.g., Healthmap.org based at the Google Maps service. The possible pandemic cases were then iterated by the authorities (5 and 6), and the CDC Emergency included them in the iterating cycle if proven valid (1). Among common users, 75 organizations also followed the CDC in Twitter, e.g., local Red Cross offices. These users could then add their own validations and validate the observations of others.

In another case in 2009, students used many channels of social media quite efficiently in the turbulence and the demonstrations in Tehran. They sent, for example, videos to YouTube, photos to Flickr and status updates describing the ongoing situation. The importance of Twitter is so highly regarded that, for example, the government of the USA requested a delay in the maintenance

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schedule of Twitter because it would have required shutting Twitter down temporarily. The intentions of using social media were to invoke and gather global publicity and coordinate actions in Tehran. The incident attracted much attention, partly after the death of Neda Soltan and the video about her. The global mass media had scarce resources to produce news themselves from a closed Tehran and for a global audience, and the provided information changed on different channels at different times, producing information noise.

These two cases reflect the importance of having a suitable back channel (see 2.2) for large-scale, real-time web actions (Hintikka, 2010). In the case of H1N1, Twitter was as good as any other channel would have been, as the information was validated from noise and orchestrated by the appreciated coordinator CDC (see Figure 4). In the case of Tehran, the selected channels – YouTube, Flickr and Facebook – were all very efficient at reaching mass audiences, though they were all much weaker at coordination than IRC channels. People outside Tehran were able to self-organize for simple, collective action, such as transforming their social media profiles to a green colour or their name to an Iranian one in order to fool the authorities in Iran. More complex action than this was not achieved however.

In both cases described above, the real-time web and social media raised interests that were able to be picked up from the Internet noise as relevant signals, but only CDC was able to refine and funnel these signals further in the way described in Section 2.2 using suitable elements: Google Maps as an anchor object, Twitter as a back channel and acting as a reliable coordinator.

### **3. Tools and practices for collaboration**

Online tools are an essential part of social media. In this chapter, we first briefly present the tools and practices that were used in the Somus project and its case studies for collaboration. These working practices are then described more thoroughly from different viewpoints (remote participation, social aspects and design). Many social media tools can be used, e.g., for discussion and sharing, but we concentrate on the tools and practices that support collaboration by different parties and action in the real world (e.g., citizen participation).

Different tools not only help people collaborate regardless of time and place but can also create the experience of presence, even when people are not physically co-located. More than the tools itself, social media are about the processes and practices of using the tools. The importance of the social aspects of social media is also emphasized in this chapter.

In the Somus project, social media were used as tools to co-design services. In this chapter, we discuss the changing nature of participatory design, when the social media are both the object of the design and a tool to be used for communication during the design process. The Monimos case study is presented as an example of combining online tools and face-to-face meetings in a participatory design project.

#### **3.1 Open collaboration practices – Somus as a case**

The Somus project was born out of open collaboration on the Internet. Hence, it was natural to continue using open online tools in the project work as well. As the researchers on the Somus project were geographically dispersed during the project, Internet-based collaboration tools were also a practical necessity. The research group also aimed for other benefits, however, such as continuous communication with the wider research community. Project management, coordina-

### 3. Tools and practices for collaboration

tion of activities and communication were implemented in Somus by various publicly available tools.

**Tools.** Somus used the following tools for open collaboration:

The *Qaiku*<sup>4</sup> microblogging service was used for asynchronous reporting of meetings and seminars. Unlike Twitter, Qaiku allows discussion threads. Qaiku was used for project-related discussion, and for linking to other related research and interesting articles, especially during the first months of the project. Many Qaiku users found out about the #somus channel, which supports networking with new people, via their Qaiku contacts. There were more than 100 followers of the #somus channel.

*EtherPad*<sup>5</sup> is a browser-based, real-time collaborative text editor that was used for writing meeting memos, brainstorming, planning and article writing. (See Figure 6)

Skype is a VoIP communication tool for weekly real-time meetings between distributed team members and other parties.

Wiki<sup>6</sup> was used for ‘formal’ documentation of project meetings, ideas and articles, especially during the first year of the project. In the beginning of the project, it was also used for collaborative writing.

Email was primarily used for issues considered irrelevant to members outside the project group. There were three Somus mailing lists altogether: one for the researchers, one for the board of the project (including the researchers) and one as an information channel for people interested in hearing about the project via email.

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<sup>4</sup> <http://www.qaiku.com/channels/show/somus>

<sup>5</sup> <http://etherpad.org>. The original service <http://www.etherpad.com> was closed down in March 2010. EtherPad is similar to Google Docs but works in an open environment without registration. The service is provided as open source, which enabled the service to be adapted in the Somus project's own server.

<sup>6</sup> <http://tutkimus.parvi.fi/index.php/Somus>, part of the Open Research Swarm Wiki.

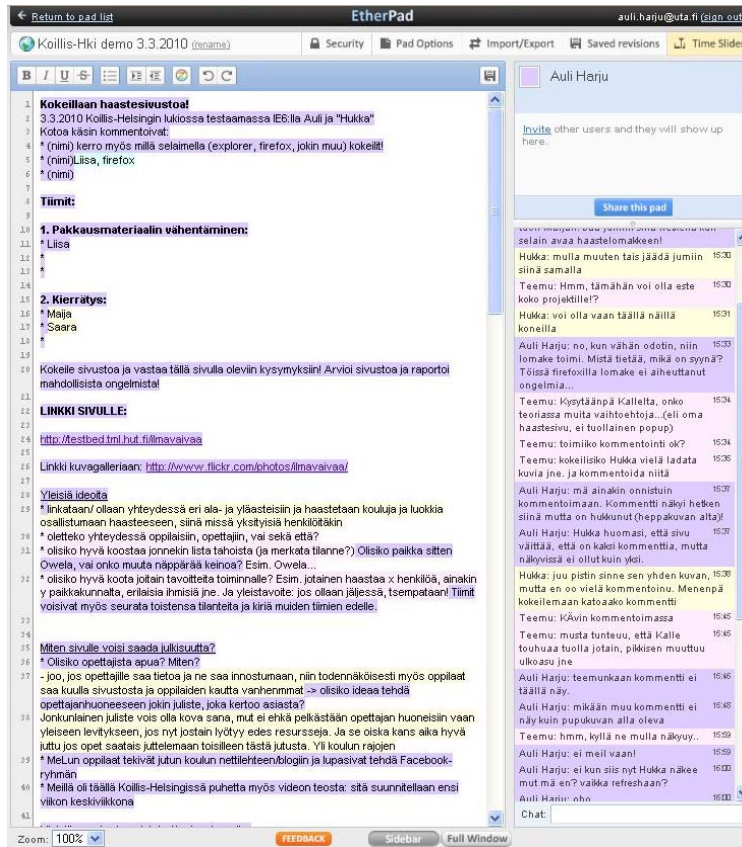


Figure 6. Collective writing and chatting in EtherPad.

In addition to the tools mentioned above, we used *blogs*<sup>7</sup> (WordPress) and *social bookmarking* (Delicious<sup>8</sup>) for informal sharing, Owela<sup>9</sup> and UserVoice<sup>10</sup> for interacting with user communities and Saturate<sup>11</sup> for analysing interview material collaboratively. Doodle<sup>12</sup> was also used for fixing dates for meetings and Slideshare<sup>13</sup> for presentation publishing.

<sup>7</sup> <http://owela.vtt.fi/blogs/somus>

<sup>8</sup> <http://delicious.com/tag/somus>

<sup>9</sup> <http://owela.vtt.fi>

<sup>10</sup> <http://www.uservoice.com>

<sup>11</sup> <http://www.saturateapp.com/>

<sup>12</sup> <http://www.doodle.com>

<sup>13</sup> <http://www.slideshare.net>

### 3. Tools and practices for collaboration

All in all, the tools used in Somus were flexible and free, and they were very easy and quick to take into use and experiment with to find out if they were suitable for the purposes of the project. On a critical note, the use of many tools dispersed the ‘information space’ of the project further, making information difficult to locate and increasing the risk of something being lost.

**Practices.** We used open tools and methods in the following processes and actions:

*Open planning.* From the conception of the project, planning was done openly. Wiki was used as the main tool for documenting our project and subproject plans. The ideation of project tasks and activities was typically done in Qaiku, EtherPad or other tools considered faster, more efficient and more convenient than e-mail. At the same time, the open tools allowed contributions from the Open Research Swarm.

*Open meetings.* The project meetings were open, which means that we provided information about all kinds of meetings beforehand on Internet forums such as Wiki and Qaiku. Although we used Skype (a closed tool) for voice discussion, outsiders could participate via Wiki, Qaiku and EtherPad. Most of the meetings were held with just the researchers, though visitors attended from time to time. We also produced project meeting artefacts during the meetings by writing the meeting memo in the project Wiki and later in the EtherPad, while, at the same time, microblogging about the meeting in Qaiku threads on a public #somus channel, which allowed some outsider participation and following of the project, even though the memos created during the meetings were difficult to interpret by someone who had not taken part in the actual meeting (see also 6.3).

*Open article writing.* Somus researchers wrote articles using Wiki and later Google Docs as the main tools. We wanted to provide an opportunity for interested writers and a chance for external contributors to give instant feedback – helping us to improve the quality of our work. When planning articles, we used ‘real-time audiovisual collaborative text editing’ by means of an EtherPad (text editing, with chat) and Skype (conference calls as well as chat for, e.g., exchanging links and expressing emotions).

*Open software development.* We involved users, developers, stakeholders and other interested parties in the open development process of our pilot services (see 3.5 and 4.2). At first, workshops and group discussions were held together with these groups to capture the initial needs and findings. During the development, software versions were released, and feature requests and bug reports were

gathered using UserVoice, Owela and EtherPad. This input was the key element of the scope definition and prioritization of the next iterations.

*Open communication.* Qaiku was the main tool for our online discussions. Many sensitive issues such as funding were also discussed openly. In a way, we were constantly crowdsourcing ideas, hints, links, opinions and other microcontributions using the microblog.

*Open participation in research.* As we have shown, we invited everyone to participate and contribute by opening up the research processes. Some of the project work was carried out by non-project personnel, often without monetary compensation, and by means of a microfunding mechanism in the form of the Open Research Swarm budget.

A summary of key tools and practices during the different project phases is depicted in Figure 7. By means of these practices in open collaboration, we ultimately aimed for a transparent way of working in which anyone could potentially observe others' activities. The open research work practices are evaluated in Chapter 6.

Official *face-to-face project meetings* were also held about quarterly to evaluate and reflect on progress and define key goals and the direction for the next period. The project researchers met more often, gathering around specified tasks such as writing drafts or planning subprojects. During the second year of the project, the researchers also organized two *retreats* by renting a cabin and gathering there to work together in a workshop way for a couple of days. The retreats enabled intensive working periods and helped keep track of the project as a whole. Spending time together and discussing project-related matters that the project meetings could not cover because of the limited time resources also strengthened the team spirit and helped in the remote work of the project (see 3.2).

	Planning	Teamwork, meetings	Writing	Software development	Publishing, communication
Main tools:	Qaiku Wiki	EtherPad Skype	GDocs Email	Owela UserVoice	Blog Qaiku
Supporting tools:	EtherPad Email	Wiki Qaiku Email	EtherPad Wiki	EtherPad Email	SlideShare Delicious

Figure 7. Key tools and practices of Somus in different project phases.

## 3.2 Presence over distance

The basic nature of the Internet enables people to collaborate regardless of time and location. People do not need to choose collaboration partners based on physical proximity but on shared concerns, and more people can be involved (Fischer, 2004). Social media tools have made remote participation in different activities and situations even easier and more in real time.

According to Olson and Olson (2000), distance still matters and virtual teamwork is not necessarily efficient. Groups with high common ground and loosely coupled work as well as a readiness for collaboration and collaboration technology have a chance of succeeding with remote work (Olson & Olson, 2000). Participants in an online collaboration process usually expect communication and connection problems and are therefore prepared for them. People have previous experience of online tools limiting communication, and information can sometimes become lost. Shared experiences create possibilities for collaboration.

In the Somus project team, we experimented with several online collaboration tools, as the team members worked in different cities and met face to face approximately four times a year. In this microarticle, we report on the experiences of feeling presence during remote collaboration. Online tools did not only support the work, regardless of the distance, but made it possible to create shared experiences at workshops and retreat meetings even if not everyone was physically present.

**Live reporting in microblogs.** Live reporting is a way of reporting with text in social media from seminars, conferences and other events in real-time, e.g., in Twitter, Qaiku and other microblog channels. The first experiments of microblogging in seminars started in Finland in 2007 (Koistinen, 2007). Since then it has become a popular and essential part of conference experiences at many events. Live reporting provides access to events to people who cannot attend but want to see what has happened. Live reporting also enables chat among those who are attending on location. Interestingly, remote participants can also feel present at the seminar if they can share opinions and insights with the people who are physically present. Remote participation can be comprehensive, especially if the conference organizers provide a video stream online. The distance does not matter when people can discuss with each other by chatting online. Using microblogs, people can also share links to other related information sources and thus deepen their knowledge about the topic. The learning experience can thus be even stronger than by just following a presentation face to face.



Through microblogging services and the social networks in them, it becomes possible for a person to find reports and participate in events that he or she would otherwise not even be aware of. With the microblogging phenomenon, the propagation rules of information change radically: Twitter reporting can reach people via far-away contacts more quickly than hearing the same information directly from an official news channel or colleagues next to them. In the Somus project, microblogging was also used during project meetings, which in that sense were open to participation by everyone. Sometimes, participants of the Open Research Swarm commented on the meeting notes during the meeting or continued the discussion afterwards.

Not all seminar presenters welcome live reporting however. Although lecturing is basically considered open, i.e., in academic education, it is not meant to be open on the scale of the Internet. Some lecturers may not share their presentations or are not prepared to potentially global publicity via the Internet. Some attendees also take mobile phone photographs of the presented materials. This is a copyright issue that has not yet been handled.

**Remote meetings.** The weekly meetings of the Somus team were arranged from the very beginning via Skype conference calls. Skype chat was used to share links to the articles, events, etc. that were mentioned in the speech. For note taking, we used the Wiki first in which one person often had the main responsibility for writing, though others could edit the same page at the same time. Sometimes, this caused problems with conflicting edits. Comments on the meeting themes were also written in the project's Qaiku channel, especially at the beginning of the project. Towards the end of the project meeting, reporting was reduced, as no one outside the project team commented on the reports, and new ideas were no longer needed in the phase of focused project work.

After finding the simple collective writing tool EtherPad, the meetings changed and became more efficient and pleasant. The simultaneous use of Skype and EtherPad became state of the art for Somus meetings. A new document was created before the meeting with a preliminary agenda. Everyone could edit the agenda before the meeting and report on their own work by answering four questions: *'What have I done?'*, *'What am I planning to do?'*, *'What hinders me from doing that?'* and *'How do I feel?'* This practice was adopted from the daily meeting agenda used in the agile software development method Scrum (Schwaber, 2004). (Scrum was originally aimed at co-located workers, but Somus modified and tried this in the context of remote researchers. Interestingly, it can be said that the addition of the 'feel' question also helped the team bond.) With

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such preparations, the actual meetings became much more efficient. It no longer took much time to go through these issues, and we were able to concentrate on the issues that were most important to discuss. The notes were written collectively by multiple people at the same time and could be corrected instantly if something had been misinterpreted. Thus, the agenda became the memo that could be referred to afterwards. Some parts of the meeting can be used for silent writing, which has proven to be an efficient way of, e.g., generating ideas and listing to different options.

Important aspects for feeling presence in the remote meetings are:

- Everyone sees the same view. Skype talk is used to coordinate between windows. ('Let's have a look at EtherPad number 63!', 'What did you mean in row 58?')
- Everyone can edit the document simultaneously. Shared objects create a feeling of presence.

