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Users and MyOpera – Opera's use of social media as tools in technology development

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Abstract

I focus on the role of users in the development of Opera's technology. The communication and interaction happen through various social media, and they are centered within the MyOpera community. Social media arenas have opened up to new ways of interacting, and I look at how this can tighten the relations between the users and Opera, and that the boundaries between their roles as users and developers might change. MyOpera has evolved from a technical community to become more like a social media arena. This has also opened up for new types of users joining MyOpera. This social aspect of MyOpera might influence Opera's representation of the user. Further, I investigate whether the users' contributions can lead to innovation, and how feedback and contributions can be seen as incremental innovations. I use theorists such as Akrich, Oudshoorn and Latour. I use von Hippel's theories around lead users, and other theories on user involvement in technology development. I use ethnographic methodology, and I made participant observations in the MyOpera online community, as well as Opera's site on Facebook and Twitter. I have also interviewed the community manager and a community moderator in Opera, as well as users in MyOpera.

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1. Introduction

The increasing use of social media in society today is something that is starting to spread also within organizations. Employees can use more channels today to share and communicate with each other, but also with people outside the organization. One constructive way of using social media can be to reach out to end users, either individuals or organizations. Social media services can facilitate the sharing of knowledge and perspectives, and they differ from other communication channels in that they also function as a meeting point or a public sphere. I thought it could be interesting to find out more about how organizations can use such arenas as tools in their work, preferably by looking into an organization that is already using these arenas to a certain extent. Further, I want to look at how this affects the relations between an organization and its individual end users.

The organization I have chosen to focus on is the Norwegian software company Opera Software. Opera is present in various social media, and they have been using them as tools in their work for many years. They have created their own arena, which is entitled MyOpera. This is used in order to promote their main product, the Opera browser, and to improve Opera's technology by users' feedback on problems and bugs. However, many users also use it as a social media service. It is a community functioning by the same principles as social media services such as Facebook and Twitter, in which the users can create and share content. Hence, Opera can observe their users' social interactions as well.

I will explore how Opera share knowledge and information regarding development of new technology with users and potential users, and the other way around. In other words, I focus on the interactions between Opera and the users. The consequences of social media's entrance

into these interactions are central. This also includes MyOpera's shift from a mere technical community to a community for socializing based on social media principles. I wish to investigate whether Opera involves users in more ways than feedback on problems and bugs, seeing as users can create, share and discuss new features and ideas in MyOpera. I will also try to find out whether the user interactions in MyOpera can contribute to a better understanding of the users, as a means to improve their technology.

1.1 Research objective

My overall goal is to look at the ways users can be included in improving technology, and whether this includes innovating or improving through testing and feedback. Maybe the testing and feedback is also a way of innovating, and that the basis is there for opening up to user-centered innovation. My research is two-fold, in that it takes on two different areas: Science and technology studies (STS) and innovation. Yet, I will try to show that these are connected. My research objective is:

To analyze the interactions between users and developers of the social media and browser Opera as innovations processes using different approaches to innovation.

With this research objective I want to find out more about how Opera utilizes social media, and how users use it to interact with Opera and other users. My objective involves investigating how Opera configures the users, and also to see how they become co-constructed through the use of social media. It is my impression that the use of social media opens up to participation and tightened relations between users and organizations. This may lead to organizations gaining a better idea of who the users are, and what their wishes and needs are. Thus, their user representations for technology development might be more complex, but also enhanced. I will look at how the use of MyOpera can facilitate cooperation, in which users can take part in the organization's technology development. This might have

implications on user-centered innovation, where users become more central in innovation processes at various stages.

1.2 Theoretical framework

I will use different approaches to innovation, which can be applied to user interaction as observed in the case of Opera. The central topic is in what way Opera improves their technology together with users, and I use theory about co-construction and user configuration to explain this. This means on one side to see how the developers of technology acknowledge the role of their users, and on the other side how the users can contribute and take part in the development of Opera's technology, and maybe even experience their ideas implemented. I chose Actor-Network Theory (ANT) as an approach to look into the roles of the various actors in the technology development of Opera. Theory on infrastructure also helps to see how various elements come together and make up working structures, including routines, methods and communication channels. ANT and infrastructure theory both emphasize the importance of single parts or actors, and how they each play a role in stabilizing and reproducing networks. I also use Latour and Haraway's view on modern society as a process of hybridization between human and non-human, where roles may change and boundaries are tore down. In these settings, I will try to understand the role of social media as mediator, and how Opera's technology are effects of networks of various types of actors with their own knowledge and interpretations of technology.

Further, I use theory on user-centered innovation, in which it is almost taken for granted that including users in innovation processes is something inevitable and positive in today's society. Here, I use von Hippel's book *Democratizing Innovation*, but also publications and research that bring up the possibilities emerging with the entrance of social media into the society and organizational world. I want to investigate how some of the contributions from users might lead to innovation, and whether Opera acknowledges this opportunity. This might

indicate that the entrance of social media into organizations can involve a change in the roles of the user as well as the boundaries between organization and user. Overall, I discuss theories around the concept of user-technology relations, with a focus on the possibilities that have emerged with social media. By focusing on social media and user-technology relations, my whole field lies in these borders between user and organization. Throughout the paper I prefer to use the term 'social media', although other terms such as 'web 2.0' might be just as suitable. My use of the term 'user' includes the actual individual users of the Opera browser, but in this case I focus mostly on users that are members of MyOpera or use other social media arenas to get in touch with Opera. Thus, the term might be overlapping between actual users and potential users.

1.3 Background

In 1995, Jon S. von Tetzchner and Geir Ivarsøy founded Opera Software in Norway. Tetzchner and Ivarsøy wanted to create an alternative to the web browsers that existed at the time. This browser would, among other features, offer functionality for the visually impaired. Over time they also presented a vision to become the best browser regardless of device, which means that Opera would develop browsers for mobile phones, gaming consoles and other devices that could have Internet access (URL 2; URL 7). This included minor and major innovations to the functionality of web browsing, such as tabbed browsing, integrated search, and data compression functionality (URL 8). Their emphasize on browser for mobile phones turned out to be one of their biggest successes, making the browser well known also in less developed countries in Asia and Africa (URL 3; URL 4).

Eventually, Opera developed discussion forums and blogging services as part of their own web site, with the thought of engaging users and indirectly promoting the browser to potential users. We might consider forums as a social media service today, although they have existed on the Internet long before the term 'social media' (URL 10, p. 23) In 2005 they started

developing this further into becoming an online community that today looks and functions like a social media service. In MyOpera the users can create their own personal profiles and acquire connections or 'friends'. Thus, the motivation for creating MyOpera was part of a marketing strategy. The vision in this strategy was that Opera would let the users generate content within the community, such as their own blog, and then they would promote Opera's product and services. What the users get in return for this product promotion is a free service with many features, and the ability to socialize with each other online.

MyOpera have become an arena for socializing, but also an arena for the users to get support on the technology, and to provide feedback, for example on errors concerning Opera's browser. In the MyOpera community they have community moderators who facilitate communication between the users. The moderator's role in forums are usually to remove unsuitable posts, and not to guide discussions in any way (URL 10, p. 23). They encourage users to share and be creative within MyOpera. The community had 4,5 million members in April 2010, and in July 2010 they reached 5 million members (Field notes 37; Field notes 38). With thousands of new members joining every day, MyOpera reached 5,5 million members in September 2010. In MyOpera, there are (per May 2010) 630 000 blogs and over one million photo albums (URL 9).

1.4 Methodology

1.4.1 Ethnography

When I started this project, I wanted to look at how social media can be used to spread knowledge between organizations and users, and issues of user-centered innovation in relation to this. I started using an exploratory method in order to let my field studies decide partly the main focus of my thesis. I wanted it to concern the development of technology, investigating the various actors that are involved. By using an exploratory method I could focus on how the users have contributed to a development process (Punch, 2005, p. 153). I also use an

ethnographical approach. I see ethnographic method as the most suitable approach to my research objective. Participant observation suits this project particularly well, since it is used to observe and interview users in their normal environment, (Punch, 2005, p. 150). In this way I might find relevant aspects to the field that may not be so obvious to the users.

The usage of ethnography in STS increased after a number of STS scholars started observing scientists in laboratories in the 1970s (Sismondo in Hine, 2007, p. 658; Knorr-Cetina, 1995, p. 40). Among them were Bruno Latour and Steve Woolgar, and in *Laboratory Life* (1986) they reflect around their use of ethnography in their study of how scientists work in the laboratory. They view and use ethnography slightly different from the traditional interpretation used for example in anthropological studies. They use the approach mainly for "maintaining analytic distance upon explanations of activity prevalent within the culture being observed" (Latour & Woolgar, 1986, p. 278). It is of significance that the observer does not have extensive knowledge about the object of study, since a certain lack of prior knowledge is necessary in order to achieve adequate distance. As opposed to many anthropologists this distance is not necessarily of geographical kind, where the observers need to travel geographically away from their own culture. "This kind of anthropological approach can be used on any occasion when the composition of the society under study is uncertain. It is not necessary to travel to foreign countries to obtain this effect." The main point is making sense of the culture in question: their rituals, cooperation and interactions. The uncertainty is what drives Woolgar and Latour to use ethnography, not the notion of exoticism (Latour & Woolgar, 1986, p. 279).

The culture Latour and Woolgar study, the scientific culture, also differs from traditional cultures in the way scientists provide their own explanations for the objects of their culture, which is scientific objects. Hence, the observer cannot provide explanations to the facts themselves, but the way the fact "came to aquire its character in the first place" (Latour & Woolgar, 1986, p. 278). Schutz suggests that the process of observing leads to important

insights when the observer is having problems making sense of cultural elements. Elements that are taken for granted by the observed culture might seem strange or hard to understand for someone from the outside, and describing how these elements came to be should be more important than explaining and trying to make sense of the elements themselves (in Latour & Woolgar, 1986, p. 278).

In my case, I am also describing what happens in the 'laboratory' of my thesis, namely in the MyOpera community. I try to analyze the processes of technological development; represented by the actions and dialogues that take place between user and organization, as mediated through social media. I do not have the competence to understand each of the features in the technology: the pieces of programming code in a blog post, or the bug feedback that the users report to Opera. This failure to understand these elements of (to me) alien 'culture' in my field of study needs to be compensated with other aspects. I will try to describe the circumstances around these technical elements, including the roles of the various actors, how they communicate and through which channels, and how some processes leads to technological improvements and others not. Using this way of studying a field will not let me draw any general assumptions. It is rather the direct observations and reporting of certain situations and phenomena that will serve as valid in their own context. Through my participant observations, I can merely construct the field as it appears to me, thus it cannot guarantee to represent a truth. However, the observations will be accurate in the way that many of them can be traced in time by anyone.

Knorr-Cetina argues that laboratory studies opened up to new ways of studying for example technical organizations. This involved a shift in focus, from organizational structure and performance to more descriptive studies of how knowledge is produced in organizations, and the surrounding mechanisms (1995, p. 143-144). This conceptualization of laboratory studies encourages new organization studies through the use of ethnography. Accordingly, my

research objective is one that could not have been completed for example by merely conducting interviews. I need to join the field through becoming a member of the social media arenas, observe where and how the communications and interactions take place, and try to reveal the culture and how the users give meaning to the technology.

Since my field is virtual, and not situated in one geographical place, I have been inspired by Bruun Jensen's use of his so-called 'quasi-ethnographic' method (Bruun Jensen, 2004, p. 4). Bruun Jensen claims in "Researching partially existing objects" that he is using a method that is quasi-ethnographic. There are two reasons as to why he defines it this way. First, ethnography as a methodology is mainly used within the areas of social anthropology and cultural studies, and it has yet to find its correct place and role within STS. Second, Bruun Jensen argues that the object he studies, the Electronic Patient Record (EPR), is not one defined object situated in one place. It is electronic, or virtual, as well as being used in different ways in different locations. The EPR "seems to be rather more like a multiplicity of things, which forms a whole only sometimes, or for some purposes" (Bruun Jensen, 2004, p. 5). Thus, it is a complicated object to study with traditional ethnographic methodology, and he argues that the study should be considered to be a type of multi-sited ethnography.

The information infrastructure between Opera and the users is almost exclusively situated in the virtual world, and they use various arenas in order to exchange knowledge and information. The exact place of action is not necessarily predetermined, and in order to study this I use the MyOpera community as my field, including other relevant social media arenas. Thus, I am using elements from multi-sited ethnography as well as virtual ethnography. The idea is that I will find out where and how the interesting things happen throughout my process, and possibly in different places in different situations. The connecting of these sites depends on how they are used by Opera and the users. My observations will show whether

their way of using social media to channel knowledge and information opens up for all kinds of social media arenas.

Henriksen suggests that "we might rethink our research sites, not as places that are geographically delimited, but rather as an open-ended space of possibilities." This approach is appropriate in virtual fieldwork, in that it lets the researcher select, connect, and set the limit to the site and the object of study (Henriksen, 2002, p. 33). This way of rethinking research sites supports my idea of the MyOpera as my field, as well as other social media relevant for my project. There are also many social media arenas, with merely some elements in common. Social media becomes an 'it', differing in various contexts, and taking different forms. People understand 'it' differently depending for example on what they expect to use 'it' for. Does 'it' really exist? Is it an object with boundaries? Social media sites are continuously changed and modified, and they will most likely continue to be reconstructed in the various ways they are used. Yet, the features they all share are the ones that are central in the question of sharing, creating and interacting. The continuous change of social media sites in today's society might result in the research field reflecting the time period of study, and that they are subject to change, maybe even more rapidly than other research sites.

1.4.2 My approach to the field

In the choice of topic for my thesis I have let my background and interest shape my approach. Every person is different, in that we have different experiences in life, both academically and personally. These experiences shape our ways of thinking, interpreting and conceptualizing. I wanted to find out more about the possibilities of social media services, and whether they could be used as tools for knowledge sharing and innovation. This was because I had an interest in these new ways of communicating, and I was curious as to how these could be utilized in an organizational context. I chose to look at the use of social media in a software organization, since this type of organization might be experienced within the use of Internet-

based communication and interaction. I had also noticed that Opera Software was visible in various social media arenas from early on. Focusing on an organization with experience within the use of social media meant that I could observe established routines and strategies that this organization had adopted over time. It also meant that the users connected to this organization and its products had established ways of interacting with the organization.

