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DEFINING THE SOCIAL MEDIA IT ARTEFACT FOR EPARTICIPATION: AN ENSEMBLE VIEW

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Abstract

Social media has become a popular outlet for various eParticipation activities, such as online campaigning by political parties. However, research so far has shown that political parties often have limited success with their efforts. Much is yet unclear as to the results and possible applications of social media use. This paper contributes to clarify the underlying concepts of social media, by analysing the social media IT artefact as a socio-technical object. We propose and define an ensemble view on social media use in eParticipation, and present a framework for analysing the capabilities of social media for supporting eParticipation and analysing the socio-technical nature of social media through an information infrastructure perspective. Together, this provides us with a comprehensive conceptualization of the social media IT artefact. The framework is applied to an example case, which demonstrates the insights gained from our proposed ensemble view of social media in eParticipation.

Keywords: Social media, eParticipation, IT artefact, information Infrastructures

1 Introduction

There is a strong concern about the future of representative democracy as practiced in the western world. Some claim that representative democracy is in a declining state, as power is moving from elected representatives towards transnational corporations, public administration and the legal system (Østerud et al., 2003). Policy development is increasingly influenced by interest groups and lobbying, and voter turnout has also declined (Gray and Caul, 2000). There is also talk about a “democratic divide”, where only parts of the population is involved in politics and democratic discourse (Taewoo, 2010). In addition, public services are felt to be inefficient, and government is criticised for being less concerned about citizen needs than their own internal bureaucratic process (Eggers, 2005).

eParticipation, the use of Information and Communication Technology (ICT) for political participation (Sæbø et al., 2008), has been presented as a possible solution to some of these problems. eParticipation is an emerging research area focusing on how ICT can be used to facilitate more and better participation in the political process and to facilitate civic engagement (Sanford and Rose, 2007). eParticipation is usually associated with some form of deliberation or decision-making in the political process (Sæbø et al., 2008). However, many eParticipation projects have struggled to engage a sufficient number of citizens, or citizens have left the project after an initial burst of interest (Rose et al., 2007), due to a lack of purpose, etiquette and rules for conversation (Hurwitz, 2003), or projects being unrepresentative (Dahlberg, 2001).

In contrast, social media have a large user base as well as functionality such as collaboration, discussion and feedback, that could help foster participation (O’Reilly, 2005; Jackson and Lilleker, 2009). In the 2007 Norwegian local elections, when Facebook was still a new phenomenon, there were 326 Facebook groups supporting various political parties (Kalnes, 2009), and in Barack Obama’s presidential campaign in 2008 social media was an important part of the campaign strategy.

Several authors have defined social media as participatory technologies, based on the sharing of content, user profiles and user generated content (O’Reilly, 2005; Boyd and Ellison, 2007). In eParticipation, a methodology for social media exploitation by government has been defined (Charalabidis and Loukis, 2011). However, there is still a need to conceptualize social media as an IT artefact (Orlikowski and Iacono, 2001). The IT artefact is essential in studies of technology, and there is a need for more theorising about the technologies in focus in information systems (IS) research (ibid.). We argue that social media is a complex phenomenon which should be viewed as an “ensemble artefact” (Orlikowski and Iacono, 2001), i.e. an ensemble of the technological characteristics of the individual web application and the socio-cultural expectations of the user-base (Anderson, 2007; Boyd and Ellison, 2007).

While political parties have embraced social media as technology, they have not yet embraced the underlying social concepts of sharing and interaction (Jackson and Lilleker, 2009). An increased understanding of both the social and technological characteristics – the ensemble artefact – of social media could thus help improve political communication in social media. To understand social media as IT artefact, we need to look beyond the purely technical. The technological artefacts of social media are at their basic level HTML code, databases and submit buttons. When the overall objective is to understand how social media can support eParticipation activities, examining the technical alone makes little sense. Separating the technical and the social can help us improve our understanding of social media, and point out issues that could be helpful to both researchers and practitioners. We apply the Information Infrastructures (IIs) perspective to represent the combined technological and social aspects of social media. The objective of this paper is thus to define social media as an ensemble IT artefact. We illustrate this by examining the technological characteristics and eParticipation capabilities of the most commonly used social media in the 2009 Norwegian parliamentary election, as well as by defining the social context of social media used for eParticipation. The rest of the paper is structured as follows: Section two describes previous research related to the topics addressed by this

paper. Section three describes social media as an ensemble view IT artefact by examining both the technical and social characteristics of social media. In section four, an example case is presented to show the possible insights gained by viewing social media as an ensemble artefact, and the final section discusses the implications of this approach.