As the same document can also be edited asynchronously before and after the meeting, those who are not able to participate in the real-time meeting are able to make their thoughts present. EtherPad proved to enable presence for visitors who did not participate in the Skype call but could follow the meeting by reading the real-time notes as well as adding their own comments in the text and the chat. Their presence became concrete, as the names of the online collaborators were visible in the EtherPad tool.

**Co-writing and commenting.** In the Somus project, we did not just share documents but wrote them together. As documents that are written online, e.g., in Wiki, EtherPad or Google Docs, do not feel as if they are owned by anyone, everyone feels confident to contribute. The collaborative commenting tool *KommentoiTätä* (cf. Appendix C), which was developed in Somus, lowers the barrier for commenting on documents or posing questions to the author without editing the text directly. Commenting is also possible in Google Docs, whereas EtherPad and Wiki encourage direct editing of the text. Although it is often easier to comment than to write, the way comments are presented influences how comfortable it feels.

Even minor differences in the user interface or application logic can make a big difference to the closeness experienced by the other participants, e.g., Google Docs and EtherPad both support real-time collaborative writing, display other online authors and provide chat functionality next to the main text docu-

ment. Just a couple of seconds' difference in response time results in a different experience of presence. EtherPad encodes the written text in different colours according to the author, making it easier to recognize what others are currently editing, whereas Google Docs displays the positions of the cursors of every present author but shows all the text in one colour. Different tools suit different purposes, text types and situations, i.e., some microarticles were drafted in real-time collaborative writing sessions in EtherPad and completed in Google Docs.

Simultaneousness of tools enhances the feeling of presence, which is the ultimate difference between Wiki editing, blog commenting and EtherPad writing. The visible presence of others (in EtherPad) also challenges everyone to start working with the text, as all actions are directly visible to the other online users. When collaboration is not simultaneous and is limited only to text, the experience of presence is not as evident. A collectively written text becomes a shared object (our text) and contributions, even if only by commenting, give shared ownership to the content.

### **3.3 The social aspects of social media**

Social media are usually connected to online communication and collaboration, but in most cases, online tools (media) are not enough. As social media provide a process of creating common meanings (Erkkola, 2008), the social relationships of the participants always play an important role. It is difficult to build a common understanding based purely on online contact, and based on our experiences in the Somus project and its case studies, we claim that face-to-face meetings play an important role in successful online collaboration. On the other hand, online collaboration can be used to support efficient face-to-face meetings before, during and after meetings.

Personal profiles are one of the defining characteristics of successful social media services (Lietsala & Sirkkunen, 2008). Social networking services (SNSs), in particular, can be defined as web-based services based on user profiles (Ellison, 2007) with different connections and lists of profiles that are fundamental to the service. Everyone acts with his or her own name (or nickname) and brings his or her own personality to the service. Personal identities create trust in online communities (e.g., Blanchard & Markus, 2004) and work better than anonymous discussions that may lead to 'malicious discussion'. Nowadays, it has become common for people to use their own names on many social media

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services, such as Facebook, Qaiku and Twitter. When discussing private topics (e.g., health), however, nicknames may be needed for trustful discussion.

Online participation processes must also be planned so that they take into account the social aspects of collaboration. In the case of managed online collaboration processes (cf. Sections 3.4 and 3.5), the facilitator of the online collaboration must consider issues such as how to welcome people and making them feel comfortable, and collaborating with others who they may not have known beforehand.

Face-to-face meetings can be combined with online collaboration so that they both feed off or build on each other. Online tools can be used to prepare meetings and discuss the agenda in advance to make the actual face-to-face session more efficient. For instance, in the Somus project, all the meeting agendas were online and open to modifications before the meetings so that anyone could add his or her own issues to the agenda and explain decisions beforehand. During the face-to-face meeting, online tools can be used to widen the meeting space and communicate more openly. The meeting itself can become the ‘social media’ – the simultaneous face-to-face communication and microblog of the meeting – together with the real-time interactions and contributions from online participants to complement and feed each other. After face-to-face meetings, online tools enable continuation of open discussions and serve as a reminder of the decisions made.

Face-to-face meetings can also serve as just a kickoff for the actual work that will be done via online tools. In the Somus project, the final report writing was started at a three-day face-to-face ‘offsite retreat’. During this time, a common understanding of the structure and content of the report was created and the collaborative writing process was started. The common kickoff helped researchers steer towards a common way of writing and commenting on each other’s texts, although most of the work was done later individually. Online tools (EtherPad, Google Docs) supported co-writing and reviewing during the actual writing process.

In the Monimos case, face-to-face workshops and online tools (Owela, EtherPad, Skype, email) were combined in the palette of teamwork tools. We interviewed seven team participants about the experiences of online and face-to-face participation and found that both were seen as important and complementary.

Workshops were seen as the place to obtain results and focus. When people met each other physically, it was easier to build a common understanding of what we were actually creating together. As one interviewee commented, ‘When

we meet face-to-face and can discuss it more and maybe understand it more deeply than on the Internet.’

Workshops were also seen as important to building team spirit and inspiring people to work for a common goal. Structured face-to-face meetings helped unacquainted people engage in the design and development work. Workshops are likely to be a place for networking and a place to obtain information that may not be directly related to the current discussion. Some people felt ‘obliged’ to attend the workshops. Involvement in the online discussions was not considered as vital, however, but rather more voluntary.

Workshops were not only seen positively however; sometimes there was too much discussion instead of clear decisions, and some people dominated the workshops. With online tools, some of the issues were easier to handle, as everyone had enough ‘time’ or space to express his or her own opinions, and voting could be used for decision-making. Online tools were important for keeping up continuous contact, as it was not often possible to meet face to face. People from different locations could also participate more easily.

It is often thought that face-to-face meetings make expression easier, but in the Monimos team and among the Somus researchers, text-based (online) communication was seen as a way to attain clearer expression. More consideration and focus may be needed in the crystallization of the message than when speaking in a workshop, especially when writing text on a public forum. This (written crystallization) can thus lead to better understanding of what others actually mean.

In the Climate Worries case, we created an online campaign together with students who did not end up using or even advertising the campaign site actively. One of the reasons behind the low activity could be the lack of social bonding, either online or at the physical meetings. We attribute this to not being aware of or understanding the social processes of the students. The researchers did not understand the mindset of the students well enough: they had different identities at school and with their friends and were not necessarily willing to mix the different roles (see 4.2).

We can conclude that face-to-face meetings and online collaboration support each other. Although the planning was done online, face-to-face meetings were vital in facilitating social media processes aimed at concrete and collective action. Physical meetings are also essential to the creation of the trust needed to continue the collaboration online. Face-to-face meetings mainly offer people an easy way to express themselves effectively. In a way, it is paradoxical that in

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order to open up processes or discussions, they need trust, which is gained through (closed) face-to-face meetings. Better tools and more time to become familiar with online collaboration are needed before face-to-face meetings can be avoided. It is essential to recognize the dynamics of the group and find a good combination of face-to-face and online tools and methods.

#### 3.4 Co-designing in and for social media

In the Somus project, a community-driven participatory design approach was used to develop the social media services Monimos and Climate Worries. User communities were not only active participants in the design process, they also drove the process (as its owners) and participated in scoping the goals. In both case studies, we identified special characteristics of the participatory design of social media services. We also gathered experiences of using social media as an open design space throughout the participatory design process.

**Participatory design of social media services.** Participatory design is a software design approach in which the user group and other stakeholders participate in the design process and decision-making in a mutual and reciprocal relationship with the developers (Muller, 2002). It has traditionally been applied to information systems design, e.g., at workplaces, governmental institutes, museums and other organizations in which the end-users and their goals and tasks are relatively easy to identify and define.

Social media services differ from traditional information systems in the sense that the content is created by users and the ways of using the service cannot be fully anticipated beforehand. Moreover, as no separate releases are needed for new software versions, social media services are often developed continuously (beta development) and the service development cannot be separated from its use. The traditional distinction between users and developers therefore no longer holds (Fischer, 2009).

Social media are not only software but also a process of collaboration with other people (see 1.3.1). Social media form a system, the usefulness of which depends on the actions of the other users (O'Reilly, 2005). Instead of defining precise software requirements that support certain tasks, the design focus is on providing opportunities for interaction and desired (organizational) processes. The designers' role is no longer to design a ready-made system for the users but to facilitate and encourage the use of the system and to create conditions for

participation: to ‘seed’ content, community and connections that can continue after the project ends (Hagen & MacFarlane, 2008).

Communities are one of the cornerstones of social media (see 1.3.1). When developing social media services, users and their needs cannot only be studied at an individual level but also from a community perspective. As social media are used with and in relation to other people, they must be designed to support collaborative actions. Instead of user-centric design methods, a community-centric approach is needed (Brandtzæg et al., 2009).

**Social media as a design space.** Traditional participatory design methods such as observation, workshops, dramas and prototyping (Muller, 2002) are based on face-to-face meetings with stakeholders. Social media can be used as *open design spaces* that support user participation throughout the innovation process. The participation process can be opened to wider audiences and sometimes publicly to anyone via online tools. The transparent and community-driven design approach was first known about from the open source movement, but it can also be applied to other domains (Hagen & Robertson, 2009).

Social media tools include the following benefits in the design process:

- Possibilities to participate regardless of time and place – more people can participate
- Continuous communication channel between the face-to-face meetings
- Follow-up of activities after meetings, keeping track of action points
- Documentation of discussions and decisions serves as reminder of project details
- Automatic archives of the design material, possibility to search, no need to transcribe.

The process can potentially also become more transparent and democratic for participants who cannot attend the face-to-face meetings or who do not belong to the actual design team but are willing to contribute sometimes. The opening up of the design process does not automatically lead to more democracy or transparency. If all the data that are produced in the design process are openly available, the information overflow may lead to inequality and stronger division between insiders and outsiders. Insiders know what the project is about and have an overview of all the issues. For outsiders, it may become even more difficult to participate than if the process had been more closed and the outsiders’ opinions were asked for in more detail in certain phases.

### 3. Tools and practices for collaboration

In the Somus case studies, Owela Open Web Lab was used as an open design space with users. The Owela methods included, e.g., free ideation and discussion, user stories, suggestions for the service concept (features, layout, content and name) as well as voting on different suggestions. Participants had their own public profile pages and gathered activity points based on their actions on the website. A screenshot of idea generation of the Climate Worries campaign in Owela is presented in Figure 8.



Figure 8. Idea generation in Owela.

Based on our experiences, an open online design space should not be used as the only communication tool among the design team but as a complement to the teamwork in certain moderately simple design tasks. It is most beneficial in the starting phase, when many ideas are needed. Later, clear questions or tasks for the online participants should be defined after each design team meeting. The online comments and votes then need to be summarized, analysed and taken into consideration in the next design phase. The tasks must be scheduled clearly, so that the online participants know if their comments can still be taken into account in the development. The interaction between the open online design spaces



and the core team design process is illustrated in Figure 9, which shows the need for expansion, crystallization of thinking and ideas in various phases.

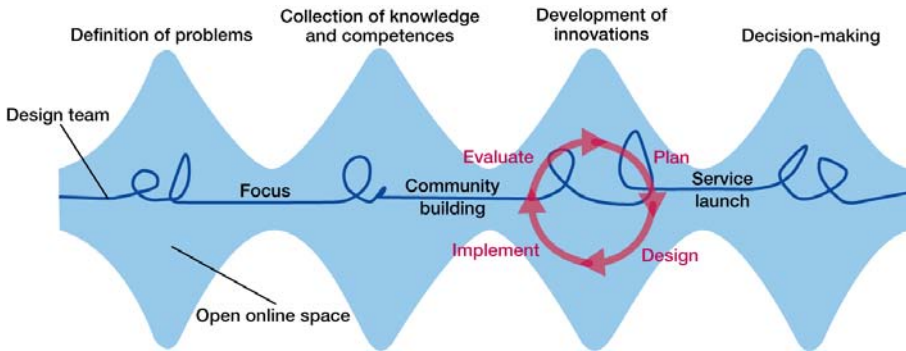


Figure 9. The process of community-driven participatory design, consisting of design teamwork and open online collaboration.

People may live in very different situations or have different abilities in terms of benefiting from the collaborative process. For one person, the collaboration may represent a chance to learn exactly what he or she needs to learn or to extend his or her social networks in the direction he or she would hope. Another person may have problems expressing himself or herself. In a collaborative process, these kinds of possibilities can form long-term incentives that are distributed very unevenly among the potential participants.

The facilitation of an open design space also requires careful consideration and a large amount of resources. The information must constantly be up to date and clearly expressed to make it understandable to participants with different backgrounds. The work does not just happen by itself: someone needs to lead the discussion, develop the concepts and do the ‘hard’ work between the ideation and evaluation parts that inspire the users (see 2.3). Being part of an open process also requires openness by the participants. They must be able to tolerate the blurry goals that will be refined and formulated more clearly throughout the process, especially in the beginning.

### 3.5 Monimos co-design process

In the Monimos design process, we used community-driven participatory design in the form of face-to-face workshops and online environments. With ‘community-driven’, we mean that the definition of the end result and, to some extent,

### 3. Tools and practices for collaboration

the participation practices were left open for negotiation with the participating user community. The service was developed together with its future users in a collective process in which the user community participated face to face and online. In our case, we considered two kinds of users: a core team that participated in the design work and a wide audience that was contacted via online channels to question the decisions made and to present additional viewpoints.

The aim of the process was to develop a useful social media service for immigrants and immigrant associations (see 1.2.2). We first held a few interviews and workshops with different actors involved with immigrants and their civic participation in order to obtain knowledge about their needs and ideas for possible solutions. The service concept to be developed (a combined ‘solutions arena’ and ‘events calendar’) was chosen based on a workshop in Moniheli and online discussion in Owela. We then created a core team consisting of ten immigrants and two employees of the Moniheli network to work more closely in the design process together with six researchers from different fields, one designer and one web developer. We held design workshops with the core team approximately once a month. The workshops were the most important space for creating a vision for the social media service, making design decisions and managing practical issues, such as marketing and press releases.

Co-design methods, such as writing Post-It notes, creating scenarios with picture templates and writing user stories, were used. Many administrative issues were also handled in the workshops. Team members could attend design workshops remotely using Skype, EtherPad or Bambuser<sup>14</sup> video broadcasting as communication tools. In the first workshops, the focus was on idea generation, use scenarios and use case descriptions, whereas later workshops concentrated on concretely evaluating and redefining the *Monimos.fi* (the actual outcome of the process) service that was iteratively developed throughout the development process based on the participants’ feedback.

Face-to-face meetings were considered vital by all the parties. Participation in the co-design workshops was high-spirited and intensive. The co-design methods used were sometimes difficult to adopt quickly in groups with participants of such heterogeneous backgrounds however. For example, instead of writing Post-it notes individually, many participants preferred to turn to others to discuss issues verbally

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<sup>14</sup><http://bambuser.com>

instead. Choosing methods can be seen as one form of using power, and it can be argued that the development methods and principles should also be co-designed.

As well as the methods, the vocabulary and conventions vary greatly and need to be considered. Due to the different backgrounds of the project participants, there were constant misunderstandings about the process, project goals and terminology. In this type of discussion, a presence is needed to create a common language and a shared vision. For example, online voting on the most important features of the service could be considered an indicative measurement of the priorities of software development. During the Monimos development process, the voting on some items (such as the service name or feature priorities) was taken extremely seriously by some parties, and similar concerns were raised as in the real world of political voting.

Between the workshops, the core team worked online in the Owela co-design space and via email. Owela was also always open to participation by anyone outside the core team. Owela was most actively used in the ideation phase, before the core team was formed, and in certain phases when the opinions of the wider public were needed. In Owela, people were able to make suggestions regarding the service concept, features, layout and name of the service, and discuss and vote on these. In the final stages, before the service release, three chat sessions were used to co-test the website with core team members.