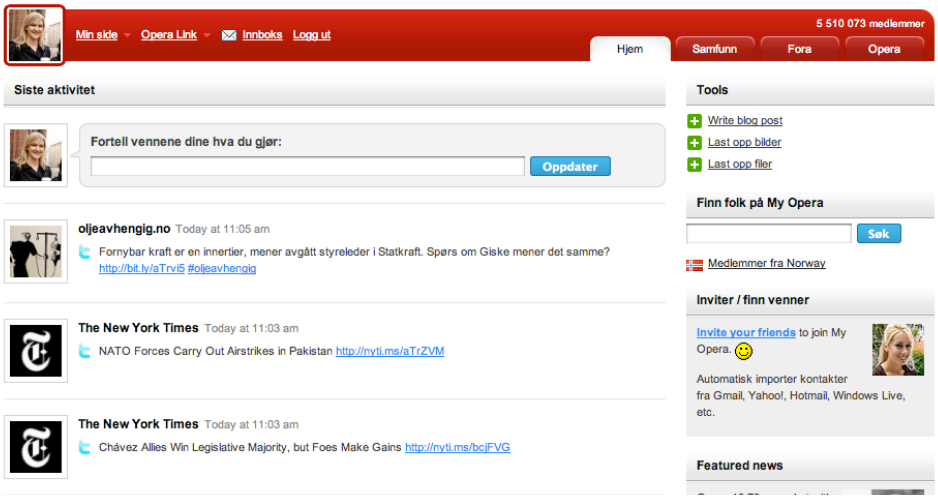


Figure 1: The 'home' site in MyOpera (screenshot from my.opera.com)

One of the first things I did in order to get an overview of the field was to register a profile in the MyOpera community (See Figure 1). This way, I could observe how many of the processes work, and I could observe dialogues, both as they had happened, and also as they were happening in real-time. In the community I became 'friends' with the other users and employees in Opera by adding them as contacts. I could send them messages, look at their user profiles, their photo albums, and read their blogs. It is not necessary to become a member in order to observe the community, but I did it to get a better understanding, and for the possibility to participate and communicate with users. While observing the MyOpera community, one of the first things I noticed was how visible the moderators are. They publish articles containing news and contests in the so-called 'community' site in MyOpera (Illustration 1.1 in Appendix 2), in addition to participating in discussions with the Opera logo

next to their name. All the articles take the form of a blog post so that the users can comment on them and give feedback (field notes 1). The blog posts of all the users and teams in Opera also take this same form. In an attempt to get an overview I read some of the team blogs and noticed some users who were especially active in commenting. With a hope to find out who they were, I further read these users' blogs. Connected to the individual user's blogs is also her/his own profile page, photo album, overview of friends and favorite pages in MyOpera (Illustration 1.2 in Appendix 2). This gives a certain impression of each user, represented by some personal details, interests and expressions.

In the forum part of MyOpera there are many different forums consisting of discussion threads (Illustration 1.3 in Appendix 2). I observed especially one of the active forums called "Opera wish list", where users can suggest features and functionality they wish to see implemented in Opera's technology, and the other users' feedback to these suggestions. The suggestions and feedback are very detailed and often very technical, illustrated for example by having "Desktop wish-list" and "Mobile wish-list" as two separate discussion forums (Field notes 71). In the various threads I could also go several years back in time, giving me the possibility to observe earlier discussions. Using date and time of the discussion posts this could be mapped against things like relevant user blog posts or version releases from Opera, giving a somewhat representative impression of how a process that included Opera and users happened. In real-time I could see how Opera presents news and releases in the various social media arenas. Some of the messages are shorter than others, depending on type of social media service. They usually always link to one place where the rest of the information is found (Illustration 2 in Appendix 2). Even though these links usually try to redirect people to the relevant article in MyOpera, the feedback to these messages can occur in each of the social media arenas. Thus, the feedback is somewhat scattered, and it seems to depend on which arena the various users prefer.

My observations took place over a period of one month in the beginning of my thesis project, and six weeks in the middle of the project. After observing the community for two weeks, there were some questions that I could not find the answer to merely from observing. I had found out who the community moderators were through my observations, so I sent them a message through MyOpera with some questions. We found out that we should arrange a meeting in order for them to give me better answers. I then conducted a semi-structured interview with the two community moderators at the same time, in Opera's headquarters in Oslo. Because my method is partly exploratory and observation-based I chose to do a semi-structured interview, where I could have some questions prepared, and open up to spontaneous or follow-up questions as the interview proceeded. The interview method allowed the conversation to wander out of my topic a couple of times, but this was also useful sometimes in order to understand how the organization works, and how the moderators relate to the other parts of the organization, as well as how they relate to the users. This is also one reason as to why I chose to interview them both at the same time. I did not see the need to get the separate opinion and perspective of each of them. Together, they work closely towards the users through various social media, and my wish was to understand how those processes happen altogether. Interviewing both at the same time made them complement each other in giving me a picture as close to reality as possible. The interviews were recorded and transcribed verbatim. All the statements I use are translated by me from Norwegian to English. The recorded interview has two parts, as I will indicate when referring to them. I will also indicate the time of statements, given in minutes and seconds. Throughout the paper I will use their first names Espen and Aleksander, as they both approved me to do so.

Espen started working in Opera Software as a community moderator four years ago. The community moderator's job is to work closely with the PR and marketing team, as well as cooperating with the product development department in order to coordinate news, press

releases, product launches, and anything that can contribute to Opera users getting their share of information. Before he started there was no such position in Opera Software, so he got the possibility to form his work, and also the community to a certain extent, the way he wanted.

Eventually they needed to expand, so Espen became the Community Manager and they hired a second moderator for the community. Aleksander started as a community moderator and online community representative two years ago, and together they cover all the social media channels, as well as moderating their own MyOpera community. Where it is relevant, I will refer to both the informants as moderators. The moderators have built up trust with their users through working with social media, and by publishing and generating a lot of content. They spend many hours daily in dialogue with the users in the various social media arenas. Part of their job is also to communicate with the marketing department, product development department, and the management of Opera Software.

After the interview with Espen and Aleksander I had a better understanding of the field and this enhanced my further observations. Although my observations had given me a certain impression of who the most active users were, the moderators mentioned throughout the interview three users who were active in various ways. I decided to find out more about them; one user who had developed a feature which the moderators considered as an innovation, one user who were very active in helping other users, and one user who were always the first to respond on blog posts and anything published by Opera employees in MyOpera. I chose to conduct an interview through MyOpera messages with the user who had developed the innovative feature. Although I could track the process of sharing, communicating and implementing this feature through MyOpera, I found it relevant to hear this user's perspective. The remaining two users mentioned by the moderators did not respond to my friend request and introductory message through MyOpera, but I will present observations that include them from the various arenas. I wanted to hear the perspective of one of the less

technically skilled users as well, so I conducted an interview, also this one through MyOpera messages, with one user who joined MyOpera to create a blog for his sketches. When referring to users, I will use their username instead of their real names. This is because the first user I talked to asked me to do so, and also because that is how they appear in my observations, therefore the impression of the site can be more realistic.

In my observations, I tried to see connections between users who I noticed were active in forums and commenting, and what they write about. In MyOpera there is also a link on each profile to all the forum posts of that user, which enabled me to see what each user engages in and writes about in the MyOpera forums. I tried to find out more about users who were not active in discussions and commenting, by looking at their personal profiles and what they wrote about if they kept a blog. These user observations helped me to make some sort of categorizations of the various types of users. The most prominent categorizations are the technically skilled users and the less technically skilled users, or the social users. I will return to this more specifically in the ANT part.

2. Actor-Network Theory and Infrastructures

In this part I will present theory on actor-network, infrastructure and social media in order to see how the various elements in my field relate to each other and how they work together. I will also present my fieldwork and interviews somewhat together with the presentation of the theoretical framework, instead of separating the theoretical part from the analytical part.

2.1 Networks of human and non-human actors

The actor-network theory (ANT) emerged as a reaction to the sociology of scientific knowledge (SSK). As presented by John Law, Michael Callon and Bruno Latour, ANT separates itself from SSK by focusing more on technology and by giving equal attention to the roles of non-human actors, such as technology and natural phenomena (Asdal et al, 2007, p. 23), while SSK have a more social constructivist view. Originally, ANT started as a study of technological systems, for example in Thomas Hughes' concept of the 'seamless web' of technology and society. He argues that the organizational and the social elements are part of the system, and they must be if the system is to function (Asdal et al, 2007, p. 23). The study of technological systems also relates to infrastructure theory, which I will return to later.

John Law describes the ANT approach as "a relational and process-oriented sociology that treats agents, organizations, and devices as interactive effects" (Law, 1992, p. 389). He introduces a wider array of actors, where their roles in the network should all be studied equally. According to Callon, ANT should be used in situations where it is difficult to separate humans and non-humans (Callon, 2007, p. 274). In the same way as human actors participate in networks, there are also non-human actors participating in such heterogeneous networks (Akrich, 1992, p. 206). The approach is used to study how the actors are effects of

each other, as well as how they contribute with different types of interpretations and knowledge. According to Asdal, Brenna and Moser all knowledge claims should be treated equally. This also involves that the social should be studied with the same methods as technology (Asdal et al, 2007, p. 23). Hence, the knowledge that each actor produces or inherits is equally important, and the focus is on how the actors relate to each other, interact, and with which effects.

The ANT approach is concerned with mechanics of power in that it seeks to analyze in different networks how for example interactions might lead to power when they are stabilized and reproduced. Investigating how one actor is larger or more powerful than another is a central factor when we want to find out how a system or an organization came to be (Law, 1992, p. 380). When the focus is to look at the interactions between parts of a network, the question of whether or not actors are ascribed humanity becomes secondary (Asdal et al, 2007, p. 30). This is because it is the actual effect of the network that matters: The development of technology, the functions of an organization, or the outcome of a political process (for example) (Law, 1992, p. 380). When actors come together in a heterogeneous network, then new knowledge will appear as a product of this network (Law, 1992, p. 381).

It is the effect of the network that counts, meaning that the network behind the intended effect becomes invisible. What we see is the action or the resource that the network represents or appears as. This is a way of simplification defined by Law as punctualization. “Punctualized resources offer a way of drawing quickly on the networks of the social without having to deal with endless complexity” (Law, 1992, p. 385). Challenges appear when something happens to a network, for example that one central actor disappears or stops working. This might force us to deal with the complexity of the whole network, whose parts suddenly appear more visible. Hence, a punctualization of networks can be compared to an infrastructure that is simply working. I will return to the infrastructures related to my case later in this part.

When the network or the infrastructure is working, it is translated in the way that it has a purpose, or an effect. This happens for example when someone is using it. These objects and subjects are the effects of the actor-networks, and Law explains it as "the possibility that one thing (for example, an actor) may stand for another (for instance a network) (Law, 1992, p. 386). It will function like an actor, while it is really a network too. "An actor is also, always, a network". Actors are in themselves also networks of heterogeneous relations (Law, 1992, p. 384).

If I apply the actor-network approach to Opera's technology development there are various people and technologies that take on the role of actors. I will now present teams of Opera employees and certain types of users as central actors. These are the actors that are relevant to the development of technology in some way. First, there are the various teams in Opera who contribute with their own aspects on the technology; such are programmers, designers, managers, and the community moderators. Second, there are various types of users who also play different roles as actors in the technology development. It is relevant to distinguish between technically skilled users and less technically skilled users. The technically skilled users know a lot about one or more aspect of the technology development, mainly programming and design, as well as general technical knowledge that they use to help other users. The less technically skilled users might be fans of Opera's technology, and some participate in promoting the products to potential users. These users can also be from less developed countries (LDC), an increasing user group of Opera's technologies, especially because of increasing use of mobile phones in these countries. The less technically skilled users also have a role in that they are social users, and in the interaction with Opera can communicate their perspective as less technically skilled. Users who participate in the way that they are criticizing the technology of Opera are also relevant regarding Opera's technology development. These user types are not established actors with clear boundaries

between them. Yet, they tend to have some common interpretations and interests regarding the technology. The technology is translated within these user types and teams of employees in Opera, in more or less the same way in that the technology responds to certain needs and wishes that are common within the groups.

Third, there are the non-human actors. These are technologies such as the Opera browser for different devices, and the social media arenas, where MyOpera, Facebook and Twitter play the most central roles. Social media as a non-human actor extends the action of the human actors, in that it facilitates communication and interaction with other human actors. According to Callon, the actions of the human actor unfold and are formatted in networks with multiple configurations, and this is why diversity of actors and actions is possible (Callon, 2007, p. 284). Central in the network of Operas technology development is the Opera browser. The browser as a non-human actor is the reason many of the human actors wish to connect with each other, and thus we might see the browser as the driving force of the interactions.

Networks need to be continuously reproduced in order to remain stable and with the desired effect. These reproductions of the network itself are seen as constant processes of translation. Callon explains the continuous reproduction as objects and subjects that are made and sustained by means of ongoing translations and transformations in networks of relations, referred to as actor-networks (Callon in Asdal, Brenna & Moser, 2007, p. 29). In Opera, this can be seen in the constant change of users, and emergence of new types of users, as well as changes in availability and use of communication channels. Opera is also changing as an organization in response to changes in user types and communication channels, they are for example hiring people from less developed countries, in addition to recruiting from the community.

2.2 Information infrastructure

According to Bowker, Star and Latour, infrastructure has become a central area of study in STS, after the shift within STS to a more technical and material focus. Star and Bowker also explain how ethnographic ways of studying science and technology from within helped interpreting infrastructure, especially through Latour and Woolgar's work on *Laboratory Life* where they investigated the information infrastructure of the scientists (Star & Bowker, 2002, p. 232). I presented earlier how Opera's technology development can be seen as a network consisting of human and non-human actors. It is relevant to draw parallels between such networks and infrastructure, and here I will look into how the information infrastructure between users and Opera involves elements such as communication channels and routines. There are a few terms within infrastructure from the literature that could fit to my topics, such as 'communication infrastructure' and 'cyberinfrastructure'. However, in this paper I will use the more general term 'information infrastructure' (for example in Star and Bowker, 2002, p. 232).

Infrastructure is that upon which something else works (Star and Bowker, 2002, p. 230). It is what lay underneath and supports the goal of a project of some kind, in this case: Opera's development of technology. "The relational quality of infrastructure talks about that which is between – between people, mediated by tools, and emergent" (Star & Bowker, 2002, p. 231). I will try to see how the information infrastructure between Opera and their users has been built up upon an existing base, and become increasingly complex. As I have mentioned earlier, MyOpera entered and became a very important part of Opera's information infrastructure. Bowker and Star explain how an infrastructure does not appear from 'nothing' (Bowker & Star, 1999, p. 35). Also the MyOpera community did not appear out of nothing. In addition to channels such as e-mail and Opera's web site, it was built upon a forum that enabled discussions on Opera's existing and new technologies (Field notes 65). Thus, there

was an information infrastructure there between the organization and the user. The challenge is to see how this is different today, with the entrance of social media into this infrastructure, and the following increase in users who join the community.