2 Related research

2.1 eParticipation

The use of IT in the public sector has been a research topic since the 1970s. The term eGovernment became common in the 1990s (Grönlund and Horan, 2004). While early eGovernment literature was mostly concerned with technical challenges related to internal use of IT, this today is a broader topic which includes civil society and how government can use IT to support citizen needs (ibid.).

There are three different areas of eGovernment, which can be defined as the use of IT to: 1) facilitate access to information and public services, 2) improve the quality of public services, and 3) provide civil society with opportunities for interaction (Grönlund, 2002, 27). These areas can be viewed as a triangle, where politicians, civil society and public administration are the main actors.

As a sub-area of eGovernment, eParticipation is located on the axis between civil society and politicians. The objective in eParticipation is to examine the potential of technology can enhance democracy by increasing political participation (Macintosh et al., 2009)

eParticipation can be defined as “technology-mediated interaction between the civil society sphere and the formal politics sphere and between the civil society sphere and the administration sphere” (Sæbø et al., 2008). Most eParticipation studies focus on consultation and deliberation (Sanford and Rose, 2007), which implies that the politician – civil society axis is most important for eParticipation as a research field. This view is supported by Sæbø et al. (2008), who claims that “the focal point of eParticipation is the citizen, i.e., the purpose of eParticipation is to increase citizens' abilities to participate in digital governance”.

In summary, eParticipation is part of the broader eGovernment area of research, is mainly concerned with how civil society can participate and interact with politicians and public officials, and a number of different research fields are involved in doing research on eParticipation topics.

2.2 Social media

Social media, or Web 2.0 as it is also termed, was first mentioned in an article by Tim O' Reilly in 2005 (O'Reilly, 2005). O'reilly examined the IT companies surviving the burst of the “.com bubble”, and found a number of common characteristics: Audiences were active participants on the web sites, building profiles and social networks, and content was created and shared by the users of the sites (Tambouris and Tarabanis, 2007). Further, social media can be categorised based on the purpose of the system. Categories include social networking, aggregation services (RSS and other services collecting data from several sources and making them available in one place), collaboration services and data mash-ups (the combination of data from different sources to create new services) (Anderson, 2007). Social networking is perhaps the most popular and common social media type. Social networks can be defined as “*web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.*” (Boyd and Ellison, 2007, 211)

Several articles from 2007 onwards discuss the use of social media technologies for government (OECD, 2007; Rose et al., 2007; Ward, 2008). Social media applications attract millions of visitors

who interact and share content and information. In eGovernment and especially within the eParticipation area, projects have failed to attract a sufficient number of participants over time. Some claim that as much as 70-80 % of all eGovernment projects fail (Misuraca, 2009). By moving participation from proprietary government platforms to social media applications, researchers see a potential for attracting more participants (Rose et al., 2007). Citizens have already begun using these channels to express themselves politically, through citizen journalism (blogs and independent media centres) and activism (Reed, 2005; OECD, 2007; Juris, 2004). Political parties and individual politicians have also become gradually more active in social media, especially during elections. Example cases include the Norwegian elections in 2007 (Kalnes, 2009) and 2009 (Johannessen, 2010), Twitter use among politicians in Norway, and of course Barack Obama's successful presidential campaign in 2008 (Effing et al., 2011).

The goal of governments' use of social media is to involve civil society as co-producers of knowledge and information. The point is not to simply introduce new technologies and tools, but to respond to "the underlying concepts of listening, interacting and networking" (Peña-López, 2008). A recent study has measured the degree to which political parties have made this change, and concludes that thus far, parties have begun using the technologies, but not the concepts of interaction and sharing (Jackson and Lilleker, 2009). Thus, a better understanding of both the social and technical characteristics of social media could help improve the online political discussion.