By nature, the focus of the online collaboration was on keeping the processes alive between the face-to-face meetings. New ideas and activities were not initiated as much in the online discussions. Online participation between the workshops was surprisingly low, especially in the more abstract and open tasks. It was easier to become involved in very concrete tasks, such as naming the service or commenting on a layout. The challenge of the open online design platform was that it did not communicate clearly when and what kind of contributions were expected from people outside the core team. There was a desire to involve everyone in the planning, but in the end, people were quickly separated into insiders and outsiders.

Already at the *design* phase of the social media services, the elements of pro-usage (Bruns, 2008), such as fluid roles of participants, continuing progress with unfinished artefacts and open participation, all typical of social media services, are inherent in the process and have to be taken into account. This highlights a need for constant meta-level discussions with the users about the ongoing process, i.e., when meeting with users who are seen as co-designers, it is important to highlight the meanings of the open process, the possibility of rene-

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gotiation and of influencing the outcome, as well as the methods used to reach the outcome. In addition to the meta-level discussion itself, proper tools and methods need to be selected to communicate this discussion throughout the open process to active as well as sporadic participants.

## **4. Using social media to solve societal problems**

The Somus project has gathered information, developed tools and participated in public discussion in order to facilitate, understand and strengthen citizen participation via the Internet and social media.

In this section, we will first discuss the challenges of involving the public sector in social media. One of the usual problems in a functioning democracy is considered to be finding ways to engage citizens in democratic practices. Here, we suggest, instead, that established social media environments also offer challenges for the administration: how should the public sector develop practices for an online environment, and how should these processes be integrated into the internal processes of governance?

Second, we take a bottom-up approach and consider the potential of social media and their use by citizens: how can social media tools and practices help citizens make their voices heard and allow them to engage in society in general? Following this idea, we present two Somus cases: the processes of creating the Monimos and the Climate Worries websites from the viewpoints of participation and deliberation within a multicultural participant group as well as in a school context.

We are well aware that social media do not offer a silver bullet to solving societal problems and the functioning of democracy. There is unquestionably a need to maintain and improve existing public services and representative democratic processes as well as to develop direct participation practices for citizens. Social media can at best provide an additional avenue for the citizen and public sector interaction, and offer possibilities for new kinds of democratic practices. In some cases, social media can also provide a relatively easy way for the administration to use the intelligence of its knowledgeable citizens.

## 4.1 The public sector and social media: forms and challenges

The public sector in Finland started to implement participatory practices in order to involve citizens in planning and decision-making processes already in the late 90s. In municipalities, in particular, some of the planning processes were opened to public discussion, and other participatory processes with public discussion and citizen work groups were initiated, for example, in the context of sustainable development (Häikiö, 2005). The means for enabling interaction between citizens and the public sector were experimented with, and the Internet was considered a possible channel for interaction already in the beginning 2000.

The development described above was followed by research (see, e.g., Bäcklund, 2007, Leino 2006, Staffans 2004). Part of the research included active participation in the development. A good example is the Mansetori website project in the city of Tampere (Ridell, 2000). Research interviews were conducted with more than 60 representatives of the public sector in Tampere in 2000 for the Mansetori project (Harju, 2002). At that time, the attitudes towards citizen participation were two-fold. On the one hand, many of the interviewees emphasized the importance of citizen participation. On the other hand, they recognized many problems in the participatory practices. It was considered difficult in practice to involve citizens in the processes, and direct participation raised questions about representativeness, timing, the effects of participation, etc. At that time, the role of the Internet was not considered that important. Interaction on the Internet was mostly associated with discussion forums, Q&A websites and email – all of which the interviewees feared would lead to an increase in their work and hence to a growing lack of resources.

In spring 2009 in the Somus project, 11 interviews were conducted with representatives of state departments, two cities (Helsinki and Tampere) and the public broadcasting company YLE on the theme of the Internet and citizen participation. The idea was to map the experiences and thoughts of the interviewees after more than ten years of participatory practices as well as the rapid development of Internet services and social media tools. Many of the challenges can be found in earlier research (see above), but the technical development of recent years can be seen in the interviews in the form of more positive attitudes towards Internet-based participation than in earlier research.

When they talked about interaction with the citizens, the interviewees mostly used the word *feedback* or *contact*. This implies forms of citizen participation

that are more or less reactive towards administrative action instead of being participatory. In this type of interaction, citizens are seen as assisting the public sector or giving feedback on the plans and decisions made by the administrative organizations. In the interviews, the words *discussion*, *collaboration* and *sharing* were also used when describing the interaction however. They can be interpreted as being welcoming and more inclusive and open forms of citizen participation.

In the interviews, citizen participation was usually described as important and necessary but requiring development and improvement. Interaction with citizens was considered part of the *openness* and *transparency* of the government, and participation was emphasized as a democratic right of citizens. Furthermore, the involvement of citizens in the administrative work was seen as improving the quality of the planning processes and increasing the general acceptance of the decisions by the public sector.

The interviewees still struggled with the same issues of citizen participation as those that were revealed by research more than ten years ago, such as representativeness and resources. Some of the feedback given by the citizens on the Internet was also labelled as useless and even rubbish, for instance, public discussion online was mostly seen as irrational, emotional and often either offensive or lacking in relevant content. This implies that some of the problems the public sector faces with citizens participating still remain unsolved.

There was a willingness among the interviewees to engage citizens in the planning and decision-making processes. They also recognized different kinds of attitudes towards citizen participation in the administration however. Some of the interviewees stressed that although the general opinion on citizen participation was positive, they described many practices – and individuals – as ‘old-fashioned’ and ‘conservative’, which forms obstacles to civic involvement.

When it comes to public sector personnel interacting with citizens via social media services, there do not seem to be any clear guidelines. The interviewees considered that the use of social media depended largely on the personal interests and skills of individual civil servants and decision-makers. According to the interviews, there are no rules and not enough training in the use of social media for interaction with citizens in the public sector. Since conducting the interviews, the work to formulate directions and policies for the use of social media in the public sector has been advanced (see, e.g., SADe report by the Finnish Ministry of Finance 2009).

The interviewees noted a lack of online places where the administration and citizens can meet. On the one hand, forums are set up by the public sector, but

#### 4. Using social media to solve societal problems

the citizens do not find their way there. On the other hand, citizens have active discussions online at other forums, but it is difficult for the administration to enter these forums, for many reasons. There are some good examples, such as the police having a profile in the Irc gallery, a social media service used widely by young people in Finland. According to the interviews, however, the public sector has not defined its role and ways of acting in social media. The interviewees noticed caution in the attitudes towards social media services, which was due to issues such as data security, a lack of skills and resources.

Some of the interviewees had good experiences of citizen participation in cases in which they shared an interest in an issue with the citizens. In these cases, the citizens were motivated to participate and their input was considered valuable. In other cases, when the administration wanted feedback from citizens, there was often a shortage of motivated citizens or ways to motivate them to participate. The interviewees considered ways in which the public sector could present the information and on-going processes so that they could make citizen participation easy and interesting.

The quality of the interaction was mentioned in many of the interviews. One of the challenges for the public sector is to find the ‘crucial knots’: well-timed interaction with the concerned parties. At the same time, there is a need to guarantee that the interaction is un-biased and democratic. One of the interviewees also reminded us that interaction is not always necessary; sometimes it is more important to have the right information in the right place so that it is easy to find and understand.

The interviewees emphasized the need for a new kind of openness in administration and admitted that there could be more open practices, at least experimentally, in the public sector. For instance, some meetings could be open for following online and some documents could be drafted in a Wiki instead of being published as drafts online in search of comments.

The everyday knowledge possessed by citizens was considered important in the interviews. One of the interviewees noticed that although the public sector aims for representativeness of the collected feedback from citizens, the feedback should also be measured in terms of usefulness: it may be enough if there is one ‘right person’ commenting on the issue. This comes close to the idea of *crowd-sourcing*: using openness to obtain answers from those who have experience and specific knowledge of the issue.

Another interviewee was hoping for an increase in the collaboration mentality of the public sector as well as citizen interaction. If people *shared* their knowl-



edge for the purpose of the common good and, in this interaction, a new type of knowledge – or service – was created, it would benefit everyone.

## **4.2 Social media identities in an educational participatory project**

Peter Dahlgren (2007) lists the following trends in late modernity literature concerning the civic engagement of young people: the fragmentation of shared common public cultures, mediatization of everyday life and centrality of consumerism and individualism becoming more pronounced. Bennett (2007), on the other hand, reminds us how young people live in a rich but also fragmented information environment. Internet use and the skills of young people, as well as questions related to access and the risks of their online behaviour, have recently been researched (see, e.g., Coleman et al., 2008; Livingstone, 2008). The connection between these and the societal engagement of youth has gained less attention however.

This article draws on the participatory process of designing the *Ilma vaivaa* (Climate Worries) website with two small groups of high school students. Following the notion of civic culture (Dahlgren, 2000), i.e., resources for individuals and groups in their activities as citizens including the following dimensions: (1) knowledge, (2) values, (3) trust, (4) spaces, (5) practices and skills, and (6) identities (Dahlgren & Olsson, 2008), this article asks what kind of civic cultures the combination of social media and the school environment enable for student participation. The focus is on student identities in forming the media education project in which the students were given relatively free hands to formulate their interests and goals and decide the outcome of the project. In relation to identities, the emphasis here is on social media practices: how do student roles in a school context combine with the virtual identities they occupy in social media and what does it mean for their civic engagement?

In order to participate as citizens, people need to be able to imagine themselves as agents in a political context with a feeling of meaningfulness in their engagement (Dahlgren, 2007). The engagement of the students was enforced by trying to create a feeling of ownership of the project and involving the students in the definition of its goals and outcomes starting from the beginning of the project. Only the overall frames, i.e., that the project was about climate change and the use of social media in the process, were set beforehand by the researchers.

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The fact that students used their freedom to choose to run an online campaign against climate change shows that they rely on the somewhat traditional imaginary of societal participation. Campaigning can be seen as a common form of having a say in representative democracy in which the number of voices counts. This is familiar to young people through their social media user roles via the idea of Galluping, which is used in many of the social media services they use. Campaigning holds a powerful, mediated, imaginary mobilization of the crowds.

Owela Web Lab of VTT was used as a platform to plan the campaign website. First, the students were asked to write a story about a campaign using guiding questions with which they were provided to help them formulate the story. The next step of developing this imaginary campaign was to visualize it with photos. The third phase towards the creation of the website was to design the website in Power Point. The designs (see an example in Figure 10) were then given to a graphic designer who used them to draft the design for the website. The collaborative writing tool EtherPad was then used to evaluate the drafts and later to experiment with the demo version. It made real-time communication possible between the students and the researchers: when the students were in the classroom writing together in EtherPad, the researchers logged into the same pad and asked questions regarding the demo version and commented on the students' observations.



Figure 10. Web site design by a student.

During the process of planning the climate change challenge website, we found out that the school environment is problematic in many ways for civic participation by young people. Collaborative processes require action from the participants. It may not be obvious to outsiders whether the participants are working on their own initiative or they are guided by some external actor. The schoolwork is mostly teacher-led, and the students seem to expect this to be the case in this particular school project as well.

The motivation for citizen participation is often inherent, arising from the interests of the active citizens themselves. Thus, linking the participatory project to the climate change theme and media education was challenging to start with, though the participatory planning process was meant to create a kind of ownership of the project for the students who would transform it into commitment and participation. In this case, however, the push for participation came mostly from the school environment: the students regarded participation in the project mostly as part of their schoolwork. This led to them abandoning the project when the

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project course ended and, hence, the promotion of the website, for instance, was left to the researchers.

Furthermore, the school environment seemed to lack the use of social media in teaching and the kind of do-it-yourself mentality that would have been needed in the process of planning the website and promoting it in order to bring about civic action around the website. The students possessed the skills and knowledge to work with computers and in the online environment but the origins of their skills seemed to come from outside the school. Social media were part of the students' leisure time, which also made them less eager to share their virtual identities in the classroom. For instance, they did not want to use their existing online profiles to promote the website; instead, they wanted to use Facebook for that purpose, even though only a couple actually used Facebook.

One way we tried to understand the online world of the students was to ask them to visualize their media and Internet environments with an easy PowerPoint exercise. The students were provided with symbols of media tools and uses; they also copied images from the Internet, such as covers of television series, DVDs and magazines, to represent their media use. One example of a media environment visualization can be seen in Figure 11.

The students themselves felt that the project lacked something that they described as team spirit in their feedback on the course. Although they liked working in small groups, they felt that if a bigger group of students had been involved in the process, they would have had more influence and the project would have become shared by the whole school.

An inbuilt point system in Owela Web Lab was created to encourage the students to comment on each other's text and visualizations. The students earned individual points every time they posted something in Owela. The points were then totalled for both groups so that there was also competition between the schools, not just between the individual students. The perception was that the points increased the amount of commenting, even though only a few of the students actually reached the level at which they could gain statuses such as energetic proposer or sustainable developer. The students liked the thumbs up option in Owela and often used it alongside the comments. This feature was also used in voting, for instance, when students brainstormed themes for climate change challenges (four themes were selected by this method: choosing public transport, preferring vegetarian food, reducing packaging material, and recycling).

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Figure 11. Own media environment visualized by a student.

Moments of collaboration were also triggered in classroom situations. For instance, when the students were engaged in an exercise and needed help, they usually turned to each other. The online presence of the researchers (see above) also made them negotiate on the answers to be formulated in the shared Ether-Pad.

When it came to the Climate Worries website, existing participatory and sharing practices in social media became obstacles, to an extent, to the campaign. The campaign site was promoted via Facebook status updates, a Climate Worries Facebook page and in other social media, such as blogs. The promotion of the campaign site in social media as a place where people could post photos of their everyday climate actions did not attract people to participate in the campaign. For instance, for a couple of days after the website had been published, almost 200 people liked the Climate Worries Facebook page, but it did not result in any photos on the website. This kind of 'light participation' of clicking on the Like button on Facebook can be seen as an easy way to act for a good cause, and

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it can be argued that Facebook has actually created this practice in which people can participate by supporting but not really engaging in the issue.

Existing practices of sharing pictures on the Internet also worked against the idea of the climate change photo challenge. Although people seemed eager to show their pictures in social media photo galleries such as Flickr, publish photo blogs and share their snapshots on Facebook, they were not responsive to publishing their photos on the Climate Worries website or its shared photo gallery in Flickr. This may have been partly due to issues of ownership. Open sharing of photos in social media is usually done on the person's own blog or Flickr gallery where the person posts as a registered user and holds the authority to remove the pictures or edit the albums. When people post photos on the Climate Worries website, they share them on a platform that is not under their control in the same way.

When it comes to implementing participatory projects in a school environment, as in any participatory design project, we suggest spending time creating a shared vision for the goals of the project. Although schoolwork is often teacher-led, the participatory approach invites students to take an active role in defining the project practices as well as the desired outcomes. The engagement brings commitment and a feeling of ownership, which are needed in a successful participatory project.

### **4.3 Monimos co-creation as a deliberative process**

Civic participation by immigrants is and has been supported by various government- and NGO-led projects in which immigrants are encouraged to participate in public life in different ways. Altogether, interest in immigrant volunteering has been on the rise, and support for consultative deliberation bodies composed of immigrants is increasing. An understanding that immigrants and their associations possess extensive knowledge of their communities as well as various other social issues and can therefore offer vital information to the relevant authorities and function as channels to reach some of the groups is gaining ground. Nonetheless, there is a need to improve immigrant participation in all the fields of society. (Ahokas, 2010)

The Internet is one of the most popular media with immigrants living in Finland. According to a large survey (N = 434) conducted in 2008, about 89 per cent of immigrants use the Internet at least on a weekly basis and 85 per cent have an Internet connection at home. When it comes to social media, almost 30

per cent of these immigrants regularly make use of chat forums and 18 per cent are members of an online community such as Facebook. Less than 10 per cent of the immigrants interviewed write a blog by themselves. (Maasilta et al., 2008)

The importance of the Internet has also been recognized by authorities. A popular form of publicly funded support model has been to teach computer skills to immigrants in order to enhance integration and the possibility of making use of computers and the Internet on a daily basis. Social media are also increasingly used as a tool in participatory processes in the public sector. Internet-based tools and information websites in the public sector are usually set up without involving immigrants or other user groups in the development process however.