A good infrastructure is hard to find (Bowker and Star, 1999, p. 33). The various elements that make up a well-functioning infrastructure can become less visible as they together form an infrastructure, thus we end up seeing just what we use the infrastructure for, without seeing its individual parts. "Infrastructure is transparent to use in the sense that it does not have to be reinvented each time or assembled for each task, but invisibly supports those tasks" (Bowker & Star, 1999, p. 35). When it is working as intended the network itself becomes less visible. It is when the infrastructure is dysfunctional, for example that one element disappears or enters, that the parts might begin to reveal themselves or become visible.

The way the information infrastructure works might be confusing and complicated for someone on the outside, but as they participate and become members of the infrastructure, from the organizational side or the user side, they gradually become more familiar with the way things work and eventually it might be taken for granted (Bowker & Star, 1999, p. 35). In Opera, there are many arenas and communication channels that together make up the information infrastructure between Opera and the users.

> Through all the arenas there are so many usernames etcetera. And it's not like we go around and talk to all the people working here. But eventually you learn it and get used to it. It took me about six months to become comfortable with the way Opera makes use of communication (Espen, 1: 26.34).

Opera moderator Espen recalls the information infrastructure as confusing when he started to work for Opera, because of the amount of communication channels and people. He spent a lot of time merely figuring out who are users and who are actually employees in Opera.

So what is a good infrastructure? In my example the information infrastructure is the various communication channels and tools that make up the information infrastructure between Opera

and their users. According to Star and Bowker, infrastructure is understood as a "development of many tools, arranged for a wide variety of users, and made to work in concert" (Bowker & Star, 1999, p. 34). The way that different actors use these tools, their work practice and routines, are also a central elements of the infrastructure. Understanding the way these function together is central to understanding the process of technology development in Opera. Later, I will return to the way the various actors use these tools, when I look more into who these users are, and how Opera 'have access' to user representations.

2.3 Social Media services

I will try to facilitate a better understanding of social media as a central actor by looking into some theories on the roles and possibilities of these new tools for communication. The background for social media services lies in the emergence of the Internet, which entered our society in a revolutionary way in the 90s and the 00s. The 00s are especially important, since it was the decade where Internet really started to spread throughout the developed countries. It was also important because of the development of new services on the Internet, opening up for the participation from anyone (URL 10, p. 5). This new way of utilizing the Internet, the so-called Web 2.0, lead to the widespread of social media. Yet, we might say that we are in the beginning of the social media era, and today's trends are that businesses use social media as a marketing tool.

The social media arenas are created to open up for the participation of people. It is meant to be a dynamic infrastructure where the creators only create the infrastructure, and they decide somehow what type of information one is supposed to participate with. One example is Wikipedia, where anyone can participate with knowledge linked to terms and linked with each other, or YouTube, where anyone can participate with uploading video clips and comment on other people's video clips. Social media is immediate, real-time, and through access to the Internet, anyone can find out about the arenas and join with feedback,

cooperation, etc. The openness of social media makes it more of a two-way conversation where everyone who is interested can participate (URL 10, p. 5). This makes it easy for people with the same interest to join or form communities. Potentially, it can be a more organic and democratic way of communicating and collaborating.

Opera has some communication channels that they recommend for support on their technology. These are Internet Relay Chat (IRC) for chat, MyOpera for discussions, an own dedicated news server where users can post things, in addition to e-mail (source: opera.com/support). In MyOpera they are also listing the various social media arenas in which they have active accounts: Facebook, Twitter, Flickr, Last.fm, LiveJournal, Orkut, MySpace, and YouTube. There are also some arenas they participate in which are not account-based in the same way, such as digg.com (Field notes 66). Today, Facebook and Twitter, in addition to MyOpera, are the services where Opera can have followers or contacts with whom they interact. MySpace and LiveJournal are examples of arenas that had more activity some years ago, before Facebook and Twitter entered. The arenas may gain or loose popularity over time, thus it becomes essential for the organization to follow the users in order to keep up the communication and interaction.

Opera claims that they make use of all these social tools. They usually register a username in new social media sites before these sites become well known. One time Aleksander had his alarm clock on in order to create an Opera account in virb.com, a social media service that had been hyped before its release. He got up in the middle of the night to make sure Opera got the ‘opera’ username. The moderators add that this social media arena is still not well known. However, they see the need to do things like that, because when they registered the ‘opera’ username on Twitter in 2007, it was also not active for quite a while after that. They did not know whether it would become a success at all, but then suddenly everyone started to use Twitter (Espen, 1: 28.00). Opera has about 26 000 ‘followers’ on Twitter, and Espen explains

how “this is where we can get messages such as ‘Opera, why the f… doesn’t this work!’ Then we start to communicate with them and find out whether it is something we were aware of or not” (Espen, 1: 05.03). Compared to observations of user feedback in MyOpera, it seems like there might be a different type of users reaching out through Twitter, users who are not having the same ‘fan’ relation to Opera.

In *Here Comes Everybody* (2008), Clay Shirky gives a thorough description of how social media have been used so far, and how it can be used, in both society and in organizational contexts. Social media is defined here as creating, sharing and socializing through the Internet. When it comes to sharing, he claims that “knowingly sharing your work with others is the simplest way to take advantage of the new social tools” (Shirky, 2008, p. 49) One thing that can be harder is to actually cooperate through social media “because it involves changing your behavior to synchronize with people who are changing their behavior to synchronize with you” (Shirky, 2008, p. 49-50). Conversation is one of the main elements of cooperation, and also one of the simplest. Participants in a community enjoy communicating with each other, and in the virtual world on the Internet there are many ways of communicating. “Sometimes the conversation is with words, as with e-mail, IM, or text messaging, and sometimes it is with other media: YouTube, the video sharing site, allows users to post new videos in response to videos they’ve seen on the site” (Shirky, 2008, p. 50). To combine the various ways of communicating is necessary when it comes to cooperating. The possibility to add pictures, videos, codes, or a slide show, can enhance the sharing of knowledge, although the process of synchronizing, as Shirky explains it, in a cooperation process might be more difficult this way than cooperation in real life between people who have met and maybe know each other better. Yet, the possibilities that come with cooperation through social media can potentially be greater in the way these new technologies are accessible throughout the world, for example regarding innovation.

Leadbeater (2009) criticizes pyramid shaped organizations and argues that mass innovation comes from communities. He sees social media as mediators for spreading democracy, knowledge and creativity. This is the biggest change that the Internet will bring on to our society, because social media tools enable us to combine the knowledge and perspectives that people from all over the world can contribute with. Hence, these combinations of people's knowledge and ideas could multiply the more they are shared, creating a collective intelligence and sources of innovation (Leadbeater, 2009, p. 3-6).

Furthermore, there is a need for certain structures and the creation of meeting points in order to make the processes of mass innovation possible. "Much of the web seems raucous and unruly, more like a bar-room brawl than a moderated discussion" (Leadbeater, 2009, p. 4). When this is the case, social media arenas risk becoming places of chaos and information overload. There is a reasonable need to gather those who are interested in a topic in one place, instead of trying to find the good stuff through all the 'bar brawling' throughout the endless Internet. We might say that the Internet encourages people to seek certain communities in order to meet people with the same interests and to share their views and knowledge with others who will understand.

Star and Bowker argue that it is necessary to understand the background and the foreground of an infrastructure. This is because there might be social, ethical and political considerations in the background that can determine the use and consequences of an infrastructure (Star and Bowker, 2002, p. 233). Opera has since their beginning focused on ethics and that the technology should be accessible and open for everybody. Their goal is to be a browser for anyone, whether they are blind or have other disabilities, or live in lower-income countries. So what type of issues can we bring up regarding the background of Opera's infrastructure? One thing is that when Opera decided to focus a lot of resources on the use of social media, including MyOpera, it was based upon a wish to spread the Opera browser throughout the

world, and that it might be basically marketing incentives that lies in the basis of this infrastructure, and not only ideology. Yet, the moderators counter this and argue that they are mainly interested in creating a fun place for people to hang out.

> We don't normally think that we are marketing MyOpera, we just think that we want to make this service the best possible, and the most fun, we want people to use it. So there has never been a hidden agenda or anything like that (Espen, 2: 17.35).

One other point is that when users are testing early versions of Opera, the organization does not need to hire more people to test this software; they get a lot of feedback on bugs and problems free from their users, especially from the loyal users who download the alpha and beta versions that are released before the official release (Illustration 3 in Appendix 2). These elements might be important in determining the way Opera uses social media.

Opera uses a lot of social media services everyday. As I have shown they use some tools because they are appropriate, and others merely because these sites are where the users are, so it is appropriate in marketing and accessibility contexts. However, MyOpera covers the most important functions that Opera use to communicate with the users and to receive feedback. We might say that each of the social media sites has their own standards; each arena is specialized for its use, thus the users prefer different arenas. Through investigating this information infrastructure, I hope to show how Opera's employees and the users of Opera's technology are all actors with their own knowledge, their own role and perspective in the network that is the development of Opera's technology. I have also shown that the social media arenas have entered this network as central actors in mediating between the organization and the users. In the moment they join this network, they are taking part in the constant reproduction of the network with all its effects and changes towards developing and improving Opera's technology.

3. Co-construction, collectives and cyborgs

Configuring the user is an area of technology studies that focus on the user, and how the process of developing technology happens. The big question that is being discussed in the area of user configuration is what the role of the user is or should be in technology development. Woolgar introduced the term 'configuring' on this type of study, and claims that it includes defining identities of users, and setting constraints to their future action through technology (Woolgar, 1991, p. 59). The definition he gives of the term is that configuring is to define, enable and constrain (Woolgar 1991, p. 69). He argues that if the designer sets no restrictions for the user as to how to use and understand a technology, it would simply not be productive (Woolgar, 1991, p. 73). This view has been criticized for the focus on configuration as a one-way process. Mackay, for example, explains how "it fails to address the complexity of relationships in the design process" (Mackay, 2000, p. 741). Scholars like Akrich, Mackay and others have developed this concept of user configuration further. Their arguments are towards more focus on the user as an important actor, and explaining processes of technology development as shifting between the user and the designer; that they are co-constructed (Akrich, 1992, p. 206; Mackay, 2000, p. 737, 745; Oudshoorn & Pinch, 2005, p. 3). This might correlate with how the society has developed, and that users are actually participating or playing a more important role in technology development today than they did just a few decades ago.

Users have gone from being passive to becoming more active. The explanation for this change of roles might lie in the general development of society, where we see a slow changing of structures like organizations. Throughout the last five-six decades we have seen social movements (but also change in market capitalism with focus on consumers' power)

that also contributes to this slight change of power structures, where users or consumers are given more rights and a voice of their own. Yet, the enabling of this shift where the voice of the user is being heard to a larger extent is also due to the emergent communication tools, and the development of information infrastructure that also includes users and others' voices. The latest in this 'branch' is the entrance of social media into this infrastructure.

The view on technology development as a process of configuring the user is contrasting, and emerges as a reaction to, earlier technological deterministic views. Technological determinists claim technology to be a bigger power than other elements in modern society, such as science. This view has become somewhat outdated throughout the latter decades. The general opinion is that development of technology is not a process disconnected from its users and the society in general (Smith, 1998, p. 2). There are various social factors contributing to the development, and some theorists claim that technology should be studied as a social phenomenon, and even be seen as a social construct. This theory involves the assumption that only people can have the status of actors (Akrich, 1992, p. 206). Also Woolgar argue that technology can be seen as a social construct, since what matters are the ways technology is understood and used (Woolgar, 1991, p. 60). However, when it comes to describing how technology and the various users and designers of it interact, neither technological determinism nor social constructivism is sufficient. "It is rather to find a way of studying the conditions and mechanisms under which the relations that define both our society and our knowledge of that society are susceptible to partial reconstruction" (Akrich, 1992, p. 206). Akrich sees the necessity to see both the technical and the social, instead of giving them a more central role, and to go back and forth between them. This partial reconstruction, or co-construction, ensures that technology and its surroundings would be better matched, and the goal of adjusting technology better to its users becomes closer (Akrich, 1992, p. 206-207).

I build on Akrich's studies of technology transfers. She focuses on users and everyday user situations, on differences and displacements between various contexts and techno-social networks. As Akrich sees it, this process could just as well happen between the designers and a user with a good idea. She claims that the development of a technology should go "back and forth between the designer's projected user and the real user" (Akrich, 1992, p. 209). Mackay presents a slightly different understanding of users, and opens up to the notion that users can be seen as co-designers (Hales in Mackay, 2000, p. 739). Does this mean that the boundaries between designers and users are changing? "In Woolgar's study, the boundary between user and designer maps the boundary between the company and the outside world". Mackay draws up an example of a design process where those boundaries are more fluid; the users were configured to have more power (Mackay, 2000, p. 746, 751). Woolgar makes a contradicting addition to this point when he claims that "(…) although it was important to have an idea of who 'the user' was and what they wanted in the machine, users' views should not be unproblematically adopted in design" (Woolgar, 1991, p. 74).

As Woolgar has argued, views of the user should not be implemented in technology in an uncritical way (Woolgar, 1991, p. 74). Yet, there are many examples of the importance of users in the development of Opera's technology. The increased interaction between organization and users through the use of social media arenas enables Opera to go back and forth relatively easily compared to Akrich's illustration of going back and forth between designer and user. Thus, instead of the designers knowing exactly what the user wants, it is possible to have processes of cooperation between the organization and the users. This does not mean listening to what one user has to say about a technology, and then just implementing it, as Woolgar is insinuating. These iterative design processes that allow the inclusion of many users, and many types of users, open up to the view of many users over time, something that might help to match the inside and outside of technology.

Opera writes in 'Support in Online Communities' on their web site: "At Opera we believe in communication, and a lively exchange of ideas. To make it as easy as possible to communicate with you and the Opera user community we've set up several easy methods of exchange. We believe that these discussions are sound and solid ways of keeping the exchange alive and encourage everyone to join in!" (Field notes 60) This view of their users indicate that the organization encourages ideas and presumably that they have an interest in implementing good ideas that might come up through these "methods of exchange", meaning the various social media arenas. Their use of the term "methods of exchange" shows in itself that they see social media as two-way conversations, and that they take the perspectives and knowledge of their users seriously. Opera also write in the vision for the organization: "Users have since the beginning shaped Opera's features and spread the word to the uninitiated. Thanks to this interaction Opera Software exists today, both as an organization and as a technology leader. Opera Software will never forget that its main focus is the user." (Field notes 34) This quote gives the impression that the users are given a central place in the process of developing their technology, both through their focus on the user and through the interactions between organization and the users.