2.3 The IT artefact

A lot of research where technology plays an important part has tended to treat technology as a black box. Instead of explicitly defining and explaining the individual system or group of systems relevant to the research, many studies allow the technology to "disappear" from view, take it for granted or assume that once the system is in place, the technology itself does not matter anymore (Orlikowski and Iacono, 2001). Studies of technology need to pay closer attention to the technology itself, and define four different conceptualisations of the IT artefact; *the tool view*, where technology is simply the designed artefact and research focus is on the technology itself; *the proxy view*, defining technology either based on our perceptions of it, or from its diffusion or economic measures; *the computational*, concerned with the capabilities of the technology in terms of computing power; and finally *the ensemble view*, which focuses on the interplay between the social and technological spheres, and is concerned with either how technology is developed, or how technology is used (Orlikowski and Iacono, 2001). The IT artefact, in one form or another, is seen as central in IS theory building (Gregor, 2006).

While there seems to be agreement on the notion of the centrality of the IT artefact, there is less agreement on how it should be applied in IS. Benbasat & Zmud (2003) introduce a nomological net of the IT artefact, consisting of the IT artefact, its usage, impacts, as well as practices and capabilities that influence the artefact. They claim that these issues are crucial if we are to understand the technology. Iivari (2003, 578) agrees, and argues that we "*should emphasize more the nature of Information Systems as an applied, engineering-like discipline that develops various "meta-artefacts" to support the development of IS artefacts*".

Others instead call for more plurality in IS research. Galliers (2003) calls for a broad scope, and claims we should be less strict when defining the boundary of the IT . Lyytinen (2004) argues that technology is changing so quickly that we should be open to a number of interpretations of it: "The IS field will make progress on all fronts, and turn and turn in the gyre, if it comes to see its centre as a market in the service of the 'vast commerce of ideas'". In cases where the IT artefact is social media, we argue that the open approach of Lyytinen and Galliers is more productive. Social media as IT artefact should include a number of social and technological issues, as we will describe in more detail in the following sections.

3 Social media as IT artefact

The conceptualisation of the IT artefact depends on the research question and the context of the study. For social media used for eParticipation purposes, an ensemble view seems most appropriate. The consequences of technology should be viewed as a product of both “material and social dimensions” (Misuraca, 2009). Social media is a complex phenomenon, and can be viewed as the interplay between the socio-cultural expectations of the user base, supported by the technological capabilities of the specific media being used. Addressing the technology or the social spheres individually is less fruitful. The technologies of social media are simple web-based tools; it is the way they are assembled and used that defines their social capabilities. But the way these technologies are assembled also has an impact on how we use them. Facebook and Twitter are built around many of the same technologies, such as web form fields, user profiles and hyperlinks. Yet, the two media are used in very different ways.

The ensemble view on the IT artefact helps us make the socio-technical nature of technology visible. But if the ensemble view is to provide us with meaningful insights, we need to clarify the technological and social characteristics of each area of study. We first present a framework for analysing how social media support eParticipation. Second, we discuss the socio-technical nature of social media through the lens of information infrastructures.

3.1 Supporting eParticipation through social media

As eParticipation initiatives become more numerous, there is a need for evaluative frameworks allowing us to understand what kind of participation the technology can support (Tambouris et al., 2007). With the introduction of social media, this need becomes even greater. We apply the evaluative framework of Tambouris et al. (2007), adapted to social media use in eParticipation by adding fields for activities and expected outcomes from the seminal eParticipation article by Sæbø et al. (2008). These were chosen for their eParticipation focus. Together, these fields provide us with a comprehensive analytical tool, covering both the technological characteristics and eParticipation capabilities of social media for eParticipation.

The framework is depicted in table 1, and consists of the functionality of the individual social medium, the level of participation it is expected to support, where in the decision making process the medium would be most appropriate, the purpose for which the medium would typically be used, and expected outcomes of using the medium.