In the Immigrant media case study of the Somus project, a social media service, Monimos.fi, was created for internationally minded people and multicultural associations to support their networking, information delivery, deliberation and civic participation. The Monimos development process was participatory and inclusive: the users were part of the planning team from the beginning and they took part in formulating what the service should be like in terms of both design and content (see 3.5.). The service was designed as a blog-type platform with blogs, polls, groups, events and profiles for organizations and individuals in the hope that it would bring together issues and discussions related to immigration, immigrants and life in general in Finland.

Not only were the content and the tools of the service an issue of thorough discussion throughout the participatory planning process but also the further ideology it represented. From the beginning, it was clear that even though the service was primarily designed for the needs and use of immigrant associations and immigrants, they would and should not be the only users of it. Integration was understood by the immigrant participants as a two-way process, and discussions and deliberation should therefore not take place in a vacuum among the immigrants without participation by native Finns. All interested people and associations were therefore welcome to share their ideas, set up their profiles and interest groups and join the community. In order to stress that the service was not restricted to immigrants, the participants felt that it was better to promote the service as a place for 'internationally minded' instead of 'multicultural' or 'immigrant' people. With 'international' the team wanted to relate to the global processes of which Finland is also a part, the movement and positive contacts between people, instead of just stressing the 'immigration' aspect of these developments, which often carry a negative connotation. The wish was also that encounters online would encourage social activities offline; this would enable

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integration in society and 'real life'. An event calendar was therefore seen as a crucial element of the service by the development team.

Another important discussion considered the role of the organizations involved. The Moniheli associations are among the primary end-users of the service. The service is the place where different associations talk about their events, share their concerns and pose questions to other associations. Here, the opinion was also that all other types of associations that share interests with the community are warmly welcome. The consensus was that governmental and municipal organizations and actors, which until now have regularly faced difficulties finding certain immigrant groups, could and should use the service for this and other purposes. Individuals without a connection to any organization would also be welcome, and it was found to be very important that people from outside the organizations really did join. A common opinion was that individuals who were active in the associations should be able to act as private persons in the service too.

The fact that the Monimos service is run by existing organizations was nevertheless seen as an advantage that would add weight and visibility to the discussions on the service. It was hoped that the presence of organizations would add expertise and authority to the service and that if statements on relevant issues were to be made in the name of one or more organizations, it would give legitimacy to the people and their cause. The service was seen to be at least semi-official in the sense that it could represent certain organizations and people belonging to them and include unofficial, private opinions (see Youngs, 2009).

Reasons for joining the team included a wish to influence Finnish society and develop services for immigrants. The hope was that the Monimos service would become the 'multicultural voice' of Finland, a discussion forum that could comment, on a more formal level, on issues that matter to the community or at least parts of it. One of the most important wishes of the group was to finally have a forum where the immigrants themselves could have a say and deliberate on important issues. There was a strong need for an opportunity to discuss matters related to immigration and other societal issues in the Finnish context from their perspective and in a more positive way. The existing discussion forums were not considered enough for this. The Finnish social media sphere offers various sites where immigration issues are discussed, mainly in a very critical or even racist tone. Forums where immigrants living in Finland can find support and understanding for their viewpoints have so far been discussion forums based in other countries. A forum that also offers constructive or positive discussion on



immigration from the perspective of the immigrants themselves was thus seen as more than necessary.

The developers saw the service as a forum that would bring together internationally minded people of various nationalities. The developers envisioned that the issues discussed would be locally oriented, to a great extent, and relevant to the people who live in Finland. It would therefore be very likely that most of the users actually lived in Finland. This also means that to follow the discussions completely, it is necessary to be familiar with the Finnish socio-political context, to some extent at least.

People also have different competencies for participating, depending on how long they have been in the country and, for example, how well they can communicate in a particular language. Furthermore, the idea that everyone who is interested could and should participate in the service by deliberating and taking action resembles the idea of a 'post-Westphalian' world wherein legitimacy for a public opinion is no longer bound to political citizenship and deliberation between those possessing it but should rather result 'from a communicative process in which all potentially affected can participate as peers, regardless of political citizenship' (Fraser, 2007).

The most discussed topics so far on the Monimos website have tackled issues concerning languages: the language used in the service as well as the learning of the Finnish language, and the employment situation in Finland, i.e., how difficult it is for a foreigner to get a job. Even though both these examples touch on a very concrete issue, the discussions widened to touch on, for example, in the previous case, language policy in Finland and, in the latter, racism and equality in Finnish society.

Although there were 83 responses to the discussion on employment in Finland, in general, this kind of long discussion thread has so far been quite rare in Monimos. At the moment, it seems that the event agenda is used actively and that other entries on the site are mainly notices of events rather than discussion initiatives. It seems that the website has potential to serve these purposes well, however, as after half a year of being published, Monimos is still used regularly and it holds well over 200 registered participants.

According to the core team members, there has also been publicly invisible activity, such as new contacts and private messaging, which has been important to individuals. Some people have also participated in events that they have found out about via Monimos, and one person had an idea for his own company based on Monimos discussions. Users would like to see more active writers in Monimos as well as concrete action instead of talk on issues on a general level.

## **5. Open data and citizen-driven services**

The discussion on opening government data for reuse has escalated during the Somus project, internationally and in Finland. Our project and its participants have had a visible role in interpreting what open data could mean in Finland and in demonstrating that there is interest in it in developer communities and in government. First, we summarize open data as a concept and then concentrate on highlighting some central findings from the local open data ecosystem, particularly the Apps for Democracy Finland innovation competition and its role in activating different actors for discussions and experimenting with open data.

### **5.1 Open data**

Open data refer to information that has been made technically and legally available for reuse. They often refer to governmental information that does not, at least that is the aim, infringe the privacy of individuals or cause security problems. There is no legal or technical reason, however, why other organizations and actors could not also publish data they own openly. There seems little incentive to do so. Compared with, for example, blogging, the publisher may gain little reputational or other benefit from publishing content free. A well-established mechanism such as the Google Pagerank algorithm for sorting search results, which increases the attention on the publisher of the popular free content, does not exist for data, at least not for the time being.

It is difficult to make direct economic gains from publishing open data in the current situation. It may be beneficial for society at large but not economically sustainable for individual actors or organizations because of the resources and time required to produce the information and the publishing platform that is used. For governments, it can be beneficial to publish open data however. It can help reach other indirect goals, such as cutting costs through increased budget

transparency, or improving customer satisfaction and use of public transport systems by providing route planning information.

From the perspective of our project, one of the big challenges of facilitating interaction between citizens and the public sector is to formalize the collaborative process into artefacts and processes that are meaningful for different stakeholders to participate in. Open data are an interesting arrangement for collaboration because collaboration is mediated through the artefact being created – as opposed to being mediated by direct social interaction. Thus, it scales well. Citizens can at least theoretically participate in knowledge creation, argumentation and innovation with less involvement from the public sector than in some other models.

The expected benefits of open data generally fall into three categories (Poikola et al., 2010). They can improve public sector IT systems and improve the efficiency of organizations. Democratic transparency and informed decision-making are other possible positive effects. The third expected benefit is innovation and economic gain. Even though it may be difficult to benefit directly from publishing open data, it may not be difficult to use and package it. It is possible to build products and services from open data, as, for example, many smartphone applications that use public data demonstrate. Many nations have adopted or are considering open data as a strategic tool to support innovation and local economies. This seems to have started a global race to publish government data sets, build data catalogues and facilitate developer networks.

Open data were not originally meant to form such a big part of the Somus project. Our initial hypothesis was that ‘Internet mashups’ would be the key collaboration formalization whose creation we study. We identified the lack of easy mashup creation tools as a central reason for why there is not more collaboration and why citizens and government representatives do not always find each other’s contributions constructive. We set out to ‘develop new technical solutions for user-driven media service development’ (Somus project plan, 2008).

The idea of building a technical platform came from another research project now under way at Aalto University – one of the project consortium universities. The project is called uSpace (part of Flexible Services) and aims to create a web-based set of tools for customized web service development that is reminiscent of iGoogle and Google Apps. We had the opportunity to use the platform while it was being developed and to participate in defining requirements for what it should do. Our goal was to use it to create pilot projects in which we could research user behaviour and the dynamics of collaboration.

## 5. Open data and citizen-driven services

It turned out that the opening of data may be a more viable solution for providing access to public information. The software components and practices for working with data can evolve more organically than when relying on a monolithic mashup platform.

Besides the software architecture, there is an interesting economy of learning at play. For newcomers, the time investment required to obtain visible results with open data is higher than it would be if there were a mashup tool. It must be recognized that even graphical user interface tools require learning, especially when working on complex domain problems. The open data paradigm allows easier knowledge transfer for people working with the data and related software. For people with previous experience of web development, it is easier to apply previous knowledge and take the experiences gained from open data projects to different domains. There are also more degrees of freedom of what can be done when information access is provided at data level. This opens up possibilities for innovation and creates economic and other incentives.

From the perspective of democratic access to information, the technical skills required are a problem. It is not clear what should be done to solve the problem however. One answer is to continue the development of tools to create mashups that use open data. Another is to increase support for and education in data processing and programming skills because of their growing importance to participation in society. A concrete learning outcome would be to learn to access open data directly and convert them to meet the needs.

### 5.2 Apps for Democracy Finland

Apps for Democracy Finland (also known as Apps4Finland 2009 and Kansalaisosallistujan työkalut) was an innovation competition for government data use organized by the Somus research group in collaboration with and sponsored by Forum Virium Helsinki, Suomi.fi, ValtIT (government IT management) and Helsinki City Library. There were three categories in the competition: ideas, library-related ideas and implementations. The competition took the form of one of the annual MindTrek conference competitions in autumn 2009.

The idea of organizing an innovation competition was included in the Somus project plan: *'In addition to the mashups developed by the project team, an open competition will be arranged to get more ideas.'* (Somus project plan 2008) The idea for the competition arose from the open research approach initiated by the Open Research Swarm. The competition was identified as a promising practice

for overcoming challenges in cross-organizational collaboration in research projects. From the perspective of academic research, the goal was to have a diverse group of people present new ideas on what could be done with government data, i.e., crowdsourcing research. Another goal was to evaluate the interest in open data development in Finland.

The competition received 23 submissions. Half of the submissions were ideas and half were implementations. The implementations ranged from prototypes to more finalized services. Although the competition submissions received much attention among social media professionals, none of them has been widely adopted so far. The submissions form a body of references for discussing different features of government data reuse and their possibilities in Finland. After the competition, several of the submissions were presented at various seminars and mentioned in Internet publications. We had hoped that the competition would also have initiated a discussion on open data in mainstream media, but that did not happen until later.

Perhaps even more interesting than the competition submissions were the people involved in the competition and its practicalities. We are not able to isolate fully the effect of the competition from other significant events and the general rise in awareness of the international open data movement in Finland. Nevertheless, the competition seems to form a culmination point for open government data activities in Finland. Many of the people involved who actively promoted open government data after the competition have been given new responsibilities related to it or adopted the open data ideology in what they do. When asked about the competition, they describe it and the possibility to network with similarly minded people in Mindtrek as important. Even people who were not involved often mention the competition as a good way to promote open data. Hence, it seems that the competition was important, and it would be interesting to be able to generalize the process to create a similar kind of event in relation to some other theme. Our understanding of the meaning and the effects of the competition is continuing to be refined.

After the competition in 2009, our research group wanted to transfer the responsibility of organizing the future Apps for Democracy Finland competitions to someone else. We offered the task to the Finnish Internet Democracy Society (Verkkodemokratiaseura), which organized it in 2010, and it plans to organize it again in 2011. Full financial responsibility has also been transferred. Some researchers have still been involved in the process however.

### 5.3 Case Tax Tree – new business in open data-based application to make sense of abstract data

The purpose of this microarticle is to demonstrate the possibilities and challenges of creating novel concepts that use open data and social media through an example, the Tax Tree.

The Tax Tree (or *Veropuu* in Finnish) is a novel concept for visualizing the income and spending by government agencies. The basic idea of the Tax Tree is to depict spending in the form of a tree – with the roots of the tree representing money coming into the organization from various sources and the branches showing spending; see Figure 12. The thickness of the root or branch indicates the amount of money. In addition to visualization, the goal of the service is to provide a means for participating in the discussions on the budget visualized through ‘competing’ simulations and deliberative verbal discussions.

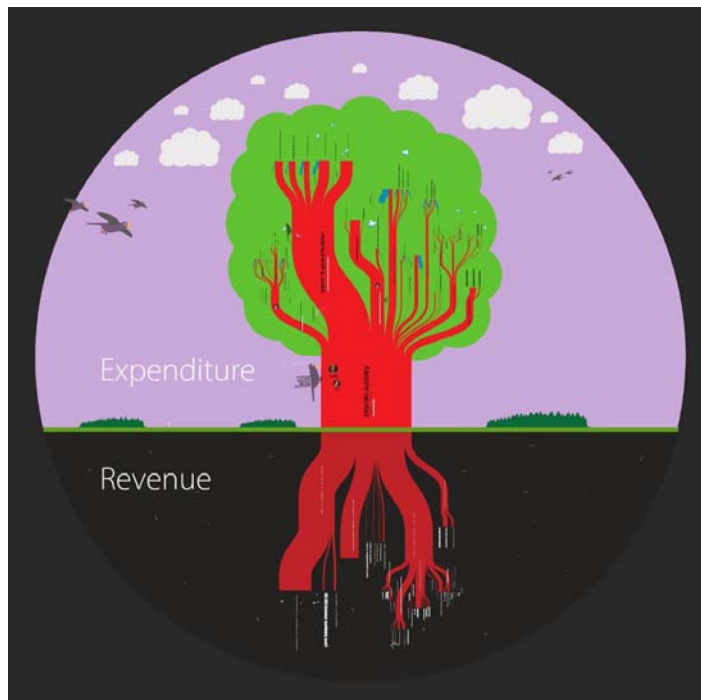


Figure 12. The Tax Tree concept.

The value proposition of the Tax Tree is that it is an enabler for:

- improved communication
- better decision-making
- crowdsourcing of alternative solutions.

The Tax Tree is about making sense of abstract data such as the enormous government budget (published in a book of hundreds of pages or a fairly difficult to use web service<sup>15</sup>) in a new, easily understandable and interesting way. This visualization can be used in decision-making (for instance, to understand the scale or impact of decisions or arguments) and communication about these often difficult or even painful decisions to the media and citizens. In fact, the Tax Tree can even serve as a kind of portal to the economics of a state or agency. The Tax Tree vision is also about citizens engaging in deliberative discussions on decisions and branch/root widths and being able, for example, to propose alternative solutions (i.e., the Tax Tree can be a vehicle for crowdsourcing of alternative budgets). It can be said that the tree metaphor helps make the budget a social object (see Engeström, 2005) around which interaction and discussion can take place.

In addition to the issues regarding the concept itself, the Tax Tree development process is interesting to the Somus project from a number of angles. First, the Apps for Democracy Finland competition (see 5.2) coordinated by Somus is an important facilitator, or even a boundary object, that helped in the realization of the Tax Tree. This is also an interesting case of the application inventor NOT being a programmer but rather coming from a completely different discipline (he is an architect). It is an example of the way crowdsourcing for novel ideas (in the form of the Apps for Democracy competition) can result in novel ideas by people who are not experts in a particular field but rather from nearby disciplines. Tax Tree is another example that demonstrates the whole ideology of open data in a way that is understandable to a wider public: public authorities, citizens, etc.

While it is quite easy to see the value of Tax Tree – the feedback has been very positive from a number of government agencies – there are several interest-

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<sup>15</sup> <http://www.netra.fi>

## 5. Open data and citizen-driven services

ing issues worth considering and even researching regarding the concept itself and the surrounding ecosystem in which it operates.