3.1 Feedback and user-to-user support in Opera

In the social media arenas it is not a given who is a user and who is an employee of Opera. This is also something I noticed from observing conversations in the various arenas. There are many skilled users writing very detailed technical comments or posts, and also many users helping each other. In these situations it looks like the roles of user and employee are mixed, and the knowledge these skilled users have obtained are in many situations just as trustworthy as the knowledge of an employee. Opera claims that their main focus is the user. I will look in to some of the established ways users interact with Opera and each other, namely the feedback on new technology, user-to-user support, forum discussions, and blogging.

3.1.1 User-to-user support

In large and complex arenas such as Facebook and MyOpera, the users themselves have been taking over more and more of the support-related feedback. There are several users that have built up enough knowledge to help other users with issues concerning things like support (Illustration 4 in Appendix 2). The moderators appreciate this kind of user-to-user support, and admit that this is something they wish to encourage, but that it must happen naturally. "There are around five people on Facebook at all times answering enquiries form other users. Most of them are there regularly, ready to help, sometimes someone 'falls off' and someone else comes to take their place" (Aleksander, 1: 06.04). This type of customer support would be difficult without the use of social media. These dynamic interactions are also not facilitated in Twitter and other arenas like digg.com or YouTube. In Facebook, as well as in MyOpera, it is easier to see user feedback and comments, and it is also easier for anyone to respond on it or start a discussion. In Twitter, for example, other users cannot see what someone else writes to or about Opera, as this remains on the respective user's own site, instead of at Opera's site, like it is on Facebook. Thus, the moderators encourage user-to-user support mainly in MyOpera and Facebook, and these are also the arenas where discussions between many users can happen. In MyOpera the discussions take place in the forums or as reactions to someone's blog post.

It is interesting to see why many users spend so much time and effort in helping other users, testing the technology and discuss with Opera and other users. There are many Opera users in the community who spend many hours daily interacting with Opera, the technology and other users. Here I present only a very few of them. These are users who the moderators have mentioned specifically, and who I have noticed. Daniel Hendricks from Michigan in the United States was identified quite early as a user who stood out on MyOpera, because he was very good at writing in the forums, and also by helping other users in Opera's Facebook page.

He was so clear in his dialogue that the moderators were surprised when they went to his user profile on MyOpera and noticed that he was 12 years old. They saw his potential, and decided to send him some free stuff and give him more exposure. The free stuff was things like t-shirts, pens and posters with the Opera logo (Illustration 5 in Appendix 2). This was a way of showing that they had noticed him. They also made him a moderator in some forums, which gives him more access and rights on those sites. The moderators explain that they have some incentives like that available for users that are very active.

3.1.2 Version feedback

The pre-releases of new Opera browser versions are central processes in Opera's technology development. These so-called alpha and beta releases are launched in all the social media arenas that Opera makes use of. Recently, Opera released an alpha of their new 10.60 version of their browser. The launch involved publishing shorter versions of the press release with link to the software in all the social media arenas, including a more thorough article on it in MyOpera (Illustration 3 in Appendix 2). This opens up for virtually anyone to test and give feedback, not only the members of the community. Since it is not a finished version, they need to warn the users that it is a highly unsafe product, so that they will not install it over their existing Opera browser. The goal is to let the users play around with it, experiment with new features, and then provide feedback to Opera. This feedback happens "all over the place" (Espen, 2: 31.23). It might be in a blog post or in one of the forums, but it can also be through Twitter, Facebook, etc. In MyOpera, the feedback from users usually varies between thumbs-up (visualized by Opera's own emoticons, see illustration 6 in Appendix 2), criticism, and suggestions to changes or other things that could be done. Another user might take up on an idea and change it a little or build it further.

The criticism concerns bugs, which means that there might be something specific that is wrong in a feature. Aleksander explains how there are a lot of bugs reporting in Facebook and

Twitter, in addition to MyOpera. This might mean that users have their own preferences within social media services, and that they prefer to use these to report back to Opera when they experience a bug in Opera's browser. "The users report bugs through Facebook. They're not suppose to do that, but we receive bug reports there too, if there's something that needs to be fixed" (1: 04.44). So the moderators should be visible in all social media, in order to meet their users in 'their own arena'. They do not want to force all the users to use MyOpera for bugs reporting, for example. Yet, the bugs need to be reported through a so-called 'bug report wizard' in Opera's web site, so when the users report them through any social media arena instead, the moderators report them in the wizard for the users (Field notes 67). Espen explains how Aleksander is very good at sending such bug reports. He picks up report of bugs from the users, through various social media arenas, he then creates a bug report explaining what is wrong, and passes it on to the correct team in Opera (Espen, 2: 09.55).

3.1.3 Blogging

The blogging function is very central to Opera, and was one of the first functions the community offered. Here, the users could express themselves about anything. The users have a bigger chance at offering something and actually being heard, since blog posts have room for more text, pictures and videos. The moderators also have a strategy of reading many of the more active user blogs in MyOpera.

"If there is one thing all bloggers want it's exposure," the moderators claim. The users that are active want their blog posts on the front page of the community section, and that it reaches out to thousands of readers. The moderators work on doing this every day. They like to post user's blog post in the 'community' section to promote them. They seek to find new 'star' bloggers, to expose them and give them the publicity that they deserve, so that they become more active. The way they work to find these is that they have some tools in MyOpera that enable them to sort by things like activity the last week, when they updated their status, when

was the most recent login, etc. They also get weekly traffic reports, and they show the most active bloggers the last week and so on. After filtering it is easy to make a list of 20 bloggers and just click through and read them all (Espen, 1: 18.58).

One of the ways Opera promotes bloggers, or users, is to make them 'Member of the Week'. This means that the moderators present the user in an article, where they write something about the user and how this user contributes to the community. One interesting aspect here is that in order to be promoted in MyOpera, the users do not necessarily have to write about something Opera-related. The moderators claim that they might promote a cake recipe written by a user just as well as a technical type of blog post. "Someone write about their cat, others again might be new fans of Opera, so we try to make them write more about Opera by encouraging them and following them" (Espen, 1: 19.12). Out of the 10 most recent Members of the Week, four of them had contributed with non-technical content. Another four were users with technical blogs, while the remaining two were somewhat in between. There are many users who are clearly technically skilled and who contribute for example by helping others, but their blogs are more personal and non-technical (Field notes 55). These variations and the inclusion of more social and informal aspects are important to Opera. I will return to the social aspect of MyOpera later.

Opera consists of several different teams, such as development team and designer team. There are some teams that are more in contact with users than others, although the moderators might be the ones with the most contact on a daily basis. The employees in Opera have also started blogging on topics that are directly relevant to the development of their technologies. The developers have their own blog on programming features, the designers have their own blog on their new designs, and the moderators have their own blog about anything that has to do with marketing of new versions and new features in a very popular blog called Choose Opera. There are about 20 such team blogs (Field notes 78). Many also have their own personal blogs

that mix between topics on Opera's technologies and more informal topics like contests, humor and pictures from their office (Field notes 35). The employees are not required to join MyOpera or to blog; it is for those who want to and who see the benefits of doing so. The moderators claim that the amount of employees who are active in MyOpera is a sign of an open culture in the organization. They also see this as an advantage for themselves, because they have someone to pass things on to when the discussion becomes too technical. In their work they might discover a very technical discussion thread in the forum that needs help or clarification. Then the moderators can notify one of their colleagues working on the relevant area, and ask him to have a look in the community. The colleague would then usually follow-up and do something like writing a comment back in order to explain things (Espen, 2: 09.20).

The teams in Opera also know how to utilize the feedback functionality in their team blogs. All the blog posts are open for comments, and many of the posts include an encouragement for the users to participate in a certain way, for example provide feedback or to experiment with the new features presented in the blog post. If there are any suggestions that the moderators find interesting and want to pass on to development, they would have to 'sell it in' to a middleman, the communications project manager. He sets the priority, or the status. "If it's good enough, he gives it priority, writes a spec which becomes a ticket, and it can be sent to development, then released at some point. He is a filter to the madness" (Aleksander, 2: 20.09). This process of approval through two or three levels of employees before implementation in Opera's technology is indicative of how the process functions behind the user-organization interaction.

The moderators' workdays consist of reading through a lot of comments, in the forums or blogs, and then answering them. This is something they do very systematically.

> We are very visible in our own community. And also, in the community we are equal to our users, although my title and company name shows next to my name in the forums. I am in the forums on a daily basis to answer. That is also a way of showing trust, and that we are always here for and available to our users (Espen, 2: 06.25).

In the forums, they might go through the same things every week just to look for something new. The moderators develop a kind of expertise in working with routines like this. In many examples the user might present an idea or a function in a blog post, and other users engage with positive or constructive feedback.

3.2 Collectives and cyborgs

Latour and Haraway present interesting additions to both co-construction theory and the understanding of actors and networks. The example Latour is using to illustrate the collective is how a gun exchanges properties with the human in the hands of a person. The gun is not merely mediating the goal of the human actor; it might also have changed the outcome, in this example to kill instead of to wound. It is the collective of the human and the non-human that is acting, not the one or the other. "You are another subject because you hold the gun; the gun is another object because it has entered into a relationship with you" (Latour, 1999, p. 179). In the same way, we might say that social media can alter the original goal of an actor. When a user writes a blog post on her MyOpera profile, her intend might have been to keep it for her own use, or to share it with someone she knows. Yet, the content is public once she chooses to use the MyOpera blog, instead of for example a private notebook or e-mail. The knowledge put to words by one user and published through a social media service is now shared and open to anyone. MyOpera as a social media service cannot share knowledge; it is the collective of this human and non-human actor that enables knowledge to be shared.

Latour also translates this to a more general picture involving the whole society. He claims that we are living in collectives, not in societies (Latour, 1999, p. 193). With this, he wishes to abandon the dualisms between subject and object, and between the human and the non-human. By avoiding these dualisms, we can open up to the understanding of collectives of more intimately connected elements, where human and non-human actors may exchange properties (Latour, 1999, p. 201).

In "A Cyborg Manifesto" Donna Haraway presents some interesting additions to Latour's theory. As she argues: "We are all chimeras (…) we are cyborgs" (Haraway, 1991, p. 150). With that, she wants to tear down the boundaries we have constructed between human and non-human. There are no boundaries between what the nature makes and what the humans make, she claims, and thus there are no divide between body and artifacts (p. 150). The cyborg represents both the constructed and the real, human and machine at the same time (p. 150).

This rejection of boundaries that Haraway presents can also be related to the intertwining between human and machine on the Internet. The Internet is in itself an effect of many relations, and is neither physical nor non-physical. In my example social media, the rejection of boundaries between human and non-human is also a rejection of boundaries between social reality and the virtual. The way we interact with each other through technology makes us cyborgs as well. People use social media in a way that can substitute parts of real life, such as communication, cooperation and promotion. The concept of creating an identity representative of oneself, and take part in interactions mainly represented by text, pictures and videos placed into predetermined structures, is somewhat different from how one would interact in real life. Mediation through social media crosses many boundaries, most obviously of geography, but also sex, color, status, culture, and religion. These identity boundaries can

be secondary online, especially when it comes to communities mainly revolving around common interests.

Later in this thesis, I will present a user who wished to be called by the MyOpera username Z1-AV69. This user is very engaged in developing features that can be incorporated with Opera's technology. The knowledge and the product Z1-AV69 contributes with are only mediated through virtual arenas. How can we know that this user is female or male? Does is even matter? The point is that Z1-AV69 reached into the development of the technology and took part in it, regardless of this user's identity, workplace etc. Haraway claims that there is nothing about being female that naturally binds women (1991, p. 155). These identities have been forced on us over time, and Haraway argues that we should rather relate to each other by choice and interest: "affinity, not identity" (1991, p. 155). What we are left with is our knowledge and interests, and the possibility that communication technologies can offer new social relations, and the effective communication of information (Haraway, 1991, p. 164). What matters in the virtual community in my example are the skills and knowledge of Z1-AV69.

Social media services exist to facilitate new ways of communication and interaction, and these user interactions are what the social media arena is made up of. Through these interactions, the social media arenas are constantly expanding and self-sustaining. It is human interactions, represented by text, pictures and videos, which give function and meaning to the social media arenas. The human interactions in themselves are not new; sharing ideas, cooperating, acquiring friends, and starting discussions are all recognizable interactions in daily life (URL 10, p. 7). What is new is the way they happen through social media services. Mayfield argues that this is what makes social media so popular; because they let people be themselves. They are also different from daily life interactions in the way they facilitate and mediate interactions that might not otherwise take place, because of potentially countless

boundaries. It is impossible to divide human from the technical in the interactions; if they were separate their effect would not exist.

4. User Representations

4.1 Utilizing user representation in technology development

The way Opera and the users interact through social media might open up to new understandings of who the users of Opera's technologies are. Here, I will first look into how Opera viewed users in the development of the MyOpera community, and how this resembles 'I-methodology', which Oudshoorn et al presents in "Configuring the user as everybody". Further, I will investigate how the use of MyOpera and emerging social media services open up to interactions with less technically skilled users, but also engaged technically skilled users to a larger extent. By investigating these interactions I wish to see how this a result of social media's entrance into the information infrastructure between Opera and the users, and that this might lead to more realistic user representations.

In "Configuring the user as everybody" Oudshoorn et al brings up the point of the designers' identities. They claim that the identities of the designers can be important to the development process, because technological development is dynamic, and there is a need to have certain diversity among designers, especially when the projected user of the technology could be anyone (Oudshoorn et al, 2004, 53). This relates to my case, since the Opera browser also intends to be used by potentially anyone. Oudshoorn et al. focus on the identities of the user, as well as the identities of the designers, and ask: "Who is the user?"

Oudshoorn et al also bring up the method of 'I-methodology', where designers consider themselves as representative of the users. In one example, Espen explains how he projected himself as the user this way. He claims that he just makes stuff that he would have wanted to have on his own web site (2: 14.15). The moderators' inspiration is to create an online community that they would like to use themselves, and then they cooperate with other

colleagues who know coding and design. This might correspond more with Woolgar's view of technological development: "Given the extent of the (claimed) differences between the way 'we' look at the world and the way 'the user' looks at the world, it becomes necessary to rely upon especially skilled spokespersons – those few with knowledge of these very different entities" (Woolgar, 1991, p. 73). In this way, Espen and the other community moderators can become skilled spokespersons for their users. Through moderating the community, they might actually have a good idea of what the users want.