Name of medium	<insert name of social medium>
Functionality	Technical functionality, such as forms, video, feedback options, calendar tools, search, sharing, commenting
Level of participation	Information/two-way consultation/involvement in the political process/collaboration/power transfer to civil society
Stage in decision making process	Agenda setting, analysis, policy creation, implementation, monitoring
Actors	Divided into facilitators and users of the technology
Activities	Voting, discourse form, decision making, activism, consultation, petitions
Expected outcomes	Civic engagement, deliberative effects, democratic effects

Table 1: Defining the technological characteristics and eParticipation capabilities of social media for eParticipation (adapted from Tambouris et al., 2007 and Sæbø et al., 2008)

The level of participation is based on categories made by the OECD, IBM and the IAP2 participation spectrum (Tambouris et al., 2007), and is divided into information, two-way consultation, involvement in the political process, collaboration and power transfer to civil society. The actors are separated into

facilitators and moderators, and everyone who is a stakeholder in eParticipation can be an actor in a specific medium. Usually this would include elected officials, government employees, and various actors from business and civil society. The possible activities defined by Sæbø et al. (2008) consist of voting, discourse formation or general political debate, decision making, activism, consultation and petitioning. Finally, the expected outcomes can be increased civic engagement – more participants, more contributions to debate, new forms of participation, deliberative effects – participants are acting in concordance with rules for proper debate, or democratic – in some way contributing to democracy.

3.2 Social media as Information Infrastructures

Based on the ideas of structure and agency, and derived from socio-technical theory, the Information Infrastructures (IIs) perspective allows us to see technology not as single artefacts, but as a socio-technical network of technologies and people (Hanseth et al., 1996; Bygstad, 2008).

The term was coined by former US vice-president Al Gore, as a reference to the growing network of data cables, telecommunications and information technologies that emerged in the mid-nineties (Gore, 1994; Griffith and Smith, 1994). Today, IIs has moved from a description of physical objects into a more general theory for thinking about technology. The concept of Information Infrastructure is characterised by six key aspects: enabling, shared, open, socio-technical, heterogeneous and the installed base (Table 2) (Hanseth and Monteiro, 1998)

Enabling	Infrastructures have a supporting or enabling function, as opposed to systems that are specifically designed for one single purpose.
Shared	An infrastructure is one irreducible unit shared by a larger community, it cannot be split into separate parts, except for analytical and design purposes. Sharing demands standards for proper communication.
Socio-technical	IIs are socio-technical networks. Not just technology, but also users and producers
Open	There are no limits on the number of users, stakeholders, network nodes and technical components. One cannot draw a border for one single infrastructure.
Heterogeneous	IIs are connected in infrastructure ecologies, layered upon each other, and similar functions may be implemented in different ways.
Installed base	You cannot change an entire infrastructure, or build it from scratch. New things must be attached to the old, and the old (the installed base) influences how the new can be designed.

Table 2: Aspects of Information Infrastructures (Hanseth & Monteiro, 1998)

The technological artefacts of social media are at their basic level HTML code, databases, scripting languages, text boxes and submit buttons. If our aim is to say something about the social world, examining these artefacts makes little sense, as they can be combined in a multitude of ways, for a multitude of different purposes. In essence there is little difference between a login page and the commenting function in Facebook or the home page on Twitter. They all contain text boxes and a submit button, but their functions are not at all similar. The heterogeneous aspect of IIs on the other hand acknowledges this difference.

Even if we move up a level and examine an entire application (Facebook or Twitter), we would be limited by the fact that the main feature of social media is the network effects of multiple postings and discussions over multiple channels. A blog post is advertised on Facebook and Twitter, discussed in the blog and on Facebook, and may generate additional discussion among other actors on Twitter. In the realm of social media, the only certainty is the complexity of the network, and IIs provide us with a tool to examine this complexity.

All the six aspects of IIs can help us improve our understanding of social media, and point out issues that could be helpful to both researchers and practitioners (Table 3).