On the concept level, what are the most important use cases or contexts in use? Is this a tool for the government, municipal agencies or companies, or is it aggregated into one open and social service with all the visualizations in one place?

Who are the most interesting and relevant customers? As well as public agencies, potential customers of the Tax Tree include private or semi-public companies for whom financial transparency and integrity are important selling points. It may be worth speculating whether, in the after wake of the global financial crisis, open data may be an area of growing interest to the private sector seeking to gain the trust of potential customers.

What kind of approach to service and delivery would be most attractive? For example, should Tax Tree be a centralized service in which ‘all Tax Trees’ are visualized or a web-based tool sold to various agencies and companies separately. In the former case, it should be considered whether there is additional value in the users, user community, transactions and analytics of these, and in the latter case how the agencies benefit from having their own versions of the tool (e.g., customization).

The bundling of services (cf. Bouwman et al., 2008a) is very important to consider, i.e., the total product offering that customers want to buy. For example, cooperation with companies that perform financial analysis for municipalities may be relevant. The Tax Tree could be used, for instance, to visualize data produced by the company (namely the unit cost of production of certain public services) alongside the municipality’s ‘official’ financial data. In countries or municipalities in which social return on investment (ROI) analyses of public services are performed, this data could also be represented as part of the Tax Tree visualizations.

The value created by a service like Tax Tree also needs to be evaluated. From the public agency perspective, it may be possible to calculate monetary revenue or ROI from a service such as this (end-users, e.g., citizens, are not likely to pay to use it!). Although it would be quite difficult, alternative ways, like the concept of social ROI, could perhaps be applied to Tax Tree.

A number of initiatives have been started at government level with regard to open data, and it is a government goal for new business to be initiated from open data. From this perspective, the questions that arise include: How should startups like Tax Tree be encouraged, funded and nurtured from a government per-



spective? How may the funding mechanisms differ from, e.g., normal market-based start-ups? Do initiatives like this fit under social entrepreneurship schemes? Is it beneficial to ‘help avoid’ such initiatives from having to gain ‘normal companies’ as customers (i.e., to be market-driven) and instead keep the civic and social goals as part of the mission? And, is there actually even such a difference between concepts such as this and market-driven concepts?

In conclusion, it can be said that the Tax Tree concept, which won the Concept category of the Apps for Democracy Finland competition in 2009 was the kind of showcase that the competition organizers sought – an interesting and useful application that not only highlights the potential for open data and social media but also raises relevant questions on many levels.

#### **5.4 Business models and value creation in collaborative government service concepts**

New Web 2.0 technologies, social networking services and related trends, such as services based on user-created content and online communities, disrupt traditional business model concepts, and they may require different design paradigms. This microarticle explains how a particular commonly used business model analysis method, the STOF method (Bouwman et al., 2008a), lacks the ability to analyse coherently services that use open data and social media in the context of civic-oriented digital services based on social media (aka collaborative government services).

A business model can be defined as ‘a blueprint for a service to be delivered, describing the service definition and the intended value for the target group, the sources of revenue, and providing an architecture for the service delivery, including a description of the resources required, and the organizational and financial arrangements between the involved business actors, including a description of their roles and the division of costs and revenues over the business actors.’ (Bouwman et al., 2008a)

Business models for digital services have been studied by many, and they have been applied to e-government services. Many of these business modelling frameworks focus on business model categorization or after-the-fact assessment of services however. Evaluations are often based on an economic perspective, e.g., generated revenue or improvement in internal efficiency, and the perspective of the user, user community or intangible return is seldom considered.

## 5. Open data and citizen-driven services

Based on other business models and business model frameworks, Bouwman et al. (2008a) introduce a holistic model for describing the business models of electronic services called the *STOF model*. STOF hides the complexity of many other models in four core components, or *domains*, namely: *Services*, *Technology*, *Organization* and *Finance*, as depicted in Figure 13. The domains are closely linked, with the elements of one domain setting the requirements of other domains and their elements (Bouwman et al., 2008a).

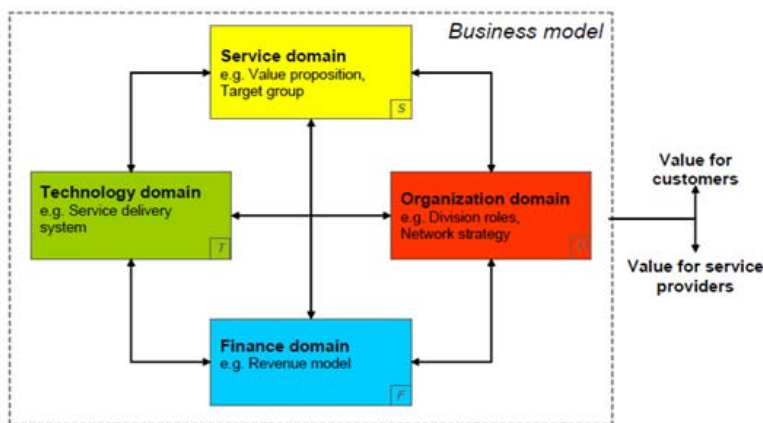


Figure 13. Overview of the STOF model (Bouwman et al., 2008b)

The *Service domain* concentrates on customer value, with the elements of value creation defined as: the value *intended* and *delivered* (by the service provider) may differ from the subjective value *expected* or *perceived* by the user/customer. Other relevant *Service domain* items include *segmentation*, *pricing*, *context* and *effort* to use the service. Requirements by the *Service domain* affect the *Technology domain*, which includes items such as the technical functionality and technical architecture needed to implement the technical functionality and deliver the intended value to the user. The *Organization domain* models the network of organizations and actors needed to deliver the service. It includes organizations and their goals, roles, strategies and relations. Finally, the *Finance domain* describes the financial arrangements for the service provider's network, e.g., division of investments, risks and revenues, and performance measurement.

A key difference of the business model in an e-government context\* is that the service value is derived from the main mission of the public organization, often founded in law, and it contains the logic and elements to fulfil the mission suc-

cessfully using the Internet and to satisfy citizens and/or businesses. In the e-government context, actors, or stakeholders, are typically citizens, employees, businesses, governments, IS/IT personnel and special interest groups (Esteves & Joseph, 2008). On the other hand, social media is a ‘technology-tied and structural process, in which individuals and groups construct common meanings through *peer-to-peer production* and *produsage*’ (Erkkola, 2008), and it combines content, user communities and web 2.0 services (Ahlqvist et al., 2010). In social media services, the customers’ role does not just consume or interact with a service, the end-users (i.e., user community) themselves are an integral part of the production process, value activities and value network (Bruns, 2008). These differences have implications for the way the business models and value creation are identified.

In the *Service domain*, it is not enough to consider the ease of use in the right context – it places demands on the services to provide simple means to *produce* or *edit content*. As the 1-9-90 rule (see also 2.3) is thought to apply, a successful service needs to have mechanisms for interacting with content objects (aka social objects; see Engeström, 2005). As the value proposition cannot be delivered on its own with the technical infrastructure but rather through the content and community created over time, the concept of ‘plausible promise’ may be applicable to social media services.

In the *Technology domain*, the data may not be as important as the *content* created by the users. On the other hand, open APIs, a fundamental form of integration, may allow the content to be reused outside the service itself, disrupting the value creation within the service and the service provider network. In fact, it cannot necessarily be known how the content in a service will be used outside the service in a different context in which more value may actually be created. In addition to open APIs, the *Technology domain* must also be better suited to delivering community features that are fundamental to delivering service value. *Sense of community* is associated with the feeling of belonging and being attached to an online community, and it is actively maintained through the social processes of *exchanging support*, *creating identities* and *making identifications*, and the *production of trust* (Blanchard & Markus, 2004). This also places a further demand on the *Technology domain* to extend customer profiles (for CRM and billing purposes) into *open user profiles* that allow such identifications and trust production.

Users cannot be isolated outside the *Organization domain*. In fact, it could be argued that the *user community* is a *structural partner*, as it produces most of the

## 5. Open data and citizen-driven services

*content* and *social interactions* and thus effectively much of the value of the service. This means that in the analysis of the *Organization domain*, not only the strategies and arrangements between organizations but also the *motivations of users* need to be considered.

The construction of the *Finance domain* also changes considerably. As the user interactions and user-generated content are fundamental to the services (and this is also true of e-government services), monetary revenue gain from users (citizens) is not very likely. On the contrary, there should be a reward for user participation. Rewards do not necessarily have to be monetary but can include, e.g., virtual rewarding or ranking of best content (Lietsala & Sirkkunen, 2008). Participation creates some kind of *social capital*: expertise, fame, trust within the community or self-satisfaction. Social capital is also created through value activities, such as users forming connections and interactions with others in the user community (Ellison et al., 2007).

'Revenue' from the service (often in e-government, the revenue may mean, e.g., cost savings, not collected revenue) may be difficult to measure. While, from an economic perspective, there may be, e.g., an improvement in internal efficiency or quality (for example, an improvement in internal efficiency is one of the goals of *KommentoiTätä*; see Appendix C), the perspective of the user, user community or intangible return is difficult to consider. For example, increased openness or better suggestions in legislative drafts submitted by users using the *KommentoiTätä* tool cannot be quantified. Furthermore, some of the network value provided by a service may not even directly benefit some of the service providers or known beneficiaries – the value may come from content reuse or mashup in another service. This uncertainty makes the calculation or estimation of gained benefits speculative, impossible and thus even useless, although the possibility of external use of the content may be considered an additional attractive possibility rather than the fundamental reason for the service.

## 6. Challenging academic research

From the very start of the Somus project and even before applying for funding for the project, the Somus researchers strove to find possibilities to experiment with research work in modern but academically unconventional ways. This Chapter, ‘Challenging Academic Research’, reflects on the way the Somus methods and practices deviate and even challenge *de facto* academic practices and evaluates whether and how the chosen approach provides value and whether it is worth further refinement and experimentation.

One of the fundamental pillars of the Somus project has been its striving for openness. In this chapter, openness and open research are examined from various angles. First, we examine different viewpoints on openness in the context of academic research. We argue that open research is not only ethically reasonable but also a strategic choice that can, in some circumstances, produce better research results as well as better dissemination and implementation of the results found.

We go on to examine and reflect on ourselves in general. Openness is no silver bullet and does not come automatically, so it is important to examine whether we were open in the way we intended to be and what kind of value and results we gained by being open. We also scrutinize the Open Research Swarm and its influence and relation to the Somus project.

Generalizing the experiences gained as well as the way our work has been perceived by other researchers in the academia, we provide insights into the new kind of research competence and practices the open research approach requires. This is examined on different levels, i.e., points of view on openness in research and how it was fulfilled in Somus (6.1, 6.2), new ways of working and organizing enabled by social media in the form of the Open Research Swarm (6.3) as well as the kind of personal skills or attitudes the open research paradigm re-

quires (6.4). Finally, an outside perspective on Somus is given in the last microarticle of the Chapter (6.5).

### 6.1 Perspectives on openness in research

The idea of openness was part of the Somus project even before the start of the actual project. First of all, the Somus project was born in an open, inclusive process in the Open Research Swarm (ORS) (see 6.3), i.e., discussions in the Jaiku microblog, and the project plan was written openly in the wiki of the ORS. Part of the project funding was budgeted for the ORS, and the development of open research methods was stated as one of the Somus project goals.

In this sense, openness was a fundamental principle of the project itself. On the other hand, carrying out research openly and using the Internet to open up the research processes was a decision made at one of the first meetings of the project group. Behind the decision, there was of course the creation process of the project described above and, in addition, the openness was seen as an important value of the research by the Somus research group.

Hence, all the documents (besides material subject to confidentiality based on research ethics, such as interview data) in the project were set to public and made available to anyone to read and comment on in the wiki and on EtherPad. This helped the researchers too, they did not need to email meeting agendas or draft versions to each other or remember different passwords to intranets or such services.

Openness of research can be seen as an ethical issue in terms of inclusion as well as communication to the beneficiaries of the research. For example, openness may be a way to involve ‘relevant people’ in the project or a way to validate the results sooner (Lakhani et al., 2007). In this case, the individuals and the organization both strive for a situation in which it makes sense to be open – the possibility of benefits from being open is greater than the risk of ‘lost resources’ (time/effort, ‘stealing’ ideas, etc.) in producing openness. Hence, openness was expected to increase the *inclusiveness* of the project to enable *participation* in research in a new way.

Open research may be particularly useful in researching wicked problems. Wicked problems are issues in which the question (not the solution) cannot be fully understood before engaging in the problem-solving process (Conklin, 2005). This underlines the need for deliberation that helps with the *definition of the problems*. The questions of citizen participation and the interaction between

the citizens and the public sector are complex and often bound to the context, hence there is a need to involve the citizens and the administration in the discussion. This was done in the Somus subprojects.

In our opinion, the openness of the research is important to the *transparency* of the research. It allows research problems, ideas and results to be made available for public scrutiny earlier than in traditional research. A disclosure of scientific problems to a group of outside participants is in fact also an effective means of solving these problems, for instance, in Somus the project ‘outsiders’ contributed by, e.g., participating in discussions regarding theoretical concepts, suggesting interesting research cases and challenging our research questions and service concepts. In the Somus project, the involvement of researchers, citizens and public sector representatives has led to *networking* and practices that might not have been possible in a more closed research environment, not to mention the peer-support that Somus researchers have found valuable and positive.

The type of openness with which Somus has experimented is new in academic research and there are thus few or no existing practices, for instance, when it comes to funding this type of open research group work or publishing academic texts that have been written in collaboration with many authors or in a swarm that may also include non-academic participants<sup>16</sup>.

## 6.2 Somus working towards openness

This article focuses on the way openness was implemented and experimented with in the work by the Somus research group. Here, openness is conceptualized as consisting of three dimensions (see also 1.2): inclusiveness, transparency by means of publicity of the project, and the public dialogue the project participated in and raised.

Openness as inclusiveness means that the Somus project was opened to include the ‘outsiders’ in the research. The project group wanted to remain open-minded to new ideas, which resulted in a certain degree of flexibility in the research and some changes to the original project plan when relevant ideas emerged. Somus then invited researchers and other interested people to collabo-

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<sup>16</sup> In the field of open science, the practices are more developed and experimented with further (cf. Heiskanen et al. 2008).

rate in the project group work by, for example, discussing and asking questions in Qaiku and networking at various online, academic and non-academic events.

When it came to the involvement of outsiders, there was a change during the two-year period of Somus. The interaction in Qaiku was active, especially during the first half of the project; towards the end of the project the networking increasingly took place within academic circles, i.e., with researchers in conferences and, especially, with the Visci research project. This was partly due to the scattering of the Open Research Swarm (see 6.3).

Naturally, the distinction between the ‘Somus researchers’ and ‘the others’ remained due to, for example, concrete academic work practices such as funding mechanisms. There is a difference between being paid for doing research and participating because of an interest in it without any additional compensation. Sharing ideas and participating in the processes of ‘research crowdsourcing’ and networking were seen as an enriching element of the research by the Somus researchers and the circle of other researchers and ‘hang-arounds’ participating in these processes.

While no exact data on outside researchers or swarmers were collected, we could at least say that they took part in, for instance, preparing and revising the project plan, producing research data (e.g., interviews), producing project PR material (e.g., videos, blog postings), developing software and writing articles. Furthermore, a number of people joined in several discussions about Somus that took place in Qaiku and commented on the project plans in EtherPad.

The Somus researchers took the social media approach seriously, which meant that we were very hands-on, experimented with new services and took a ‘practice what you preach’ attitude. According to our experience, the practices that enable open research are *shared values* (in our case defined as democracy, ethics, equality, openness of information), researchers who are *self-organized* because they are motivated by shared values, permission to *deviate* openly from the *planned* path to investigate new ideas and some *flexible budgeted money* (Harju & Ropponen, 2010).