> We make up most of our blog features ourselves. I am a very active blogger myself, so I have certain moments where I go 'It's so exhausting having to do this and this every time', and then I think: 'Wouldn't it be nice if I could just make this easier?' I contact the project manager, and then we usually have a brainstorm. The results of which is written down in a so-called ticket, or a suggestion, and this is put in the developers' queue. It is then given a priority, before being developed and published, if all the queues and processes are accepted (2: 19.20)

This process is an example that shows how Opera developed important parts of their MyOpera community. When Espen started developing the MyOpera community, he used himself as a representation of the user, and hoped that the users would have the same interests and needs. He created features and design that he himself would like to have. There are a few reasons as to how they succeeded in getting many users to MyOpera. First, there was a great base of users there already, who were using the forum and blogging features. This meant that he could have an idea of who the users were and what their wishes could be. Second, Espen's identity as a young technically skilled male related to many of the users that were there already, so by using himself as user representation, he could potentially reach out to many of the users that were already using Opera and the forums. He also explains how they only hire people who can identify with the users, to work as moderators (1: 25.00). Third, after the first steps and features of the community he would gradually receive feedback from the existing users by taking part in the community. In addition, the marketing factor, as well as the entrance of social media arenas in society, also made them develop MyOpera into a social

media arena where the users could hang out, get to know each other, and share whatever they want, regardless of relevance to Opera's technology.

4.2 Who are the users? Towards more complex user representations

I have argued earlier that the organization and the users are to a certain extent becoming co-constructed. Through the use of various communication channels they are jointly constructing each other. This means that Opera's technology development can in some ways be a result of the input they get from the users. "The crucial relationships: The user's reactions that give body to the designer's project, and the way in which the user's real environment is in part specified by the introduction of a new piece of equipment" (Akrich, 1992, p. 209). And on the other side, the users are also not there already before the technology; they also respond and join in as a result of how the technology develops. My argument is that the way the organization and the users are using social media, especially MyOpera, can lead to more complex user representations.

People are spending more and more time online, and the Internet has spread to other devices, such as mobile phones (URL 5). The choice of browser and the features and functionality of the browser can be central, and very important for some types of users, while not as important for others. Internet use is something that applies to basically all types of people throughout the world. People in less developed countries (LDC) are also increasing their Internet usage, especially through the spread of mobile phones with Internet access, and these countries are now among the fastest growing groups of users (URL 6). This is just one example of new types of users that are potential users of Opera's technology. How is this reflected through the designers of the technology?

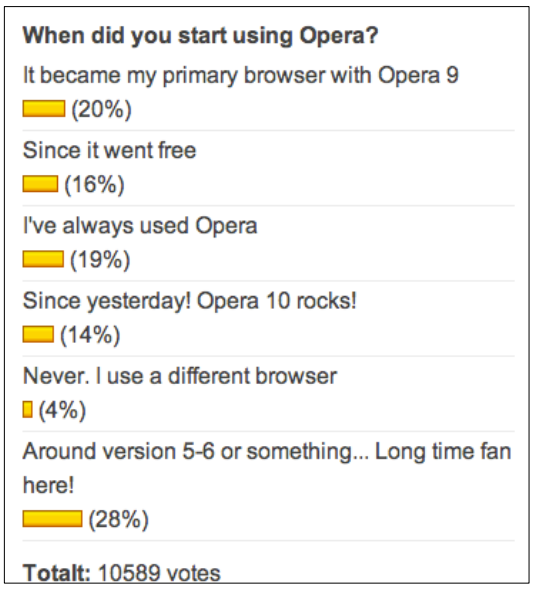


Figure 2: The poll shows that 4% of MyOpera members are not using the Opera browser (screenshot from my.opera.com)

So, who are these users in Opera's community? Is it a culture I am observing? Many of the members in the MyOpera community are there to socialize with others online, to have their own blog and maybe also some photo albums. The moderators claim that they experience almost everyday to hear from MyOpera members that they did not know Opera was a browser. This might mean that they start using the Opera browser after joining the MyOpera community, although there is no evidence that they actually become users as a result of this. A poll posted in MyOpera showed that four percent of the 10 589 respondents do not use the Opera browser (See figure 2). The question is then how much Opera relies on members of the community representing actual users and their needs and wishes? Since the MyOpera community has 5,5 million members including many types of people with various levels of technological skills, maybe these can represent the outside world of potential users somehow? The less technically skilled users might not be as technically competent, and also they might not be the most active in the forums in MyOpera, where the discussion topics are to a great extent technical or relevant to Opera's technology. The moderators also confirm that it is the

users with interest and knowledge within technology who writes the most in the forums and comments. Then again, we might say that a vast percentage of the users there are interested in Opera to the extent that they wish to communicate with Opera and other Opera users. Thus, there is a possibility that also the less technically skilled users are representative of general users of the Opera browser, and that they can contribute with their perspective through communicating and interacting with other users in MyOpera.

Opera shows that they are aware of their heterogeneous user groups, and especially emerging user groups from less developed countries (LDC): "We believe in a Net that preserves cultural diversity. (…) As in life, the Net provides richer experiences when people from all over the world meet and learn from each other in mutual respect. Opera Software will make every effort to promote cultural diversity and make its products available in as many languages as possible." (Field notes 34) The possibility to have the products available in many languages might be extra important for people from LDCs, where a majority might not have the same English skills as people in the Western world. The promoting of cultural diversity is also prominent in my observations of MyOpera. On example of many is that Opera wanted to hire five new employees from five different non-western countries, and let the MyOpera community decide which ones to hire. This helped mobilize as well as empowering users from these various countries in the MyOpera community.

When mediated through social media, how is knowledge constructed and reproduced? In the case of Opera, this might be easier and maybe more obvious since a lot of the knowledge in question is software, made up by codes that can be directly shared, reproduced and further developed. There are also a great variety of knowledge and perspectives, where the users are interested in different aspects of the technology. They might give feedback on things like functionality, features, design, as well as trends and competitors. Often the users suggest features that the other browsers have. Originally, the MyOpera community was built for

technical users who know a lot about computers, programming, but also design and the market (for example the competitors of Opera). There was for example one tab called 'comics' in the community before MyOpera became what it is today (Illustration 7 in Appendix 2). It is clear that the social aspect of MyOpera has changed the way the community appears, and also which users who are becoming members.

4.3 The social aspect of MyOpera

The MyOpera community is both a social arena and an arena for technological development. This seems to be one of the things that make it so popular (Field notes 81). It might have been different if it was only an arena to talk about Opera, browsers in general, in order to develop and promote the product. The moderators experience often that new MyOpera members are not aware that Opera is a browser.

> When we built MyOpera as an online community, we were very clear that this should be an arena for everything. We wanted to get as much content as possible, and as many people as we could get. (…) A lot of people use MyOpera just because they think it's a good tool for blogging. Then they find out about the browser, kind of like the other way around. That is when we have reached our goal with this service. (Espen, 2: 02.40)

People join MyOpera for other reasons, and the social aspect seems very attractive to some types of users. The impression from observing MyOpera is that it is more normal for the users to become 'friends' with people they do not know, as opposed to Facebook for example, which is built upon the idea of connecting with classmates and friends from real life. In that way, MyOpera becomes an arena to socialize with people from all over the world.

> User Rawi Saeda from Nigeria says in a blog post comment on community news: "MyOpera make me present everywhere in the world, what a nice thing it is. I am proud to be a member". Sreeraj from India says in the same blog post: "I'm new to Opera. I also like it. It's so fun to have friends all over the world ☺ "
> (Field notes 14)

Mayfield points out that social media arenas are meant to be useful for members, by offering various types of services as well as a place to meet and communicate (URL 10, p. 14). Many specialize in one type of service, such as Flickr for photos and Twitter for microblogging.

Others offer many services in one, perhaps with a general theme such as politics or dating. MyOpera also offers many services for the members, and this might be central in attracting many people without the strong technical interest. Pfelelep, a male sketch artist living in Hong Kong, is one of the users who chose MyOpera for one of the services. He was already a user of the Opera browser, and wanted a blog to promote his sketches:

> I choose the opera community and blog platform, because it was... free. I'm not a regular opera's forum poster and/or user, actually, my blog is more a motivation to draw for me: posting keeps me informed of "what other people thinks about my style"

Although he does not consider himself a technical user, his profile shows that he has more than 200 forum postings, on non-technical as well as technical subjects. This might indicate that users such as Pfelelep, who joins the community for other reasons than the technical, also take part in the interactions between the users and Opera. When the less technically skilled users participate and offer their perspective, it is most likely that they can be representative of other less technically skilled users of Opera's technology.

4.4 User Z1-AV69 and the Z1-Glass skin

There is a possibility for users to create customized Opera browser 'skins', which are themes that changes the way the browser looks and sometimes functions. Many of these are made available in MyOpera for other users to download and utilize, together with Opera's more standard skins. Usually, the skins have variations in colors and buttons, as well as placement of the elements in the browser. The users who create skins often present these in their blog, with screenshots and explanations (Field notes 58). One of the most popular skins today, the "Z1-Glass" skin was somewhat different, in that the developer created a functionality which had not been possible before. This skin makes the whole browser window turn partly invisible, so-called transparency functionality (see Figure 1). The moderators Espen and Aleksander consider this to be one example of an innovation created mostly by a user.

The developer of the Z1-Glass skin goes by the username Z1-AV69. His real name reveals that Z1-AV69 is a male. He explains how he the last couple of years had wanted to create a transparent window background for the Opera browser. After the release of version Opera

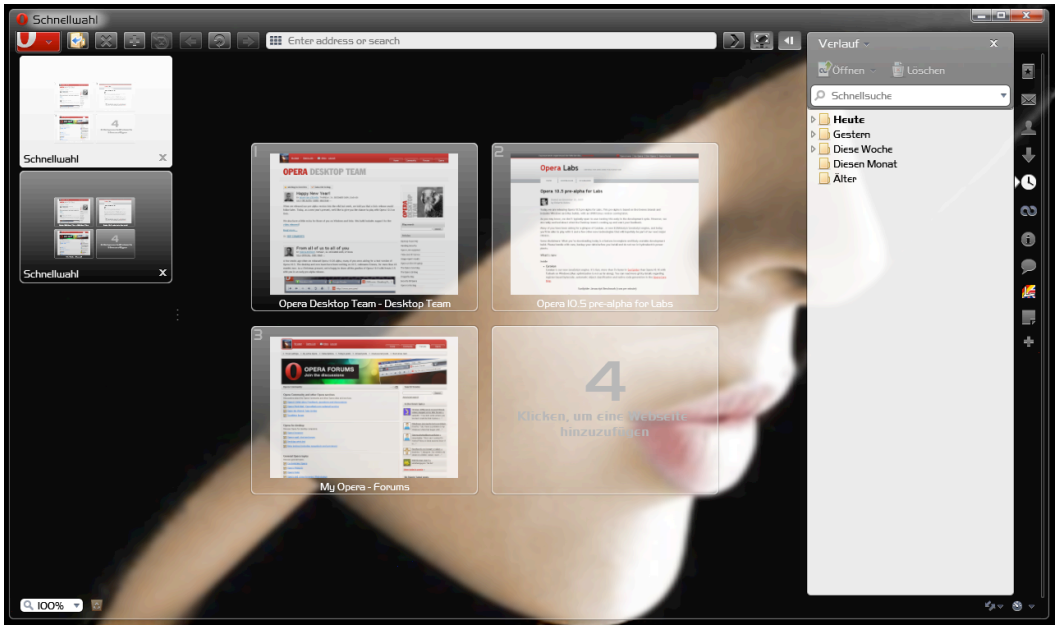


Figure 3: The transparent Z1-Glass skin (screenshot from my.opera.com)

10.50 he found out that this had become possible, so he started developing it, and posted a screenshot of the skin in a comment to a blog post of the desktop team (Field notes 68). After developing an early version of the Z1-Glass skin, he posted screenshots and explanations in his MyOpera blog. He also put up a link so that other users could download it. This lead to more users testing it, and they continued the discussion in the forum post. Some of the users uploaded screenshots of their desktop with the glass skin installed. The users contributed to the discussion and helped Z1-AV69 understand some of the issues better.

Aleksander explains how the desktop team had mentioned that it was possible to do something with transparency in the new version.

> The desktop team said that it's possible to do a lot of fun with transparency now that we had added support for Aero, which is a transparency thing from Windows. This was picked up by

> one of our users, and he just went all the way with it. So today we have full support for transparency (Aleksander, 1: 13.34).

This means that Opera today offers a skin in their browser which is transparent, and that this is a combination of "a user who wanted to do something cool", and Opera adding support for it and implementing it (Aleksander, 1: 13.12).

In a blog post on the transparency functionality Z1-AV69 presented a bug that had to be fixed by Opera:

> When using this skin, you can easily spot the current (Opera 10.5 beta 1) bugs with the "full transparency = 1" option:
>
> 1. Text in plugins is transparent
>
> You can see this for example when using youtube: The text of controls and the links in the video after the clip has finished will let your wallpaper shine trough. More disturbing are .pdf opened with the plugin, where the see-through will happen both with text and dark backgrounds. Since Opera now uses the java-plugin, you will also spot this with java. An example would be the system scan at the beginning of the Peacekeeper browser benchmark.
>
> One problem possibly related to this is the settings dialog of Flash: You can't click anything in the setting window. For the time being the only workaround is to use another skin when configuring flash.
>
> This is imho the most serious bug with the full transparency option. I reported it as DSK-277964. In the Z1-Glass thread about every third posting is about this bug. It absolutely needs a fix from Opera to make the full transparency option a viable skinning option.
> (Field notes 72)

Opera employee Petter commented to this blog post:

> Petter Nilsen # 13. February 2010, 23:40
>
> 1. We'll look at it. There are other options to archive the effect that might not influence plugins.
> (Field notes 72)

It was not the community moderators who noticed the user's first publication of this transparency feature. The user had posted it on his blog on MyOpera, but since that blog was not one that the moderators had noticed earlier, the post became unknown to them until Petter in Opera noticed the skin through the previously mentioned desktop blog post, and informed the moderators. Espen believes this might be because the user in question is more of a

programming guy who likes to create stuff, not to write about it and stick his neck out. Aleksander claims this to be the reason as to why they did not notice it.

> We have four and a half million users in our community. We can't cover everything, and this was an example of something that slipped through our fingers, but that someone else in the organization noticed (1: 15.13).

It was only after this point that the moderators could initiate the process of further development and final release of this feature.

For the majority of Internet users the appearance of the browser might not be the most important feature, but one user is especially happy with the ability to have transparency in the browser, and did not care that it had minor bugs in the beginning. In a comment to a blog post on the skin user Steve Kyle writes:

> Who gives a s… if the stripes are there? I never felt so much happy than now with this glass skin on my Win 7 Pro. I always wanted and look for this kind of skins for centuries ; now my dream is fulfilled . Thks for the skin , it's above awesome :X Cheers
> (Illustration 8 in Appendix 2)

Among many Opera users the transparency functionality became a hit. After Opera implemented and presented it as one of their skins, it became one of the most popular skins. It is still the most commented, promoted, and best ranked skin (Field notes 69 and 70).