Enabling	Infrastructures have a supporting or enabling function, as opposed to systems that are specifically designed for one single purpose.
	Relevance for EP research: The enabling function of IIs is very important in this research context. Social media are not designed to support political deliberation. Users rather choose to use the enabling functions of social media for this purpose. This has at least two consequences: The system might not be ideal for the purpose, and users will have to make do with what is there, and adapt to the limits of the medium. Second, social media are used for a number of purposes, which leads to political issues having to compete with other topics, and users need to find ways of getting attention in this stream of information.
Shared	An infrastructure is one irreducible unit shared by a larger community, it cannot be split into separate parts, except for analytical and design purposes. Sharing demands standards for proper communication.
	Relevance for EP research: This is connected to the previous aspect. As most social media are not designed for political deliberation, users need to adapt to their environment. One user group cannot change the way an entire infrastructure functions. Studies of political parties' activity on Facebook show that the political parties have attempted to use social media as a one-way channel, which is not in line with the culture of social media (Jackson and Lilleker, 2009)
Socio-technical	IIs are socio-technical networks. Not just technology, but also users and producers.
	Relevance for EP research: Introducing the socio-technical, or structural, perspective further strengthens the argument that the culture of social media needs to be taken into consideration when using these media for political purposes. Researchers and practitioners need to map and understand the culture of social media in order to become effective social media users. For example, it is not considered proper behaviour when a politician uses his/her blog to republish press releases, or as a one way communication tool (Johannessen, 2010), and acting in this way could lessen the impact of social media.
Open	There are no limits on the number of users, stakeholders, network nodes and technical components. One cannot draw a border for one single infrastructure.
	Relevance for EP research: The open nature of infrastructures means it becomes difficult, but also necessary, to find ways of delimiting our object of study. Researchers need to be specific about which parties, groups, web sites or connections they are researching. There is also a need to discuss how, when and why we should stop adding new research sites.
Heterogeneous	IIs are connected in infrastructure ecologies, layered upon each other, and similar functions may be implemented in different ways.
	Relevance for EP research: Heterogeneity in the political context not only refers to the technical, but also to the social world. Viewed through the II lens, and taking the culture of social media into consideration, means that the form of the political debate is changing online (Graham, 2008). The heterogeneous nature of infrastructures influence the form of debate, and this should be taken into consideration when we make decisions on where to look for public spheres.
Installed base	You cannot change an entire infrastructure, or build it from scratch. New things much be attached to the old, and the old (the installed base) heavily influence how the new can be designed.
	Relevance for EP research: The installed base aspect reflects the technical side of needing to adapt to the artefact, and makes visible the social characteristics that are embedded in the technology. As with the enabling aspect, the installed base to some extent controls, or guides, what we can and cannot do with social media. For example, Facebook discussions are influenced by the way information is presented on Facebook, and might not be a good fit with the needs of political parties due to issues such as compliance with archiving regulations.

Table 3: Aspects of Information Infrastructures and how they can support eParticipation research on social media

The enabling and shared aspects show that to use social media for a specific purpose, one must adapt to both the technical possibilities and the social norms of the infrastructure, as well as compete for attention with other forms of content. On Facebook and Twitter, the political party can be one of several hundreds of pages and friends an individual is following, and one needs to find ways to make content attractive and easy to find. The technical constraints are also reflected in the aspect of installed base. The socio-technical aspect shows us that both researchers and those wanting to use social media need to map and understand the culture of these media in order to fully understand how to use or conduct research on them effectively. The open aspect addresses delimitation issues. As IIs are borderless, researchers need to find ways of delimiting their object of study. Discussion on how to do this should be an important part of social media researchers' agenda in the coming years. Finally, the heterogeneous aspect is related to the above mentioned technological constraints, but also has a social meaning. Political communication online takes on many different shapes, and we might need to look in new places when we are examining the online public sphere.

4 Example case: The Norwegian parliamentary election

In this section, we apply the IT artefact ensemble view for analysing the case of the Norwegian 2009 parliamentary election. Data for the case was collected through five one hour face to face interviews

and two e-mail interviews with information workers in the seven political parties represented in parliament, analysis of the social media channels being used, as well as a genre analysis using the 5W1H-method of Yates and Orlikowski (1992) of the communication taking place in these channels.

The 2009 parliamentary election was the first time all Norwegian political parties made a serious attempt at using social media for campaigning and creating a dialogue with civil society. The political parties' online presence was scattered across a number of web sites and social media services. Including the party web site, a total of nine different media were in use. The most popular of these were the party web site, blogs, Facebook, Flickr and Youtube, which were being used by all of the seven parties represented in Parliament. Twitter and a self-developed video solution were used by all but one party. Finally some parties used Norwegian-only social media such as Origo.no, a social network similar to Facebook, and snutter.no, a Norwegian video-sharing service. The seven parties reported the same goals for their social media use, which was to facilitate debate, inform potential voters and to enable dialogue with potential voters. They reported that in order to reach these goals, they would post the political views of the party, invite party sympathisers to debate these views, attempt to channel online engagement to the offline world by getting people to go knocking on doors and helping out at rallies around the cities, and finally some efforts were made to have party sympathisers create online content such as videos, through competitions announced on Facebook, Twitter and Youtube. The parties all reported that they had the intention of continued use after the election was over, but pointed out the challenges of managing this on a day-to-day basis in a hectic life as elected members of Parliament.