With the open research approach, we were aiming for transparency of our research. We experimented with the wiki and EtherPad, which were open by default, at our meetings and in brainstorming and planning in order to enable publicity of the project. When writing conference papers, we also openly invited anyone who was interested in collaborating as a commentator or co-writer. These invitations usually attracted a couple of interested persons who com-



mented on the draft or made suggestions for references or themes to be discussed in the paper.

We were criticized for the lack of a ‘meta-document’ that would have revealed, and explained, the documents to those trying to follow the project progress. Navigation in our ‘online information space’ was difficult even for the researchers who were involved in the project daily – let alone outsiders. Our meeting minutes on EtherPad accompanied by Qaiku microblogging threads did not summarize clearly enough what was going on. Hence, the ongoing project processes and activities remained complicated for outsiders to understand and follow despite the availability of the documents (see also 6.3).

A functioning back channel (see 2.2) for delivering the information needed to follow the project and hence engage in it would have been essential for the transparency and inclusiveness for which we aimed. The Somus blog was updated when something unusual or ‘big’ happened in the project, but to provide information about the ‘daily practices’ of the project would have required a flexible and easy-to-use information channel. Qaiku was used for the project during the meetings, but the use of many channels of communication (Skype, EtherPad and chat in both) turned out to be challenging and led to Qaiku being neglected as a meeting tool.

Qaiku was still successfully used for discussions of issues that were of interest to the Somus project however. Somus researchers continued initiating discussions and actively reported live in Qaiku when attending a conference or workshop. This way, Qaiku remained an important tool for public dialogue, although its use as an information delivery channel became less intensive towards the end of the project.

In Somus, openness could be tracked to, for instance, the following practices:

- open project management
- open communication
- open group
- open data collection
- open data publishing
- open writing.

The breaking down of processes or projects into granular and modular tasks is one of the success factors of collaborative processes like Wikipedia (Benkler, 2006). In some of our work, we did not strive for such peer production and were not necessarily ‘open with a strong will to get something out of it’. This meant

that we did not always push enough to make things easily understandable, which sometimes made outsiders' contributions difficult.

Openness was stated as an ideology at the beginning of the Somus project, and the researchers remained positive to the idea of conducting research openly throughout the project. Due to the lack of existing practices in the open research group work, the openness was conducted as experimenting with different practices. This trial and effort method mostly worked well, but there is much development to be done on the tools and practices for the open research group work to reach the potential benefits.

### **6.3 Combining self-organizing networks and academic research: Open Research Swarm case**

The Open Research Swarm (ORS) is a Finnish group of people who are interested in research and open collaboration over the Internet (for a definition of swarm and swarming, see 1.2.6). The Open Research Swarm is not owned or controlled by any person or institution. It cannot be called a network either, as there is no definition of members or topics of interest, but the ORS serves as a ground for more focused networking and research collaboration. The unstructured way of working is enabled by social media that provide a neutral platform for transparent communication (Heiskanen et al., 2008).

**Open Research Swarm and Somus.** The Open Research Swarm was born in December 2007 as a result of discussions on the microblogging service Jaiku. People who were interested in open and agile research and who were looking for new research partners met each other via contacts on social networks. These discussions formed the basis of the Somus research project.

The Somus project plan was originally created by the Open Research Swarm in the project wiki of the ORS. As the Somus project started, it continued using the wiki as the main working platform for project planning, article writing and keeping meeting minutes.

In Somus, the Open Research Swarm had its own budget share, and it was considered a project partner, although it is not an official organization (and due to the lack of official status, the Open research Swarm budget was managed by VTT). The flexible budget made it possible for the Somus project to use the expertise of external researchers for short periods of time for very specific tasks that added value.

**Benefits of swarming.** In the Somus project, the ORS played an essential role in forming the project idea. The process was based on the same self-organization and online collaboration principles as the Open Research Swarm itself. The research consortium was also created based on the interests of the ‘swarming researchers’ and through participation in the open creation of the research plan instead of finding the research partners from existing collaboration networks in the typical top-down manner. The Open Research Swarm provided the basic informal collaboration platform for the project before it officially even started. It was therefore easier to contact other researchers in the same field and start collaborating with other projects with an interest in similar issues. One of these projects was VISCI, funded by the same MOTIVE programme (see 6.5). One researcher also joined the Somus project after finding it via the online discussions, an example of the concrete openness of the project.

The budget for swarming also enabled the creation of mashup applications. The Organizing the Apps for Democracy Finland 2009 competition (see 5.2) was partly funded by the budget share for the Open Research Swarm. The development of one application (the Finnish Parliament Chat) was funded by the ORS budget money. Some focused research tasks, like analysing interview data or planning a reward mechanism for the Climate Worries campaign were also outsourced to the ORS during the project. Flexible funding made it possible to adapt the project plan based on needs that arose during project implementation.

**Challenges.** Heiskanen et al. (2008) listed several challenges related to academic swarming that could also be seen in the Somus project.

Projects or collective efforts are not arranged as planned formal sequences. The wisdom of crowds is occasionally needed and often more in the early phases of the process. In Somus, swarming was also fruitful in the beginning but became challenging during the stable project implementation phase, partly because of the lack of developed practices and guidelines.

Un-hierarchical academic swarming is difficult, as openness, informality and sharing do not fit fully into the current academic structures that require, e.g., a juristic body to apply the funding. In Somus, subcontracting application development and research work with swarm money was especially challenging. It was not easy to decide which of the volunteers should be paid and how to combine an official organization’s payment practices with the flexibility of swarming.

The power structures and decision processes inside swarms require further consideration. Self-organization did not work at project level (after the free idea

generation phase). Top-down coordination is needed but as the Open Research Swarm has no official organization, coordination is difficult (see also 2.3).

The swarm activities are hard to stabilize without losing the energy that comes from its constant motion. The swarm should also attract new participants from different fields in order to gain fresh insights and not become a community just for insiders stuck with old ideas. The formal organization of the Somus project took energy from the ORS, possibly causing its scattering.

Continuous swarming sometimes makes it difficult to see the big picture. People tend to become interested in many new issues and tasks, but the completion of the tasks requires more effort than they are willing to invest. Total self-organization, including shared responsibility for everyone, does not work very easily: on a practical level, even small tasks must be addressed to someone (see 2.3). With a swarm like ORS, it is not always easy for newcomers to figure out their own ways to participate in an activity or a project that has been under way for a while with its own informal structures and ways of working, even if social media tools in theory enable participation in a number of ways

**Experiences of swarmers.** The Open Research Swarm was important for the birth of the Somus project. During the implementation phase, it was more difficult to link a self-organized swarm to a formal research project. Maybe the project model should have been even more agile. It remains uncertain which kind of flexible project model is applicable to basic research.

In the beginning, there were high expectations of developing a completely new way of conducting research tied to swarming. In the Somus project, many things were done very differently from traditional research projects, but in reality, it was not easy or efficient to be a completely self-organizing swarm. Not all the promises of open and collaborative research could therefore be fulfilled.

The ORS may have ended up being too small to remain active after many of the active swarmers started to work in more focused and formal research projects, i.e., after some of the swarmers joined Somus, the activity of the ORS seemed to decline. The Open Research Swarm chose one person as a representative of the Somus steering group based on a Qaiku discussion. It was difficult to represent an unknown mass, as the ORS has no official organization or inclusive list of members. It was unclear who should take part and how in the decision-making and the ideal way to engage with other swarmers.

In the beginning, updates from the Somus project and meeting memos were reported in Qaiku, but since the Open Research Swarm activity declined towards the end of this project, Qaiku reporting was also performed less regularly. There

was a feeling that no one read the memos and meeting reports, and internal challenges of project coordination as well as the tight schedule of the case studies kept the Somus researchers busy. Other project work was therefore given higher priority than continuous information to outsiders. As a natural consequence, it became even harder for the ORS to participate in the project

More time and resources should be allocated to open communication. It is not enough for outside participants to make memos publicly available if the texts are not understandable without earlier knowledge about the project. Open research group work requires much explaining, which the researchers did not feel was useful, as no one seemed to follow the project actively, with the paradox that active explaining and open communication might have resulted in more followers and thus a positive feedback loop, as was the case in the first year of the Somus project. Structured guidelines would be needed to comment on memos and plans so that comments by research swarmers, when given, would also be read and handled by the project team correctly and in the right form.

The money allocation for the Open Research Swarm became difficult, as there was no predefined structure to allocate money to a swarm. Who is allowed to have financing for their microprojects? Who is allowed to decide on the use of the money? What are the decision criteria? How and to whom should it be communicated that money is available for research related to the Somus project?

All in all, the Somus project's experimentation with the Open Research Swarm, swarming and flexible money were interesting and beneficial. The new models of defining and allocating work and the flexible use of money in a research project uncovered many difficulties, however, that we expect to remain unsolved for some time to come.

### **6.4 Openness as an emerging competence**

The open research group work changes many existing academic work practices ranging from personal day-to-day activities to the academic publishing processes. This microarticle examines new types of competences – skills and attitudes – that such a way of working requires, based on our collective reflection of the past two years of the project.

The use of the open research approach is a transformative process that affects individual researchers as well as the organizations for which they work. As a prerequisite for openness as an approach to be adopted by an organization, the open research group work needs a purpose or added value for individuals as well

## 6. Challenging academic research

as the organization (see 6.2). A mere purpose and tools are not enough for open research; group work requires a new type of thinking as well as practical skills.

Reflecting on the activities, we applied openness to new types of personal skills and preconditions related to *openness competence* including:

- Dealing with constant incompleteness
- Networking skills
- Varying work roles
- Self-organization
- Facilitation of networked processes
- Agility
- Ethics.

By incompleteness, we refer to the skill of being able to deal with incomplete artefacts. Publishing incomplete writings, data sets or ideas in a wiki or Qaiku microblog can be very difficult and stressful. In fact, dealing with incompleteness is not just a skill for writers but for anyone collaborating in the form of commenting – the way feedback is given to work in progress should differ from the way it is given to a ready draft of, for example, a document.

By new skills in networking, we refer to the personal skills of becoming connected and attracting the right people to contribute. It is important to consider connectivity from the perspective of knowing, i.e., from whom or where to obtain advice and information. This kind of knowledge is tacit and accumulates through interactions and building of trust in social networks. This is important in any research, but the key element in our work has relied more on ‘somebody’, i.e., asking for advice or comments via particular channels instead of addressing individuals (cf. crowdsourcing). In our experience, people have been willing to help, and we attribute some of this willingness to trust and reputation gained by the Somus researchers in the social media forums.

The work roles of individual researchers may change dynamically, requiring them to think about positioning themselves in different roles, for example, ownership of ideas or being an author of articles may lead to the role of initiator or a hub of discussion on the subject. Some researchers may be more skilled in facilitating or bridging than in contributing in the sense of substance or idea creation. Researchers also possess roles such as microcontributors, i.e., being involved in fairly simple and atomic tasks enabled by social media tools.

Openness may also require agility, i.e., being open to changes of plan. This can sometimes be stressful for those seeking predictability and security in the routines of their work. The impulses and information received from the ‘outside world’ also make openness beneficial to those practising openness. Outsiders’ messages and contributions can range from suggestions for minor corrections to large-scale strategic partnerships. Some of the outside feedback may reveal problems in current working methods or point to more interesting domains of research than are pursued at the moment, thus affecting the way resources are applied or, on a strategic level, affecting the whole project. To be able to capture the value of these outside contributions, changes of plan may need to be made. This is a challenge for traditional project management, which is very much based on waterfall-type thinking (see 2.2). Our open and agile way of working is reminiscent of a Scrum in software development, and as we suggest, it may be quite useful to be agile, especially when researching wicked problems (Harju et al., 2009).

Open research work requires strong ethics and interpersonal skills: with an open team potentially consisting of individuals who may never have met (and thus do not have a built-in understanding of and trust in each other), it is important to appreciate personalities and different approaches. In order to be ethically sound and to motivate individuals for future collaboration, it is necessary to give credit to the original ‘ideas initiators’ as well as to all the comments and participants, no matter how small. This is even more important in open research work than in traditional research and is perhaps highlighted in a transformation time when open research work is not yet the norm. When non-researcher participants are included in the processes, they should not just be seen as research objects but rather as collaborators or even co-researchers.

In the future, besides increasing the collaboration potential, openness functions will be an important factor in the competition within the academia. Currently, the future of academic work includes more high education results with more research professionals, resulting in greater competition. The job contracts are typically short and, in a way, researchers are becoming more like entrepreneurs or freelancers – without the job security. Working in such an environment requires some of the aforementioned openness skills and can, at worst, also create unwanted hostility towards others.

All in all, an orientation towards open research work demands skills that emphasize the social as well as the individual in the sense of being part of a collective or a web of research professionals. It is necessary to find the characteristics

that define the researcher's place in the network as a super node that is required in the variety of collaborations.

### 6.5 Somus as an attempt at a new paradigm

*The author Juha Kronqvist works as a coordinator and researcher for the VISCI project. His doctorate work at Aalto University School of Art and Design is concerned with digital media, design and organizations.*

I have followed the activities of Somus researchers closely for a few years, starting from the early work on the Open Research Swarm and continuing to the latest stages of the project. In my role as a researcher in the VISCI<sup>17</sup> project, I have studied the operation of the Somus group through interviews and non-formal discussions. We have also arranged workshops in which we have attempted to figure out the details of open research collaboration, experimented with new collaborative tools and co-arranged a seminar on research methods to study the effects of social media. Along with our collaboration, I have attempted to formulate the knowledge into research results. In this microarticle, I will offer a short outsider's view of the significance of the work carried out by the researchers of the project.

It is possible to view some aspects of the Somus project as an attempt to establish a new paradigm for research work, one that is more open, inclusive from its core and aims to bring research work into the Internet age. It poses a view of research as actively involved with and including the subjects of research, openly communicating research as it unfolds and responding to questions regarding a just civic society. The values of openness and inclusion that guide the Somus approach seem to be embedded in the core of the research project.

The writer of 'Structure of Scientific Revolutions' and the introducer of the concept of paradigm shifts, Thomas Kuhn (1962), holds a view of science as an essentially social process. Here, the focus of describing scientific progress is on humans collaborating instead of on the construction of abstract logical constructs. Instead of progressing in a strict linear fashion, science is seen as being in a constant state of flux, a sort of battlefield of thought. Assumed stable

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<sup>17</sup> Virtual Intelligent Space for Collaborative Innovation VISCI <http://www.visci.fi>



knowledge constructs are being questioned following new developments, such as the Newtonian mechanics in the late 19th century, by the findings made by Einstein, which may eventually lead to a rethinking of the ways in which we interpret and act in the world around us.

The rapid rise of social media use has already overhauled several ‘truths’ in the world, including the primacy of media organizations in the communication of information and the economic structure of the recording industry. Even though the effects of the Internet on research activities have been studied for a while, I believe that questions concerning the core of research work have not yet been reconsidered seriously. Much effort has been spent constructing various data repositories or collaboratories, though they have all been guided by a view of research as an exclusive activity of a circle of peers. This view maintains that results should be open but that the process of conducting them should remain closed. There has therefore been much activity involving open access initiatives that aim to open journal article databases to wider use but with less focus on the interaction between the world of research and society. Somus researchers have pioneered new ways in which participants outside the research world can take part in and benefit from research activities.

Which activities thus make Somus a more open research project than, for example, the project for which I work? I refrain from going into detail as most of these are detailed in other sections of this report, but I will point out a few of them that I think are important to my argument.

**Open communication during the research process.** From the start, Somus made a decision to make an effort to communicate about the research activities as much as possible. It is important to note that this did not mean regular updates on the activities but detailed information such as meeting minutes (EtherPad) and real-time discussions during research group meetings (Qaiku). This decision must have required additional efforts from researchers and readers alike. Browsing such amounts of information cannot be an easy task, but it proposes a new sense of accountability by researchers. Not that a sense of accountability is non-existent today, on the contrary, much of the research time is spent writing reports for funding agencies. This point is the nature and aim of accountability. What if, instead of research reports, research projects were required to report on their activities through an online blog? This would direct the communication efforts towards a wider society and open up channels of participation by commenting on features or linking them to posts.