5. User-centered Innovation

Recent contributions to innovation literature bring up the issue of including users (or 'customers') in product development. Ian Alam claims that user interaction will help reduce the gap between the user's wishes and needs and the actual product, and that it will have a positive effect on new service performance (Alam, 2005, p. 468). The idea is to facilitate interaction between designers of a product and representatives of user firms. Thus, the focus lies on users or customers as firms, not as individual users. Innovation processes already involve "imprecise process and ad-hoc decisions on idea generation, idea screening and concept development stages", and involving users in one or more of these steps can be valuable (p. 468).

In von Hippels book *Democratizing innovation* he refers to some users as 'lead users'. These are users that are in front of the market regarding trends in the area (von Hippel, 2005, p. 22), in Opera's case technological development. Lead users are also expected to gain benefit from the further development of a product, which can work as a motivation for contributing to the innovation processes. When a user is highly skilled and follows the market of technological progress, he will also experience needs that can be met from developing technology further. These 'lead users' might be just as suited to innovate as the workers in the organization. According to von Hippel, between 10 to 40 percent of users are taking part in development or modification of technology. He also argues that users with many of the lead user characteristics are more likely to come up with commercially attractive innovations (von Hippel, 2005, p. 4-5). This might mean that what the skilled users can come up with will most likely be of interest to other users as well.

There are many users that could be regarded as 'lead users' of Opera's technology. As I have mentioned before, there are several users engaged enough to make their own videos showcasing issues or suggestions to the technology, write long blog entries about it, and take part in discussions on MyOpera every day. One user called Zotlan started a web site called extendopera.org, where users with programming skills could exchange scripts with each other in order to extend and modify their Opera browser. There is also a web site connected to MyOpera where users can develop own or use someone else's 'widgets', small web programs that run outside the browser. These are tested by Opera before they are made available on the site (Field notes 64). Is there a reason to include these perspectives and suggestions in Opera's technology development? Von Hippel claims that users and designers of technology tend to develop different types of innovation, simply because they know different things. "Users generally have a more accurate and more detailed model of their needs than manufacturers have, while manufacturers have a better model of the solution approach in which they specialize than the user has" (von Hippel, 2005, p. 8).

Von Hippel defines communities as "direct, informal user-to-user cooperation where assisting others to innovate, answering questions, and so on is common." (2005, p. 10-11) These communities are useful structures created to facilitate interaction between users of the community, where these users can share common interests, but also distribute innovations (p. 11). Further, von Hippel argues that "innovation communities can increase the speed and effectiveness with which users and also manufacturers can develop and test and diffuse their innovations" (p.11). Thus, communities can facilitate and mediate interactions concerning the development and improving of innovations in a more effective way, and in the case of online communities such as MyOpera, also in a way that is more open for anyone.

Using community members in innovation is described by for example Jeppesen and Målin in "Consumers as Co-developers: Learning and Innovation Outside the Firm". They present a

gaming company that relies on innovation from the users in developing their online gaming software. As in my case with Opera, these users are also creating content that they share with others, as well as sharing knowledge in the way that they teach the users that are not as skilled, and offer them support (Jeppesen & Mølin, 2003, p. 364). The question is how can Opera include these users more directly in their technology development, instead of leaving them to develop things on their own that they can only share with their personal network.

As mentioned, there are dedicated discussion threads within the forums in MyOpera for feedback, where users can suggest new features. Espen systematically and analytically reads these types of discussions every day. When he started as a moderator he went through the whole forum of MyOpera, a process he says took him several months, so that now he can still maintain the overview by checking in every day.

> It might seem overwhelming, but there are a lot of repetitions, as in different users asking for the same thing at different times, this goes without saying in a big forum like that. So it's important to be systematical and analytical, and recognize the repetitive stuff (2: 29.00).

A lot of the features that have been suggested before are either already implemented, or the feedback concerns improvement of an already existing feature. The guys working in the Desktop team with Opera for PC and Mac have dedicated people to read through all the comments they get in their blog. So when they write blog posts on new technology etc, the comments will follow shortly after, with feedback on bugs, reactions to the new features, and also suggestions to what they should improve. They get so many comments that sometimes they write in the blog post that the users should not comment if they do not have anything 'new' to say. This also includes a wish that the users check the existing comments before they write one, so as not to receive 20 identical suggestions in the same place. Yet, what the users contribute with represents a potential improvement, and there is a lot of good stuff in those comments (Aleksander, 2: 29.43).

Espen claims that they generally are not bringing further contributions from users that could be considered an innovation. ”We don’t have a strategy to do so. We haven’t done it thus far, anyway, so I could only imagine how a process like that would have been” (1: 12.00). They argue that they have people in Opera who take care of the innovation part, and that they have enormous amount of knowledge on what is possible and trending right now. They are also ahead of most other people regarding what is going on in the technological market. “Our chief technological officer foresaw that video would become huge on the Internet, not three years ago; he said that ten years ago. He knows what’s going on much further in time.” This is because the innovators in Opera are members of various technological networks and are highly skilled to be ahead of the market. Thus, Opera is very innovative regarding product development and the moderators claim that the features their users request or ask about the most are things that the people in Opera have thought about and been through already some years earlier. “If you think that Opera has already thought about it: We most probably have.”

5.1 Incremental or radical innovations?

This brings up the discussion of how we understand the term ‘innovation’. The moderators make it clear that this policy, or lack of innovation strategy of this kind, is something that applies to innovation as an idea of something that has not been done before, such as ideas on a new product.

> But to me, innovation isn’t necessarily an idea. For example, the iPod was an innovative product, even though mp3 players already existed. Those guys at Apple were the ones to put it together to a consumer friendly product. And that’s when it becomes interesting to talk about innovation (Espen, 2: 27.40).

If we look at innovation this way, as incremental changes and improvements, there might be innovation even in the feedback that users regularly provide to Opera. In fact, all the interaction and cooperation we see between Opera and the users could also be understood as incremental innovations. Espen’s claim is that Opera does not have a strategy for drawing on

the users of Opera in order to innovate. “Innovation is not the overall goal in what we do here. It is more like a result that might occur because we have a very open community” (1: 12.13). Hence, the one example they could think of was the transparency innovation in Z1-AV69’s skin. As we have seen, the development of this feature can be said to have been a co-operation between the organization and the user, only that this time it was the user doing the creative and the development part. Just as when Opera develops a feature, this user posted it on the community and other users provided the feedback necessary to make it a full functioning feature. The further programming happened through cooperation between the user and the employees in Opera. Leadbeater argue that organizations with a network of skilled and engaged users to draw on would often experience that good ides can come out of the community as well, in that they can provide rapid feedback on whether a new service will work. When the link between the organization and the community is tighter, innovation should be less fraught (Leadbeater, 2009, p. 102-103). Good ideas do not necessarily have to be new and radical in order to bring on improvements in the technology.

5.2 Challenges concerning the involvement of users in innovation

Alam emphasizes the importance of involving users at an early stage of product development. This brings up issues of confidentiality, and the selection of users should be made carefully (Alam, 2005, p. 468). The confidentiality issue regarding involvement of users at an early stage of product development relates to an innovation process where the product designers are initiating the innovation, and the user is a user organization. The user organization can contribute further with ideas and suggestions, including their wishes and needs as users, in relation to this initiative. When individual users connected to Opera suggest something they would like to be part of Opera’s technology, the situation might become different, as Opera is a semi-open source technology developer, and users do not directly buy their products; the products are freely distributed throughout the Internet. But when it comes to innovations that

Opera is initiating, they too are also careful when it comes to launching their ideas to their users in the community. However, they are offering the users to contribute with feedback and maybe help on certain issues within the technology development, and they do cooperate this way to a certain extent. Von Hippel also sees confidentiality issues as critical in such processes, yet he claims that bringing user input into innovation can be to mutual benefit. He quotes Raymond in that "users who freely reveal what they have done often find that others then improve or suggest improvements to the innovation, to mutual benefit" (Raymond in von Hippel, 2005, p. 10).

So where should the boundary be drawn between users and organizations when it comes to innovations? Anthony W. Ulwick argues that the user's role should be restricted to defining problems or needs, not to contribute with solutions. "Customers should not be trusted to come up with solutions; they aren't the expert or informed enough for that part of the innovation process". This means that users can participate with input, but never innovation. The challenge for the organization is then to make use of this input, and turn input into innovation, according to Ulwick (2002, p. 92). The reason for this restriction of user roles lies in that users are not trained; they only know what they have experienced. Ulwick claims that users could only suggest what they have already seen others do, for example competitors, because they are not skilled to look into the future of technologies. He argues, like Woolgar, that users do not know what they want (Ulwick, 2002, p. 93). In this lies, as explained by Magnusson et al, that even though users may suggest something that they would like, it is not the same as saying that they would actually buy or use that product once it actually arrives on the market. User needs change, and technology development means time-craving processes; being ahead of the masses when innovating is critical (Magnusson et al, 2003, p. 113).

One more issue in relation to user interaction is, according to Ulwick, that "lead users can offer product ideas, but since they are not average users, the products that spring from their

recommendations may have limited appeal" (Ulwick 2002, 93). This may be an issue in the Opera community, as we have seen for example in the very technical suggestions and wishes from the skilled Opera users. If Opera was to listen to users who are the most engaged in blogs and forums, their technology might become too 'geeky' or technically focused. In the same time, many of the skilled users in for example MyOpera are focusing on areas such as design and usability. As we have seen earlier, there is not merely one type of technically skilled users in the community around Opera.

My argument is that the availability and popularity of social media tools opens up to the participation and knowledge of users as individuals to a larger extent than earlier. The idea of user as another firm or as an individual need not be too different in concept. The idea is to get various perspectives and an objective view, including the possibility to open up to ideas and suggestions from someone else outside the internal resources of the producing organization.

6. Summary and discussion

Users in MyOpera can be creative and communicate through the community. The community moderators often engage them in contests where they can create a product, for example a design or an application. This, in addition to small surveys that they place on the front page of MyOpera, helps mapping the potential and information about the users that exists in the community. This could lead to more cooperation in developing and improving Opera's technology. Everything the users contribute to the community is voluntary from the user's side. They contribute by writing a blog to help less skilled users to use various features, or users informing each other about what is possible and not, and what might happen in the future. They truly seem to lighten quite a lot of burden from employees in Opera when it comes to many types of knowledge sharing. Users are also cooperating with each other when it comes to knowledge sharing and helping each other on more or less specific things, mostly on issues concerning Opera's technology. This might help Opera in crystallizing the lead users in the community. This also becomes clear by Opera awarding one user in MyOpera every week as 'Member of the Week'. This helps promoting the lead users who possess useful skills and knowledge out to the rest of the community.

One of the positive, yet challenging, aspects of MyOpera is the way it has become more like a social media arena, from previously being a technical forum. This might attract users that in other ways would not have a reason to join. It is not supposed to be merely focused on technology development. The MyOpera community functions in many ways like a place where all kinds of people can meet and share anything of their interest. Then again, a lot of technical users use features like blogs and forums to provide suggestions and feedback to Opera. Is the heavy socialization aspect a factor for the quality of knowledge overall offered by the community? Or could it have been just as good if it was a community based strictly on

improving Opera's technology? The socialization aspects are motivators for all kinds of people to participate in sharing and communicating in the community. In some ways this might affect the quality of feedback. It is possible that the popularity leads to an information overload, where the content that is really useful and interesting for Opera drowns in a sea of people's hobbies and personal lives. In another way, it can lead to more feedback, maybe of a kind that is potentially more representative of users in the 'outside world', because there would also be many other types of users joining the interactions in the community. Thus, we might say that the designers' idea of users can improve as a consequence of the heterogeneous mix of users actively involved in the MyOpera community. Maybe more types of users will have and seize the possibility to give feedback and suggestions than if it had been a mere technical community. In turn, this could potentially move the boundaries between users and organization, because of the way it opens up to new users and more informal sharing and communication. The way that MyOpera includes all kinds of users reflects and might also support Opera's vision of being a browser for everybody.

Von Hippel argues that users would innovate and develop products themselves because it is more effective and would give the user exactly what she wants (2005, p. 2). Does this not make users developers, manufacturers and designers? To which extent is this accurate of society today? What we have seen in the Opera case is that that the user's role is somewhat restricted to the idea making, improving, and complementing the designers or manufacturers of product. Focusing on the users can make a good resource for organizations, in that it creates better representations of users. Through testing and feedback they can also be co-developers of a product. A product that is developed solely of one user will usually, as von Hippel also claims, lead to this user being the only one to whom this product fits perfectly.

This relates to Oudshoorn's theory about the I-methodology. Designers of products would often use the I-methodology when developing a product, in which they design out of their

own projection of how a product should be, and how they want it to be. Whether the users agree on this and buys or starts to use this product depends on how successful the I-methodology is, or in other words, how representative the designer is compared with potential user groups. The moderators claim that they identify themselves with the users. One important point to make here is that users of a product are not pre-determined. They become users when they chose to make use of a product, usually out of their own interests and needs. We have seen that 'the user' now includes several types of users, and a large part of them are users who participate in MyOpera without necessarily being technically skilled. This appears to be a result of MyOpera offering more services that more types of users are interested in.

Espen claims that almost no matter what the users suggest or come up with, someone in the organization have already come up with that. They have very good own innovation people, but does that mean they do not need their users' ideas? Yet, he also describes how one of their users developed a function to the browser that they did not have and that they later implemented after the user published it. In the example with the Z1-Glass skin, the innovation was not only the idea (which the user also claims that he had in advance), but also the development that made it possible for a skin to be transparent on a desktop browser. The user found out how, and developed, designed, and published it on his blog in the community. Hence, we might say that Opera occasionally include users in innovation, but they do not have a strategy or method for it. In a way Akrich's theory of moving between the designers and the community is more illustrating of these situations. Opera cooperates with their users in the development of technology to a certain extent. As we have seen, Opera does use a lot of resources on reading the users' blogs, comments and feedback, as well as engage in interactions with them on a daily basis. Thus, in some ways Opera see the need to encourage input from their users. Akrich argues that the inclusion of users help the technology to move closer to what their supposed functions are, in other words that the relationship between

supply and demand can be improved. Leadbeater makes a similar argument in that user-centered innovation helps closing the gap between designer's ideas of what the user wants and what the users actually want. These processes does not necessarily mean that Opera should include users in all levels of technology development, or that they should come up with ideas for radical innovations.