The genre analysis of the communication that took place across these web- and social media sites revealed that a number of communication types were emerging. Examples include questions and answers, appeals to the party, comments on policy, calls for action and support declarations from sympathisers. These genres all met at least one of the goals the parties had set for their social media use. Unfortunately, the activity was far less than the parties had hoped, which at least partially was due to the fact that there were few explicit invitations to engage in dialogue on any of the social media services being used. There was also little agreement between political parties and citizens on how these genres should be enacted, and this led to some frustration among citizens who did not receive answers to their questions or input. In the few cases where dialogue and contributions were asked for, response was a lot better. For example, the Labour party asked people to create short video clips that could be used in the campaign, and got a lot of response on these posts. Similarly, the Socialist left party asked people for input on concrete policy formation via Twitter, and had good response on these postings.

The case serves as a good example of the theoretical implications we can draw from our ensemble view conceptualisation of the social media IT artefact. These implications are summarised in tables 4 and 5. Due to space limitations, only one of the examined media, Facebook, is included in the analysis.

Table 4 shows the technological characteristics and eParticipation capabilities of Facebook. Facebook has a number of different functions, and awareness of how these work and are used by the broader community is essential for effective use of the medium. Facebook would most likely support information and (informal) consultation, and be included in the agenda setting and analysis stages of decision making. Legal and privacy issues would most likely stop Facebook from being used for policy creation, implementation and monitoring.

In the case, we found that Facebook was used by a number of different actors and that these actors had varying motivations for participating and thus used Facebook for different purposes. If the political parties had done a similar analysis beforehand, coupled with the understanding of the broader context of the information infrastructure as outlined in table 5, they would perhaps have experienced less of the problems reported in the case.

Name of medium	Facebook
Functionality	Personalised front page, Profiles, Groups, Networks, "wall" for message posting, Photo uploads, Notes/links, status updates, events, Video, Chat, 3rd party applications, internal private messaging system, search, Sharing of content, mobile app for smartphones
Level of participation	Information, two-way consultation, possibly involvement in the political process (legal constraints need examination)
Stage in decision making process	Agenda setting, Analysis
Actors	Party information workers, politicians, NGOs, individual citizens. All can be both sender and receiver of information.
Activities	Information, activism, consultation, petitions
Expected outcomes	Civic engagement

Table 4: Technological characteristics and eParticipation capabilities of Facebook

Table 5 shows how the six aspects of IIs can contribute to our understanding of the ensemble artefact in the example case. The *enabling* aspect of IIs shows how the political parties had limited resources and therefore needed to plan which social media systems to use in order to get the best fit between available resources and effects, as well as learn how to repackage content for publishing across different systems. The *shared* aspect also shows how parties had to learn how to adapt the message to the medium, or more specifically to the culture surrounding the medium, and the negative consequences of not doing so.