**Inclusive research.** The communication by research activities was not intended to be only one way. Instead, the group invited outsiders to participate in the activity and even provided monetary incentives called ‘Swarm money’ (parviraha) to be offered to small projects outside the core group. Most of the research meetings were kept open for participation and contributions by outside swarmers. The original application was also written in a public and open wiki. Could research funding generally be applied to ‘open calls’? An often-used reason for a closed doors policy is that of competition. Research ideas can be stolen, and project applicants engage in tough battles for funding. It became clear through discussions with other applicants, however, that the open draft actually helped them focus their projects on different research themes to avoid direct competition with Somus. When a text is documented in a wiki, it is easy to find an author and time stamp for the text, making it uncomplicated to solve authorship questions.

Whether the principles of openness and inclusion have been put into practice comprehensively during the Somus project is debatable but beside the point of this text. Instead, they should be seen as attempts to question old practices of the academia and search for new directions for the research community. If researchers want to take the full value of the possibilities offered by digital media, they have to be willing to reconsider some of their traditional practices.

## 7. Conclusions

The Somus project was started based on open online collaboration and the birth of the Open Research Swarm. The project proposal was drafted in an open wiki, which was a new approach to applying research funding. The project therefore took the openness and social media way of working as premises for the research work and for the way that the project team itself worked. We began with optimism towards self-organization and swarming and continued experimenting with new online collaboration practices throughout the project. The Open Research Swarm participated in the project in different ways by performing some microtasks with its share of funding as well as some voluntarily on the Internet. In part, at least, because of the openness, the project became well known and was well received by the target audience, namely (some future-oriented) public agencies, social media researchers and active experts and active citizens.

### 7.1 Key findings

*Continuous self-organization* is possible in small groups, but large crowds need gluing elements or tools to compensate for the lack of formal organization that is normally used to organize such activities. This is particularly relevant when the action requires more time to be completed and the aim is to have an impact outside the online world. The tools are powerful when working methods and practices are adapted and invented to support this distributed way of working. The huge online networks between users are in themselves a powerful tool to organize activities quickly.

Instead of the originally planned development of the mashup composition platform, the focus on mashups was aimed at supporting mashup development via the Apps for Democracy Finland competition. One winning concept of the Apps for Democracy Finland 2009 competition, the Tax Tree, shows the value

## 7. Conclusions

of processing public data by turning them into a visual representation that can support public discussion and create a common understanding. These are both at the core of what social media can offer, at its best.

We also developed several social-media-based services within the project (Climate Worries, Monimos.fi, KommentoiTätä and Video Annotation tools) and used flexible funding for the implementation of one of the idea competition submissions (Finnish Parliament Facebook chat). These tools supported participation by citizens to express their opinions and ideas for further action.

Social media were at the core of Internet innovation during the time of the project and this meant that popular tools and online practices changed rapidly. This creates a challenge for academic research in relation to social media: research needs to keep abreast of the development and be ready to change direction if necessary. Practices need to be adapted and abandoned, if necessary. For example, during the lifetime of the Somus project, we were faced with the changing activity of the Open Research Swarm Jaiku being abandoned and users switching to Qaiku and/or Twitter. The Somus project team also started to use more suitable tools when new tools were found, for example, changing from wiki to EtherPad. The change from wiki to EtherPad was made because EtherPad offered collaborative writing in real time and not in sequential order like wiki. Relatively small changes can have a huge impact on the ways that an application can be used and which ways of working it supports.

Much happened in the public sector in relation to social media during the Somus project. Social media as a phenomenon has become widespread knowledge and much experimentation has been carried out with online participation by citizens. The concept of open data has become well known in the public sector, partly due to the Apps for Democracy Finland competitions and through a number of government initiatives and agendas. The question is no longer one of whether there is a need or purpose for open data but one of how to organize the resources and processes to support the offering and use it via open interfaces.

Social media services cannot be designed in the same way as traditional software systems, as users form and modify the service with their own actions. The strict division between users and designers no longer holds; the services must be designed in collaboration and through use. Designers are becoming more like facilitators who support the user community in forming the service, producing content and creating the community. Ideas with a considerable effect on the future development track may come from any participant in the process, and these ideas emerge best through experimentation and testing.

The same approach could also be used in the context of public online services in which one of the roles of civil servants is to support citizens in their actions and enable their participation, instead of planning the processes before they are taken into use.

In the Somus case studies, we experimented with using social media tools for open, community-driven participatory design. Open online design spaces supported the design process in some of the phases, but planning and synchronization with the face-to-face design activities was crucial. Close collaboration with users is time consuming and the challenge of online tools is that they may easily blur the line between work and leisure time, particularly if the users participate on a voluntary basis and most of their activity is during non-office hours.

The changing roles and responsibilities of researchers and designers in the context of social media still need further research. Good practices are also needed to manage these new forms of work and participation. The challenge is to create an open, yet efficient, way to involve different parties including citizens and end-users in collaborative design processes. In many cases, users must be intrinsically motivated to participate in the development process. In tools and processes, even the smallest details are important and may influence whether people participate.

The openness in academic research with which Somus has experimented has received positive attention inside and outside the academic world. The experiences of openness during the project were mostly positive. On a practical level, openness makes many things easier, as information is always accessible to all project members and others with an interest in and the knowledge of the research topic. In the Somus project, social media tools also helped the researchers to become a functioning working team despite the geographical distance. On the downside, we realized that these new ways of working also caused much negotiation and reorganization of project practices, which sometimes took time away from the actual project work. New tools and practices inspired and energized the project team, even though the adoption of new tools and practices and being subjected to new ideas sometimes caused frustration and stress.

Here too, systematic practices need to be developed to allow outsiders to participate in the process with reasonable effort while still being able to provide valuable input to the process. The open nature of social media often brings new participants into the discussion and open processes, but if they are not properly supported, it can be too difficult for them to join and participate.

The possibilities for openness to achieve more transparent research should be further studied and experimented with. Openness is not just a big opportunity but also a big challenge. It is not enough for documents to be publicly available, it is not even enough to have them in an easily usable form, but, more importantly, practices and processes are needed to facilitate the openness. The same holds for open research work, citizen participation and user-driven development of web services.

### 7.2 Suggestions

General:

- Involving everyone who is interested is a big opportunity for society. Crowdsourcing and openness should always be considered when there is great interest and knowledge in the field. Not every topic is interesting, however, so the opportunities to involve people in public discussion and open development need to be assessed realistically.
- Participatory processes (e.g., involving user groups) are time-consuming, but together they define the problems, goals and practices of better participation, and it is possible to reach new excellent results. More work is needed to develop tools and processes that encourage participation and help process the input.

Public sector:

- Rapid changes in social media and the Internet in general put enormous pressure on public agencies to assess and use the opportunities offered by social media and reassess their practices on new experiences and changes in user behaviour.
- The public sector needs to evaluate possible online practices and put effort into choosing tools and practices and providing guidelines for their use: from experiments to everyday practices.
- Open social networks on the Internet are a great (free) resource for public sector collaboration and expertise when they can be successfully mobilized for the cause.
- Encourage informed analysis and discussion by offering facts and figures in ways that support understanding and constructive discussion.
- Develop practices from momentary public hearings to continuous collaboration and cooperation.

- Social media is very person-driven, and this is a challenge for many organizations and the public sector. Mixing personal and professional identities is a dilemma, particularly when unpopular decisions need to be made.
- Find ways to increase the willingness to share preliminary ideas and plans.

Citizens and associations:

- At best, social media tools enable transparency of processes in the collaboration with the public.
- Social media offer powerful and mostly free tools for organization, mobilization and daily work by citizens and associations.
- Associations should evaluate their gains from opening their processes more to everyone, including non-members on the Internet.
- Associations could make investments in information technology and software together instead of everyone purchasing separately.

Software developers:

- Open data are a new resource for innovative ideas for new service concepts.

Researchers:

- Social media tools and practices can make the research work more open and interactive and have the potential to improve the quality of the work. Openness requires planning, resources and time, however, and without proper facilitation, the benefits may not materialize.
- Open science needs to develop more practices and share examples of successes and failures.
- Microarticles and peer reviews on the Internet have great potential to contribute and produce results more quickly and develop ideas and theories better from the beginning.

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**Appendix A: Monimos**

**Appendix B: Climate Worries**

**Appendix C: KommentoiTätä**

**Appendix D: Finnish Parliament Facebook chat**

**Appendix E: Video annotation tool**

## Appendix A: Monimos

Monimos<sup>18</sup> is a virtual meeting place for internationally minded people and associations to promote participation, diversity, networking and active citizenship from grassroots level. It is a place for taking action and influencing decision-makers.

The Monimos service was developed based on the open source platforms WordPress and BuddyPress. It is administered by the Moniheli network but is open to anyone on the web. All the content is created by users, and most of the content can be read without registration. Individuals and associations have their own profile pages in Monimos. Monimos users can:

- write their own blogs and join discussions started by others,
- join or create a group related to a certain topic,
- create polls and express opinions,
- find and advertise events,
- network with other users and organizations, and send private messages.

Associations can create their own organization profile to present their activities, events and things they want to promote.

Monimos offers an arena for learning from other people and cultures, networking with like-minded people, sharing multicultural experiences and influencing issues that are important in the multicultural community in Finland.

The Monimos service was launched in June 2010 and by December the same year, there were 263 registered users, 27 organizations, 62 groups, 507 posts (altogether in blogs, events and polls) and 570 comments. In addition to online discussion, the aim is to organize face-to-face meetings. The first Monimos Club was held on 21.10.2010 and it attracted more than 20 participants.

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<sup>18</sup> <http://www.monimos.fi>

Home Latest entries Events People Organizations Groups Hot topics Feedback

pirjo My Account Notifications

MONIMOS BY MONIHელი  
The multicultural voice of Finland

Monimos is a virtual meeting place for internationally minded people and associations in Finland. Join Monimos to **enjoy diversity and promote active citizenship!** You can write in any language you want!

New at Monimos? [Instructions](#)

Monimos on virtuaalinen kohtauspaikka kaikille kansainvälisesti suuntautuneille ihmisille ja yhteisöille Suomessa. Liity Monimosiin ja nauti kulttuurien ja ihmisten kirjoista ja edistä aktiivista kansalaisuutta. Monimosiin voit kirjoittaa halunneksi kielellä. Monimosiin käytöitynä tulee pikapuoliin myös suomeksi.

Useit Monimosista? [Lue tästä](#)

[Videos](#) from the Monimos events / [Videos](#) Monimos tapahtumista

**Latest from the Moniheli blog**

**Monihelin puheenjohtajaehdokkaiden esitt ...**  
Post by [Monimos](#), 26.11.2010 [Edit](#) | [Admin](#) | [Add](#)

Monihelin puheenjohtajaehdokkaiden esittokäpuenuoret. Kõrtyvik a kaedevitsa linkeits. Riippumatta siitä kuka voittaa vaalit, on varmaa, että Monihel saa fantastisten kutsukajan haasteilma saurasavaksi kahdeksai vuodeksi. Onnea kaikille ehdokkaille!

Monihel chairman candidate introductions can be found through the links below. Regardless of who wins the election, we can be sure that we have a great leader to direct us through the challenges for the next two years. Good luck to all candidates!

Cuzu Wessah

**UPCOMING EVENTS**

Friday 03. 12. 2010  
Women to Women - Open Meetings For International Women, Helsinki, 18-20

Saturday 04. 12. 2010  
Childrens play: Magic show with jeth (in Russian and Swedish), Helsinki, 13-14

AFRICAN CIVIL SOCIETY GENERAL ANNUAL ASSEMBLY MEETING, HELSINKI, 15-18

Tuesday 07. 12. 2010  
Lutsi celebration for young and old, Helsinki, 12-13

Wednesday 08. 12. 2010  
An African Multiculturalism: Can we still talk of 'integration'? Helsinki, 16-18

More upcoming events

**WHO'S ONLINE**

**RECENT ENTRIES**

7 days ago  
Heranbe vortu e TURKUSA. 26. 11. 2010  
Shokapaki (shokaf) e a kulkijit e Heranbe ...

6 days ago  
Heranbe vortu e ABC OF A PERSONALITY  
Dava de shokapaki e Congratulations to the new Monihel Board ...

6 days ago  
Heranbe vortu e CASTING OUR VOTES

Figure A1. Monimos.fi main page.

## Appendix B: Climate Worries

The Somus Participatory Media case study linked the participatory design method to media education: two groups of high school students were involved in planning a web project to enable participation relating to climate change. In the beginning, the students were given a chance to present their ideas freely, and they wanted to create a campaign to affect people's attitudes and behaviour. The end result was a photo challenge campaign against climate change 'Ilma vaivaa' (Climate Worries).

The campaign was launched in May 2010 and ended in November that year. The campaign had its own website<sup>19</sup> on Aalto University Media Technology's server, and the photos sent to the website will remain in the Flickr gallery<sup>20</sup>.

The Ilma vaivaa website was created in the developing process as a photo challenge that invited people to present their everyday actions against climate change and challenge other people with the photos. The goal of the website was to create a Finnish online photo gallery of everyday climate actions. There were four action categories invented by the students (transportation, vegetarian food, packaging material and recycling) to which photos could be submitted. By submitting a photo, the user agreed to the photo being sent to the Ilma vaivaa Flickr gallery. The idea was that the gallery would remain when the actual campaign website closes down.

As well as submitting photos, users could also comment on photos on the website or challenge their friends to submit a photo to one or more action categories. When challenged, the friend would receive an email that directed him or her to the specific action category page from which the challenge had been sent. The action categories also competed. Each had a picture of an iceberg and the more activity there was on the page, the bigger the iceberg grew, which could be interpreted as a positive thing in terms of climate change.

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<sup>19</sup> <http://www.ilmavaivaa.fi>, in Finnish only

<sup>20</sup> <http://www.flickr.com/photos/ilmavaivaa>

The screenshot shows the 'Ilma vaivaa' (Air Trouble) campaign website. At the top, the slogan 'Lämmittäkö tänään? Se on sinusta kiinni. ILMA VAIVAA' is displayed. The page is divided into two main sections: 'Unohda paketit, osta irtona' (Forget packets, buy loose) and 'Vastaa haasteeseen' (Respond to the challenge).

**Unohda paketit, osta irtona:** This section features a map of Finland and text explaining the challenge: 'Onko tuhaasta pakkauksimateriaalista mahdollista päästä eroon? Jaa omat viikiksi ja haasta suositmaan ekologisia pakkauksia omilla aiheeseen liittyvillä kuivilla. Haasta myös ystäväsi osallistumaan pakkauksen purkutuoksiini!'. It shows 10 views and 11 comments, and notes that 12 people have responded to the challenge.

**Vastaa haasteeseen:** This section includes a 'LISÄ TIIVIA' (More details) button and a 'HAASTA' (Challenge) button. Below these are images of detergent packets and a large image of an 'ECOZONE ecoballs™ 180 refill' container. A note states: 'arongas: Vaihdoin pyykkipulverit ekopalloihin. Kevyttä tavaraa, täyttöpakkaukset, vettä menee 1/4 perinteisestä pesusta, pakkauksen koko n. 1/30 perinteisestä.' (I replaced detergent powder with ecoballs. Light product, refill packets, less water used (1/4 of traditional wash), package size approx. 1/30 of traditional).