On the other hand, if we look at innovation as incremental improvements and changes to the technology, the situation seems a bit different. Then, we can argue that a lot of the feedback and interactions between the users and Opera lead to innovation. When users and developers are co-constructed, both sides become central for the outcome of technology development. When we see technology development as a network of heterogeneous networks, as in the ANT approach, all the different actors both on the user side and the employee side have their own interpretations of technology. Each of the actors can contribute with their own knowledge. Through the use of social media the voice of various users can be heard, if the more powerful actors open up to it. The effect of this cooperation may be incremental innovations, and potentially more radical innovations.

According to Leadbeater, lead users should be more able to innovate through the use of social media. This might mean that lead users of Opera too should be able to innovate, even more now that the connection between users and the organization is increasing through the use of MyOpera and other channels. On the other hand, this type of innovation relies on the company to open up for the user's ideas and suggestions, and their incentives for doing so.

7. Conclusion

In this paper I have studied how Opera makes use of social media. I showed how they created their own community, MyOpera, and the way this helped in tightening the relations between user and organization. Through the use of this community and other social media arenas, Opera has developed an information infrastructure over time that includes users and social media in more areas than before. Since the community functions the same way as other social media arena users are encouraged to create, share and communicate with each other. I presented the argument that the way the community makes use of these types of social media elements helps to spread the community further and include users that would not otherwise be interested in joining a community that is strictly there to discuss and develop software technology.

Part of my research objective has been to investigate whether Opera includes users in innovation, and in what ways. Are they willing to open up to user-centered innovation? I went into this thinking that I will probably show an example of a front-runner company within the usage of social media for sharing knowledge and enhance development of the technology. I found it interesting to look at why and how they use so many resources on this, and presumed that they must have a strategy on this that involved user-centered innovation, but I have seen that this is not necessarily the case. The moderators claim that they do not have a strategy for innovation through the community, yet there are some examples that could show that there is a foundation for it, especially if we regard the interactions and cooperation as parts of incremental innovations. They have 5,5 million users in their own online community that they communicate with on a daily basis. They have employees hired to moderate this community, and the infrastructure is there to create dialogues and cooperation through the use of various social media. One of the arguments why they have not opened up for it more up until now is

that they have innovators in an own department in the organization, and that these are ahead of the regular user regarding technological progress etc. The consequence is that almost everything the users suggest is something that they have already thought of and considered. Does this mean that there is no point to including users in innovation in this organization?

Leadbeater brings up the point that innovators rarely work alone (2009, p. 102). They come together in communities to share. Thus, what is new in the community case is not that people can cooperate to innovate; it is the way that social media enters the society at all levels and opens up for anyone to share anything, anytime. This could lead to a changing of boundaries between designers and users, in that the users become co-designers (Mackay, 2000). This development is dependent on whether the organizations are actually willing to adapt to this change, and to include users in their development, also with a possibility to innovate.

The co-construction we see of users and organization might lead to a more complex idea of the user from Opera's viewpoint. Through new communication channels and Opera's thorough way of using these, we might say that the users they encounter here are the best and most representative users. Thus, it can be relevant to argue that the result is a somewhat enhanced user representation. The users are not one entity, they are of multiple various identities, and are also always changing in the way that someone stops being a user of the technology, while others start. They are not constantly the same array of user types. The way the technologies develop might determine whether users continue to be users, and whether potential new users will become users. While on the contrary, the feedback and contributions of the various existing users may also shape the organization's idea of the users, and also the way that the technology takes form. These tight relations between organizations and users might thus reduce the gap between how the technology is and what the users want.

I have shown examples of processes implying that users could have been involved in innovation to a greater extent, and I have also shown that the infrastructure and foundation for it in many ways are already there. But the difference between user feedback and innovation is that the first is easier to implement in the organization. I have opened up to the understanding of innovation meaning more than ideas to new products. Some of the types of feedback and suggestions that Opera choose to implement in their technologies might also be incremental innovations. I would need even more investigation into various types of innovation in order to say something about the extent of incremental used-centered innovation that takes place in Opera today. It would also be interesting to find out more about how the social aspect of MyOpera, with more types of users, would influence the potential for user-centered innovation. But for now, my conclusion on the basis of my empirical material is that the users and producers of Opera's technology are co-constructed, and that the way MyOpera functions like a social media arena opens up to new user types, and possibly enhanced user representations. The information infrastructure that exists between the organization and the user today also has the possibility to open up to a larger amount of innovation than what we are seeing today.

References

Akrich, M. (1992): "The De-Scription of Technical Objects", in Bijker, W. E. and Law, J. (Eds.).: *Shaping Technology/Building Society*. MIT Press.

Alam, I. (2005): "Removing the fuzziness from the fuzzy front-end of service innovations through customer interactions", in *Industrial Marketing Management* (pp. 468-480). Elsevier Inc.

Asdal, K., B. Brenna, I. Moser (2007): "Introduction", in Asdal, K., B. Brenna, I. Moser (Eds.): *Technoscience – The Politics of Interventions*. Oslo: Unipub.

Bowker, C. G. and S. L. Star (1999): "Some tricks in the trade of analyzing classification", in Bowker, C. G. and S. L. Star: *Sorting Things Out. Classifications and Its Consequences*. MIT Press

Bruun Jensen, C. (2004): "Researching Partially Existing Objects"

Callon, M. (2007): "Actor-Networ Theory – The Market Test", in Asdal, K., B. Brenna, I. Moser (Eds.): *Technoscience – The Politics of Interventions*. Oslo: Unipub.

Haraway, D. (1991) "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century" in *Simians, Cyborgs and Women: The Reinvention of Nature*. New York: Routhledge. (pp. 149-181)

Henriksen, D. L. (2002): "Locating virtual field sites", in *Scandinavian Journal of Information Systems* (pp. 31-45).

Hine, C. (2007): "Multi-sited ethnography as a middle range methodology for contemporary STS"

Hippel, E. von (2005): “Democratizing Innovation”. London: MIT Press.

Jeppesen, L. B. and Molin, M. J. (2003): “Consumers as Co-developers: Learning and Innovation Outside the Firm”, in *Technology Analysis & Strategic Management*. Carfax Publishing.

Knorr-Cetina, K. (1995): “Laboratory Studies: The Cultural Approach to the Study of Science”, in *Handbook of science and technology studies*. Sage Publications Ltd.

Latour, B. (1999): “A Collective of Humans and Nonhumans”, in *Pandora’s Hope* (pp. 174-215). London: Harvard University Press.

Latour, B. and Woolgar, S. (1986): “Postscript to Second Edition”, in *Laboratory Life. The Construction of Scientific Facts, Second Edition*. (pp. 273-286). Princeton University Press.

Law, J. (1992): “Notes on the Theory of the Actor-Network: Ordering, Strategy, and Heterogeneity”, in *Systems Practice*, vol. 5. (pp. 379-393). Plenum Publishing Corporation.

Leadbeater, C. (2009): “We-Think: Mass innovation, not mass production”. London: Profile Books.

Mackay, H., C. Carne, P. Beynon-Davies, D. Tudhope (2000): “Reconfiguring the user”, in *Social Studies of Science* (pp. 737-757). London: Sage Publications.

Magnusson, P. R., J. Matthing, P. Kristensson (2003): “Managing User Involvement in Service Innovations: Experimenting with Innovative End Users”, in *Journal of Service Research*, vol. 6. (pp. 111-124). Sage Publications.

Marcus, G. E. (1995): “Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography”

Oudshoorn, N., E. Rommes, M. Stienstra (2004): "Configuring the user as everybody: Gender and Design Cultures in information and communication technologies", in *Science, Technology, & Human Values*. (pp. 30-63). London: Sage Publications.

Oudshoorn, N. and T. J. Pinch (2005): "Introduction: How Users and Non-Users Matter", in Oudshoorn, N. and T. J. Pinch (Eds.) *How users matter. The co-construction of users and technologies*. MIT Press.

Punch, K. (2005): "Introduction to Social Research". London: Sage Publications.

Shirky, C. (2008): "Here Comes Everybody". London: Penguin Books.

Smith, M. R. (1998): "Technological Determinism in American Culture", in Smith, M. R. & Marx, L. (Eds.), *Does Technology Drive History? The Dilemma of Technological Determinism*. (pp. 1-35). MIT Press.

Star, S. L. & Bowker, G. C (2002): "How To Infrastructure" in L.A. Lievrouw and S.L. Livingston (Eds), *The Handbook of New Media*. SAGE Publications

Ulwick, A. W. (2002): "Turn Customer Input into Innovation", in *Harvard Business Review*, vol. 1 (pp. 91-97).

Woolgar, S. (1991): "Configuring the User: The Case of Usability Trials", in Law, J.: *A Sociology of Monsters. Essays on Power*. Routhledge.

Electronic Sources

URL 1: MyOpera. Available at: http://www.my.opera.com (Accessed: October 1st, 2010)

URL 2: Opera. Company information. Available at: http://www.opera.com/company (Accessed: October 1st, 2010)

URL 3: Opera. State of the Mobile Web November 2009. Available at: http://www.opera.com/smw/2009/11/ (Accessed: October 1st, 2010)

URL 4: Wikipedia. Developing country. Available at: http://en.wikipedia.org/wiki/Developing_country (Accessed: October 1st, 2010)

URL 5: Opera. Report: State of the Mobile Web April 2010. Available at: http://www.opera.com/smw/2010/04/ (Accessed: October 1st, 2010)

URL 6: Opera. Report: State of the Mobile Web May 2010. Available at: http://www.opera.com/smw/2010/05/ (Accessed: October 1st, 2010)

URL 7: Opera. Fast facts. Available at: http://www.opera.com/press/facts/ (Accessed: October 1st, 2010)

URL 8: Opera. History. Available at: http://www.opera.com/docs/history/ (Accessed: October 1st, 2010)

URL 9: Serving you community news since 2005. (2010) Available at: http://my.opera.com/community/blog/2010/05/11/serving-you-community-news-since-2005 (Accessed: October 1st, 2010)

URL 10: Mayfield, Ryan (2008). (E-book) *What is social media?* Available at: http://www.iCrossing.com/ebooks (Accessed: October 1st, 2010)

Appendix 1: Field notes

All hyperlinks accessed October 1st, 2010

Field notes 1: On Opera Turbo (May 3)

http://my.opera.com/chooseopera/blog/2009/03/13/please-welcome-opera-turbo

Field notes 2: dW article on version 10.5 release (May 3)

http://log.dustinwilson.com/archives/2010/05/02/Ten_Dot_Five/

Field notes 3: User Sami Serola on how innovative end users can be (May 3)

http://my.opera.com/opera.mini/blog/2009/11/16/view-pdfs-as-html-in-opera-mini

Field notes 4: Users loving Opera Mini on YouTube (May 3)

http://www.youtube.com/watch?v=FtCQu8ZSDYM

Field notes 5: Opera Mini finally on iPhone, article by Opera Mini blog (May 3)

http://my.opera.com/operamini/blog/2010/04/29/make-the-most-of-opera-mini-on-your-iphone

Fields notes 6: Opera ad from Malaysia explaining Opera Mini (May 3)

http://www.youtube.com/user/operasoftware#p/u/56/h4USPbO4Uv0

Field notes 7: Opera wins award for social media and community outreach (May 3)

http://my.opera.com/ketoyo/blog/2010/05/01/photos-from-the-golden-tag-gulltaggen-2010

Field notes 8: Info on Opera emphasizing MyOpera and social media (May 3)

http://www.gulltaggen.no/vinnere/2010#45753

Field notes 9: Guy Kawasaki visits Opera HQ (May 3) http://holykaw.alltop.com/photos-from-my-visit-to-opera-oslo-norway

Field notes 10: Discussion in Forum on Opera vs Safari innovations (May 6)

http://my.opera.com/community/forums/topic.dml?id=267815

Field notes 11: Opera is fastest browser (May 6)

http://www.computerworld.com/s/article/9156878/Opera_10.5_grabs_browser_speed_crown

Field notes 12: On which phones people use for Opera Mini (May 12)

http://my.opera.com/ODIN/blog/mobile-web-phones

Field notes 13: Espen asking users for tips on cool stuff (May 12)

http://my.opera.com/community/forums/topic.dml?id=565991

Field notes 14: Serving you community news since 2005 (May 22)

http://my.opera.com/community/blog/2010/05/11/serving-you-community-news-since-2005

Field notes 15: Header contest at MyOpera, involving users in design contest (May 22)

http://my.opera.com/chooseopera/blog/2010/05/18/choose-opera-blog-header-contest-winner

Field notes 16: Example of support in the forum (May 22)

http://my.opera.com/community/forums/topic.dml?id=580322&t=1276515002&page=1

Field notes 17: Z1-AV69's skins (May 22)

http://my.opera.com/community/customize/skins/info/?id=9281

Field notes 18: Z1-Glass page (May 22)

http://my.opera.com/community/customize/skins/info/?id=9281

Field notes 19: Serola, a very active and collaborative Opera user (May 31)

http://my.opera.com/serola/about/

Field notes 20: A girl blog on anything (mistressevil) (May 31)

http://my.opera.com/missevilat/blog/

Field notes 21: An Opera developer's personal blog, showing 'disclaimer' (May 31) http://my.opera.com/NoteMe/blog/

Field notes 22: An Opera designer's personal blog (Oleg) (May 31) http://my.opera.com/melnichuck/blog/

Field notes 23: Example on how users contribute in contests, header contest (May 31) http://my.opera.com/nanobarker/albums/show.dml?id=3170181

Field notes 24: A photo blog (July 12) http://my.opera.com/renacor/albums/

Field notes 25: A technical blog (July 12) http://my.opera.com/decodedthought/blog/

Field notes 26: Tamil has 112 414 forum posts (July 12) http://my.opera.com/Tamil/about/

Field notes 27: A suggestion that leads to a good discussion (July 12) http://my.opera.com/community/forums/topic.dml?id=648352

Field notes 28: The release of Opera 10.60 July 1st (July 12) http://my.opera.com/ODIN/blog/hello-opera-10-60

Field notes 29: Tamil explains how to get Google search suggestions in Opera, because it is not normally possible (July 12) http://my.opera.com/Tamil/blog/google-search-suggestions-in-opera

Field notes 30: Opera news presents thoroughly a coming version of MyOpera (July 12) http://my.opera.com/community/blog/2010/07/07/a-new-my-opera?startidx=100

Field notes 31: User suggestion in forums (July 12) http://my.opera.com/community/forums/topic.dml?id=157905&t=1278967178&page=1#comment1734383

Field notes 32: User suggestion in forums (July 12)
http://my.opera.com/community/forums/topic.dml?id=157905&t=1278967342&page=1#comment1750210

Field notes 33: User suggestion in forums (July 12)
http://my.opera.com/community/forums/topic.dml?id=203510&t=1278968371&page=3#comment6055162