Enabling	<i>Infrastructures have a supporting or enabling function, as opposed to systems that are specifically designed for one single purpose.</i>
	Relevance for case: The political parties had to learn how to use the different social media systems, something which took up quite a lot of resources. As a consequence, not all of the social media systems were utilised to their full potential. For example, creating videos is demanding, even though it is easy to post videos to YouTube. Using the Facebook wall to discuss politics was not always ideal, as discussions disappear from the front page before people have a chance to contribute. Blogs were not always used as a two-way medium. In many cases politicians would simply post their press releases to the blog, without even allowing for comments.
Shared	<i>An infrastructure is one irreducible unit shared by a larger community, it cannot be split into separate parts, except for analytical and design purposes. Sharing demands standards for proper communication.</i>
	Relevance for case: The social media as infrastructure perspective forces political parties to think in new ways. Related to the previous aspect's resource issues, we have seen that parties re-use information and adapt it to different social media in order to reach further. This type of standardisation works well, but in many cases, as with posting press releases to blogs, standardisation needs to be tempered by adaption to the particular medium.
Socio-technical	<i>IIs are socio-technical networks. Not just technology, but also users and producers.</i>
	Relevance for case: The disagreement on genres, such as when and how they should be used, exemplifies the structural issues we are faced with when moving to new types of media. Especially when politicians who have not used for example Twitter for private purposes suddenly are told to use it as politicians. Some of them have met rough treatment from social media experts and frequent users due to their lack of commitment and response.
Open	<i>There are no limits on the number of users, stakeholders, network nodes and technical components. One cannot draw a border for one single infrastructure.</i>
	Relevance for case: Several of the interviewed party employees reported some problems with scoping their social media efforts. The fact that something is there does not necessarily mean it should be used, and all of the respondents talked about this as a big issue in the campaign planning. Even so, respondents were vague as to who they wanted to reach through the different social media systems.
Heterogeneous	<i>IIs are connected in infrastructure ecologies, layered upon each other, and similar functions may be implemented in different ways.</i>
	Relevance for case: The form of the political debate genre is changing online (Graham, 2008). There are a lot of unanswered comments and questions across the social media systems being used, and this led to quite a few critical comments to the individual party or politician. Some politicians simply chose to tell beforehand what they would and would not answer, and thus did not receive any negative feedback on this.
Installed base	<i>You cannot change an entire infrastructure, or build it from scratch. New things must be attached to the old, and the old (the installed base) heavily influence how the new can be designed.</i>
	Relevance for case: The installed base posed a challenge for many of the parties. When moving to a new medium, we often replicate the communicative genres we are used to from "old" media (Shepherd and Watters, 1998), and except for a few individual politicians, this was the case in the 2009 election. Politicians and parties failed to take into consideration the social media culture of sharing and participation, and a lot of the reported problems can be traced back to this issue. There is a transition from one-way informational web sites towards a two-way or many to many form of communication that is yet to take place, as politicians and parties have not yet adopted the culture of social media (Jackson and Lilleker, 2009)

Table 5: Aspects of Information Infrastructures and relevance to 2009 Norwegian election case

The *socio-technical* aspect reveals that communication genres are still not fully in place and agreed upon, as well as the structural challenges politicians who are not digital natives are faced with when moving from one-way to two-way communication channels. The *Open* aspect shows the challenges of scoping the party's online presence when there are so many channels to choose from. Further, it highlights the difficulty of fitting target audience with medium, as few parties had explicit strategies for who they wanted to connect with in different social media systems. The *heterogeneous* aspect makes visible the challenges connected to moving from one-way to two-way media, and that by simply stating what will and will not be answered, this challenge can in a large part be overcome.

Finally, the *installed base* aspect outlines how political parties need to adapt their communication acts to the social culture of the system being used. Some politicians chose to resolve this by posting only short messages, links or informational tweets, and by using the Facebook wall instead of the hidden discussion group option with limited functionality. Others attempted to create the same functionality on their own web sites, with a lack of readers and feedback as a result. From this we can argue that it is better to use the limited functionality that is in the media where people spend time, rather than to make your own version with better functionality, but with less impact. Another possibility would be to use social media to attract people to your own site.

5 Conclusion and implications

This paper examined how we can conceptualise social media used for eParticipation as an ensemble view IT artefact, using a framework for analysing eParticipation capabilities in combination with the Information Infrastructures perspective for analysing the broader socio-technical context of social media. The six aspects of Information Infrastructures make visible the networked nature of social media, and provide us with some insights for both practitioners and researchers. Practitioners could use the combined framework to analyse and understand the eParticipation capabilities of the social media available to them, while the Information Infrastructures perspective provides additional insight into the socio-technical structure of these media. Researchers can gain theoretical insights by comparing the technological functionality and the infrastructure aspects of social media.

The example case shows how infrastructural issues affected the communication in social media during the 2009 Norwegian parliamentary election. A failure to adhere to the expectations of the broader social media community led to less efficient social media campaigning, although the political parties in the study did report some success, mostly in those cases where they asked citizens for input and feedback, and engaged in discussions.

Certainly the ensemble view of social media could be outlined in other ways, using traditional socio-technical theory or structuration theory coupled with an evaluation of the technological aspect. However, the information infrastructures perspective helps in operationalizing the sometimes abstract concepts of these other theories, providing us with a useful framework for analysis of the ensemble IT artefact. Future work should focus on a broader examination of the theories underlying the contents in this paper. The relationship between the social and technological aspects could be explored further, and the practical implications of the "ensemble view IT artefact" should also be explored.

6 References

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