**Comments:** There are 5 comments visible:
 

- Pirjo:** Olen luullut noista hyviä kommentteja, vaikka edelleenkin on vaikea ymmärtää, miten pallot ja pakkinaut oikein tekivät sen tällaista. Ehkä tyhmä kysymys, mutta miten tuo veden määrä säädetään? Joku erillinen ohjelma vai tapahtuko se automaattisesti?
- Helena:** Samaa ihmettelen, vähemmän vettä. Tarkoitatakoohan se sitä, että uusimmissa nykyaikaisissa pyykinpesukoneissa on ääko-ohjelma: pitempikäyttöinen pesuohjelma, joka käyttää vähemmän vettä ja tarvitsee vähemmän pesuainetta?
- Amaaria:** Minä olen käyttänyt pesupähkinöitä. Toimivat 40 asteessa vain jos on vain kevyesti likaista vaatteita, muutenkään on käytettävä muuta ainetta. Muutta pesun laatu! Itäana- ja pyyhepyykinin pesupähkinöillä, huuheluvaiheen sijasta tiputan pari tippaa eteeristä laventeliöljyä huuheluvaiheeseen (tykkään siitä, että pyykeissä on tuoksu). Pesupähkinöistä siis luovuen luumassa vedessä ainetta, joka puhdistaa.
- arongas:** Hei, veden määrä vähenee sillä, että pesupallolle riittää 30 minuutin pesu ilman huuhelua. Omassa koneessani ei ollut 30 minuutin ohjelmaa mutta pyöräytin kaksi lyhyttä tarkkäsäilyohjelmaa peräkkäin ja puhdasta tulla, samoin rikaista. Naollia tuli puhtaampaa kuin pesupähkinöillä. Organisia aineita. Ei fosforia. Olen käyttänyt koko talven (viiden aikasen pyykit) ja nyt pitänee täyttöpussista luhta lisää eikä kerta pallerotta.
- savinen:** Mistä näitä saa?

At the bottom, there is a comment form with a text area (max 1500 characters), fields for 'Nimimerkki' (Pseudonym) and 'Sähköposti (ei julkaisita)' (Email (not published)), a 'Kaupunki (kommentti kartalle)' (City (comment on map)) field, and a 'Kommentoi' (Comment) button.

Figure B1. One of the challenges on the Ilma vaivaa campaign website.

## Appendix C: KommentoiTätä

The basic idea of the KommentoiTätä<sup>21</sup> ('Comment on This') service is to offer a simple, intuitive and efficient tool to involve people in social commenting and deliberative discussion about documents, for example, during their drafting process. Here, social commenting means that the comments by a particular user are visible to all other users (and placed in the corresponding places in the documents). This means that the commenting becomes a constructive process. Users can build on others comments. The same comments are not submitted several times as may happen in 'blind' commenting.

KommentoiTätä is a new kind of tool for executing a centrally maintained open process – social commenting – constructive information building and capability for deliberation. Its value proposition can be stated as: *'An easy-to-use and effective web-based service (tool) for engaging document owners and their stakeholders in an open, social, constructive and deliberative commenting and discussion process.'*

One particular use case is to use the KommentoiTätä as a tool for e-consultation (by means of deliberative discussion) and constructively building understanding. The Ministry of Justice piloted KommentoiTätä in conjunction with its 'Periaatepäätös demokratian edistämisestä Suomessa' document consultation process. It was used as an unofficial alternative tool to add comments to the document from various stakeholders. KommentoiTätä has also been tried in different use cases: as a tool for eliciting requirements for a service and in a workshop to gather stakeholder comments in a draft document in real time during a workshop, with the idea of constructively building a vision towards the next draft of the document. The goal is for the writing and commenting process to become smoother and faster with better commentary by stakeholders and less need for secretarial editing-type work.

The benefits to document owners include:

- efficiency of gathering comments (through ease of use, not being stuck in e-mail masses, no multiple versions of documents around, all comments documented and time stamped, etc.)

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<sup>21</sup> <http://flexi.tml.hut.fi/kt>



- a single access point to comments
- ability to reach unknown people
- less overlapping feedback.

Benefits to collaborators (people commenting) include:

- ease of use
- status/reputation gain (through others seeing comments)
- potential sense of community, belonging in the process, empowerment
- improved understanding of complex issues through visibility of comments; empathy for the views of others.

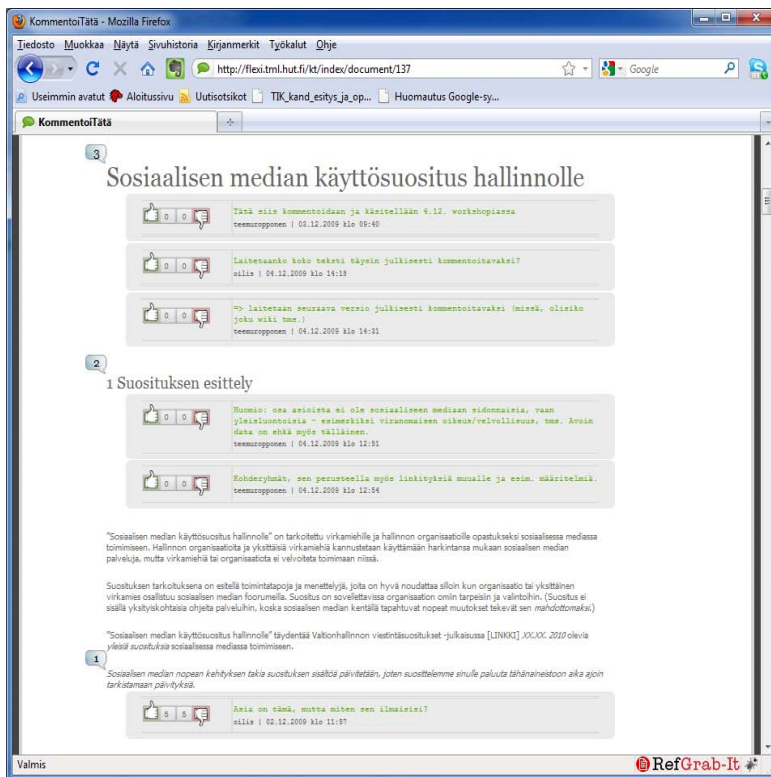


Figure C1. Example of commenting on a document in the KommentoITätä service.

## Appendix D: Finnish Parliament Facebook chat

The Eduskunta Chat (Finnish Parliament chat) Facebook application provides an easy way to engage in discussions about issues considered in the live ‘general’ meetings of the Parliament. The general meetings of the Parliament are broadcast live on the Internet by the Finnish National Broadcast YLE in the service Yle Areena<sup>22</sup>. Viewers cannot engage in or comment during the discussions in real time on the Yle Areena or other forums, however. The Eduskunta chat solves this issue.

The Facebook application is a way for collaborative live commentary by Facebook users interested in the live video feed. It improves the situation in three different ways:

- Users can receive notifications when the next general meeting of the Parliament is starting.
- Users can follow the live discussion through the video feed and discuss together in the chat. If necessary, this discussion can be moderated. Users can see the agenda as well as the current topic.
- After the general meeting, the discussion logs can be aggregated and sorted according to the topic of discussion, enabling later processing of this information.

The Eduskunta chat application was useful to the Somus project in several ways. It was funded with flexible money from the Open Research Swarm – after a selection process that was reminiscent of a ‘call for project’ but implemented openly. This concept was designed and developed by Arto Liukkonen and Gemilo Oy<sup>23</sup>. One of the goals of the project was to provide such showcases for service prototypes and open data in social media.

Ideologically and thematically, it is also interesting. Firstly, it would fit nicely with some of the ideas that the SADe programme suggests, more specifically, it highlights an example of how the public agencies should develop and deploy services into existing services in which there are people already, instead of just

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<sup>22</sup> <http://areena.yle.fi>

<sup>23</sup> <http://www.gemilo.com>

creating new ones (lähde: SADe). At the same time, a similar initiative has been taken by the city of Helsinki<sup>24</sup> where the City Council meetings are broadcast. The meetings cannot be commented on live, although the video is openly available<sup>25</sup> to developers who would want to create such a service. Perhaps most importantly, the Eduskunta Chat Facebook application (as well as Helsinki-kanava) highlights the fact that open data can mean many things, including open video streams.



Figure D1. Chat discussion in Facebook during a general meeting of the Parliament.

<sup>24</sup> <http://www.helsinkikanava.fi>

<sup>25</sup> <http://open.helsinkikanava.fi>

## Appendix E: Video annotation tool

Technically, the main objective of the video annotation prototypes was to re-search how a collaborative web-based video annotation tool could be created using new advanced web technologies, namely HTML 5, its video tag and widgets. Two annotation tools using these technologies were built as a proof of concept.

The first service prototype (Figure E1) focused on the video being used as a widget that could be manipulated programmatically using JavaScript and other HTML-based technologies. The second prototype (Figure E2) focused on the user interface being ‘on top of’ the video, i.e., the user could point and click (or select and define) a rectangular area of the video to which a comment or annotation was added, allowing a better-defined commentary and, for example, comments ‘floating’ on top of the video stream.

Perceived use cases for such services included collaborative commenting of, e.g., the City Council or Parliament meetings (see also Appendix D) or, naturally, any live events, including seminars and lectures. Collaborative annotations make the content richer, providing, e.g., anchors/links to relevant points in the video and serve as a means for discussion. Some annotations could be created automatically from various metadata to be augmented by user-created annotation.



Figure E1. Comments added to a video, prototype 1.

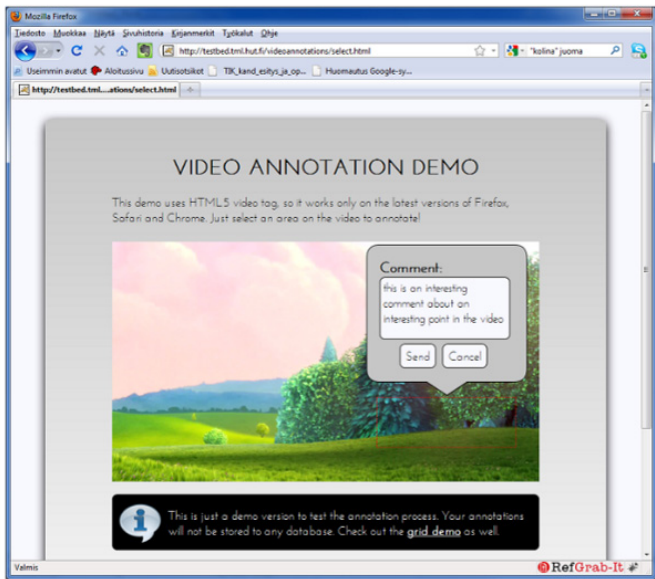


Figure E2. Prototype 2 in which users can touch and select an interesting part of the video (or an object shown on the video) and add a comment next to it.





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Author(s) Pirjo Näkki, Asta Bäck, Teemu Ropponen, Juha Kronqvist, Kari A. Hintikka, Auli Harju, Reeta Pöyhkäri & Petri Kola		
Title <b>Social media for citizen participation</b>		
Abstract <p>Social media is often considered to be fun and entertaining, but it also has potential for redefining the traditional ways of citizen participation – for example, by enabling more direct, real-time and networked ways to collaborate.</p> <p>In the Somus project (Social media for citizens and public sector collaboration) we studied the dynamics of information, knowledge and citizenship in an open and participative media environment. We developed several social media services that enable collaboration between citizens and public agencies.</p> <p>In the Participatory Media case study, high school students and researchers created a photo-based online campaign Climate Worries. In the Immigrant Media case study, we developed a virtual meeting place, Monimos, for internationally minded people in Finland. User communities were involved in the service development using both online and face-to-face methods. The Instant Media sub-project studied the phenomena of the real-time web and self-organizing networks in societal problem solving through several case studies.</p> <p>The possibilities of open public data were studied by arranging an ideas and application competition for citizens and companies. Open knowledge sharing was also supported in the work to open up public sector information sources and publish a guide book for open data. A couple of online services that reuse content from different sources were developed also by the Somus project.</p> <p>Regarding research methodology, the Somus team experimented with and studied ways of conducting academic research openly and transparently, for example by using social media and allocating flexible funding to the Open Research Swarm to execute microtasks. Free online tools were used for team work and communication during the project.</p> <p>While the prospects and possibilities of social media and open collaboration in improving collaboration between citizens and public authorities are attractive, at the same they are challenging and resource-consuming activities. This publication offers ideas, viewpoints and experiences of using social media for participation both in the society and in academic research work. The report reflects the multidisciplinary nature of the project by looking at the phenomenon of citizen participation from the viewpoints of sociology, communication, design and technology.</p>		
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Nimeke <b>Sosiaalinen media kansalaisosallistumisen välineenä</b>		
Tiivistelmä <p>Sosiaalinen media on mielletty pitkälti viihteeksi, mutta se tarjoaa uudenlaisia ja monipuolisia mahdollisuuksia myös yhteiskunnalliselle aktiivisuudelle ja kansalaisosallistumiselle.</p> <p>Somus-projektissa (Sosiaalinen media kansalaisten ja julkishallinnon yhteistyöhön) tutkittiin informaation, tiedon ja osallistumisen dynamiikkaa avoimessa ja osallistuvassa mediaympäristössä. Projektissa kehitettiin useita sosiaalisen median palveluja, jotka tukevat kansalaisten ja julkishallinnon välistä yhteistyötä ja mahdollistavat suoran ja reaaliaikaisen kommunikoinnin verkottuneessa ympäristössä.</p> <p>Osallistuvan median osaprojektissa kehitettiin kuvapohjainen nettikampanja IlmaVaivaa yhdessä lukiolaisten kanssa. Maahanmuuttajamedia-osaprojektissa puolestaan kehitettiin kansainvälisesti suuntautuneiden ihmisten virtuaalinen kohtauspaikka Monimos. Käyttäjyhteisöt osallistuivat palvelujen kehittämiseen sekä kasvotusten että verkon kautta. Välittömän median osaprojektissa tutkittiin reaaliaikawebin ja itseorganisoituvien verkostojen vaikutusta yhteiskunnallisten ongelmien ratkaisussa useiden tapaustutkimusten kautta.</p> <p>Projektissa tutkittiin myös avoimen julkisen datan mahdollisuuksia järjestämällä idea- ja sovelluskilpailu kansalaisille ja yrityksille. Tiedon avointa jakamista tuettiin myös auttamalla julkishallintoa datalähteiden avaamisessa ja julkaisemalla avoimen datan opas. Projektissa kehitettiin myös muutama verkkopalvelu, jotka perustuvat datan yhdistämiseen eri lähteistä.</p> <p>Somus-projektissa kokeiltiin myös erilaisia tapoja tehdä akateemista tutkimusta avoimesti ja läpinäkyvästi. Projektityössä hyödynnettiin ilmaisia sosiaalisen median työkaluja, ja osa projektin budjetista käytettiin mikrotaskeihin Tutkimusparven kautta.</p> <p>Sosiaalinen media tarjoaa paljon mahdollisuuksia kansalaisten ja julkishallinnon toimijoiden yhteistyön kehittämiseen, mutta samalla se haastaa perinteiset toimintamallit ja vaatii aikaa sekä resursseja. Tämä raportti tarjoaa ideoita, näkökulmia ja kokemuksia sosiaalisen median hyödyntämisestä niin yhteiskunnassa kuin tutkimustyössä. Kansalaisosallistumista tarkastellaan poikkitieteellisen projektin hengessä mm. sosiologian, viestinnän, suunnittelun ja teknologian näkökulmista.</p>		
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Social media is often considered to be fun and entertaining, but it also has potential for redefining the traditional ways of citizen participation by enabling more direct, real-time and networked ways to act.

The Somus research project (2009–2010) experimented with online media services that support collaboration of citizens and public sector. In the case studies, citizen-driven media services supporting bottom up processes were developed together with user communities (immigrants and students). The project also studied the phenomena of the real-time web, self-organizing networks in societal problem solving and open public data. In the project work, researchers experimented with and studied ways of conducting academic research openly and transparently using social media and allocating flexible funding for microtasks. Free online tools were used for team work and communication during the project.

This final report presents the key findings and results of the Somus project and reflects experiences of open collaboration practices. The report offers ideas, viewpoints and experiences of using social media for participation in the society and in academic research work. While the prospects and possibilities of social media and open collaboration are attractive, at the same they are challenging and resource-consuming activities.