Field notes 34: Opera's vision (July 12) http://www.opera.com/company/vision/

Field notes 35: Espen's blog in MyOpera (July 12) http://my.opera.com/EspenAO/blog/

Field notes 36: User made a list of wishes (July 19)
http://my.opera.com/rafaelluik/blog/opera-wishes

Field notes 37: Opera reaches 4,5 million users April 27 (July 19)
http://my.opera.com/community/blog/2010/04/28/4-5-million-members

Field notes 38: Opera reaches 5 million users July 19 (July 19)
http://my.opera.com/community/blog/2010/07/19/5-million-members

Field notes 39: The Opera Mini blog (July 19) http://my.opera.com/operamini/blog/

Field notes 40: iPhone release, explanations and tips (July 19)
http://my.opera.com/operamini/blog/2010/04/29/make-the-most-of-opera-mini-on-your-iphone

Field notes 41: User suggested new layout for the iPhone app (July 26)
http://my.opera.com/alexZemcov/about/

Field notes 42: The suggestion from alexZemcov (July 26) http://my.opera.com/community/forums/topic.dml?id=521381&t=1285154747&page=1#comment5100791

Field notes 43: User suggested many things for iPhone app (July 26) http://my.opera.com/Menneisyys/about/

Field notes 44: Menneisyys has many opinions on Opera Mini for iPhone (July 26) http://my.opera.com/community/forums/topic.dml?id=521381&t=1285154941&page=1#comment5100961

Field notes 45: Big discussion on an employee's personal blog (July 26) http://my.opera.com/hallvors/blog/2010/07/20/postmessage-s-targetorigin-and-security

Field notes 46: Tamil's technical blog post (July 26) http://my.opera.com/Tamil/blog/opera-launcher

Field notes 47: How Espen developed MyOpera further with feedback from users (July 26) http://my.opera.com/EspenAO/blog/2009/09/16/working-on-the-new-my-opera-and-want-your-feedback

Field notes 48: Espen's screen shot of Speed Dial (July 26) http://my.opera.com/EspenAO/blog/2009/07/03/speed-dial-native-mac-ui

Field notes 49: DrLaunch promotes "Opera Link" in a blog post (July 26) http://my.opera.com/drlaunch/blog/2010/03/24/social-opera-bookmarks

Field notes 50: Tamil's Opera Wish List - he ticks them off when they are implemented (July 26) http://my.opera.com/Tamil/blog/opera-wishes

Field notes 51: Danny as Member of the Week (July 26)

http://my.opera.com/community/blog/2009/10/30/member-of-the-week

Field notes 52: Z1-AV69 as Member of the Week (July 26)

http://my.opera.com/community/blog/2010/01/29/member-of-the-week

Field notes 53: Tech article on Opera Mini for iPhone release (July 26)

http://www.iphonelife.com/blog/5/new-free-iphone-browser-opera-mini-downloaded-over-1-million-times-first-day-app-store

Field notes 54: Tech review of Opera Mini for iPhone (July 26)

http://www.iphonelife.com/blog/87/review-great-free-web-browser-opera-mini-out-—-it-rocks-demo-videos

Field notes 55: Community blog presenting member of the week (July 31)

http://my.opera.com/community/blog

Field notes 56: Pios suggests a design change in the forum (July 31)

http://my.opera.com/community/forums/topic.dml?id=670402

Field notes 57: Behind the scenes blog at MyOpera (July 31)

http://my.opera.com/devblog/blog/

Field notes 58: Dustin shows and explains his skin (July 31)

http://log.dustinwilson.com/archives/2008/12/30/EntrActe_2/

Field notes 59: Previous blog before they centered everything at MyOpera (August 4)

http://operasoftware.livejournal.com/

Field notes 60: Where they explain their ‘methods of exchange’ (August 4)

http://www.opera.com/support/community/

Field notes 61: How to submit at bug report (August 4) http://www.opera.com/support/bugs/

Field notes 62: Ways of contacting Opera (August 4) http://www.opera.com/support/

Field notes 63: Choose Opera Japan (August 4) http://my.opera.com/chooseopera-Japan/blog/

Field notes 64: Opera's widgets site (August 4) http://widgets.opera.com

Field notes 65: Previous version of MyOpera, technology focused discussion forum (August 4) http://web.archive.org/web/20010929034837/http://my.opera.com/

Field notes 66: The choose Opera blog with overview of Opera's accounts in the various social media arenas (August 4) http://my.opera.com/chooseopera/blog/

Opera on Twitter http://twitter.com/opera

Opera on Facebook http://www.facebook.com/Opera

Opera on YouTube http://www.youtube.com/operasoftware

Opera on Flickr http://www.flickr.com/photos/chooseopera/

Opera on Last.fm http://www.last.fm/group/Opera

Opera on LiveJournal http://community.livejournal.com/opera_browser

Opera on MySpace http://www.myspace.com/chooseopera

Field notes 67: The bug report wizard (August 8) https://bugs.opera.com/wizard/

Field notes 68: Z1-AV69 posts screenshot of his skin in forum (August 13) http://my.opera.com/community/forums/topic.dml?id=67529&t=1285594351&page=29#comment3757911

Field notes 69: Z1-Glass the top promoted (August 13)

http://my.opera.com/community/customize/skins/?show=rec

Field notes 70: Z1-Glass the best ranked (August 13)

http://my.opera.com/community/customize/skins/?show=rate

Field notes 71: Overview of the forum (August 13) http://my.opera.com/community/forums/

Field notes 72: Z1-AV69 and Petter Nilsen cooperates on skin (August 13)

http://my.opera.com/Z1-AV69/blog/2010/02/13/transparent-speeddial-in-evenes-standard-skin

Field notes 73: Z1-AV69's blog (August 13) http://my.opera.com/Z1-AV69/blog/

Field notes 74: Z1-AV69's first posts of and discussion around the Glass skin (August 13)

http://my.opera.com/community/forums/topic.dml?id=67529&t=1281724520&page=29#comment3778521

Field notes 75: Members locations (August 13)

http://my.opera.com/community/members/location/

Field notes 76: Opera for cognitive disabilities (August 13)

http://dev.opera.com/articles/view/cognitive-disability-learning-difficulty/

Field notes 77: How Opera was before (August 13)

http://my.opera.com/community/forums/topic.dml?id=67529

Field notes 78: The list of employee and team blogs (August 13)

http://my.opera.com/chooseopera/blog/opera-employee-blogs

Field notes 79: Indian woman presenting Indian fashion (August 20)

http://my.opera.com/samiyakiran/blog/

Field notes 80: Pfelelep's sketch blog (August 20) http://my.opera.com/pfelelep/blog/

Field notes 81: Increasing rates 2006-2010 (August 20)

http://my.opera.com/community/forums/topic.dml?id=109597

Field notes 82: A group of users' blog on 365 photos, one photo every day (August 21)

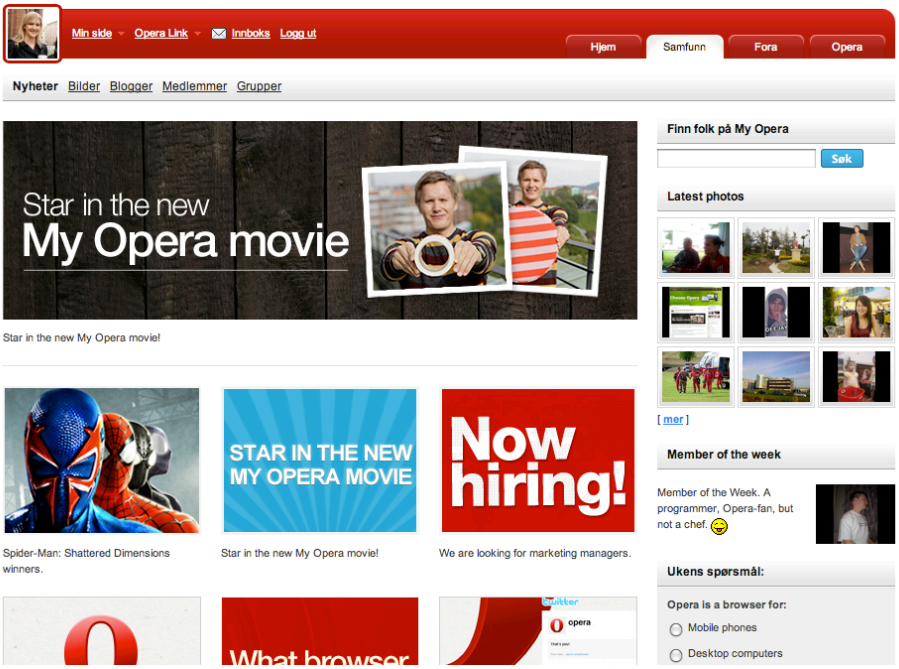
http://my.opera.com/365/blog/

Field notes 83: Example of social blog by a user (August 21) http://my.opera.com/gdare/blog/

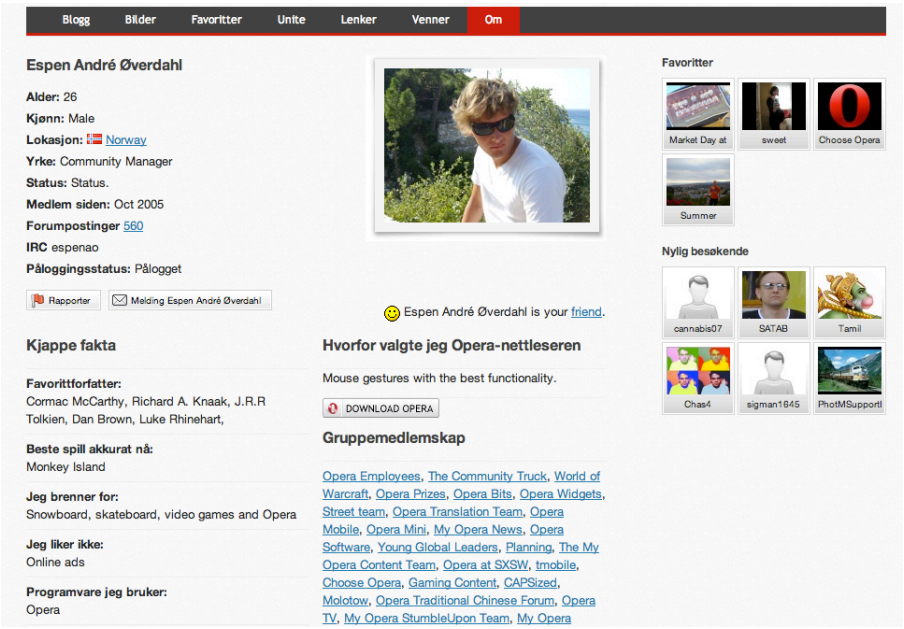
Appendix 2: Illustrations

Illustration 1: The MyOpera community

1.1 The 'community' site:



1.2 The 'profile' site:



1.3 The 'forum' site:

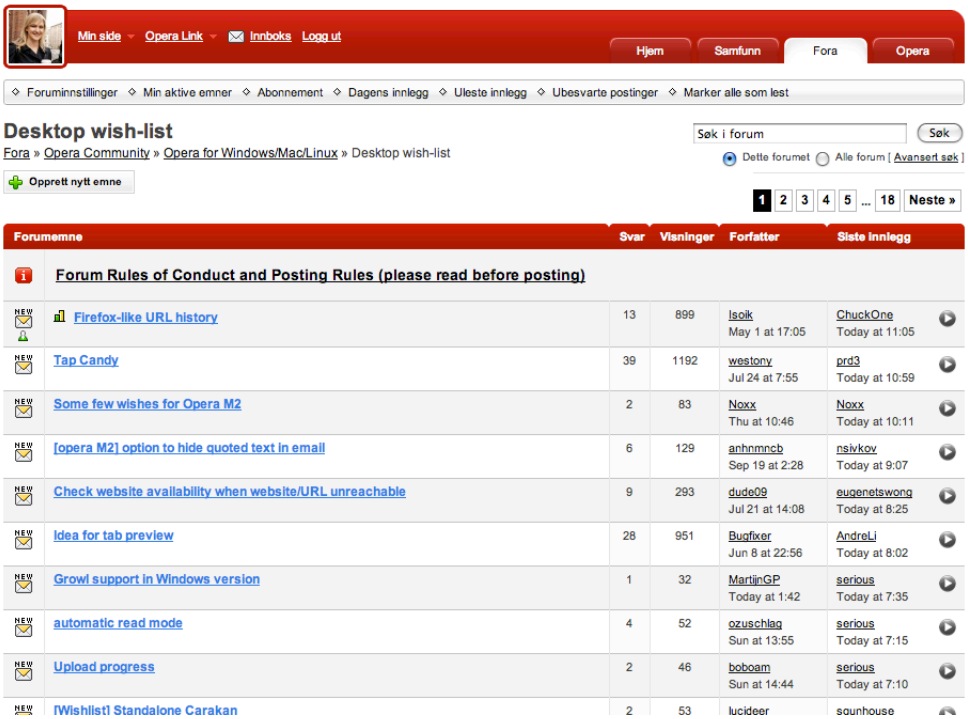


Illustration 2: Release candidate of Opera 10.60 announcement on Twitter

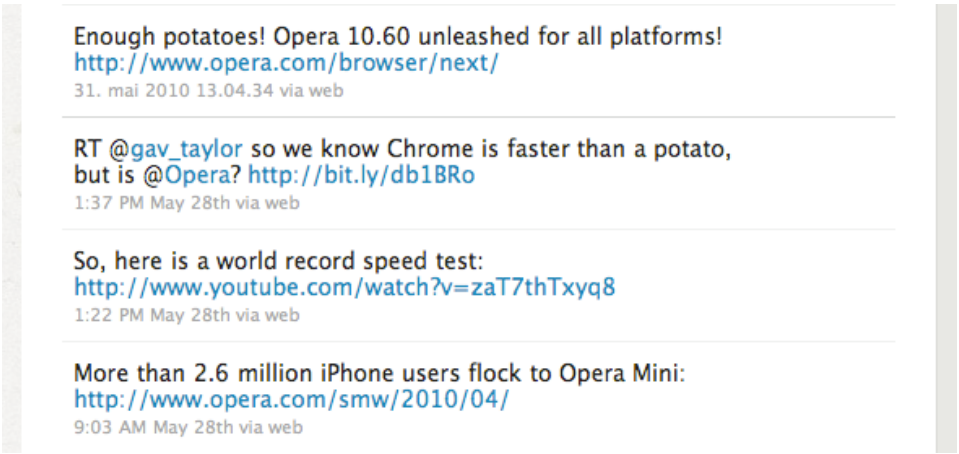
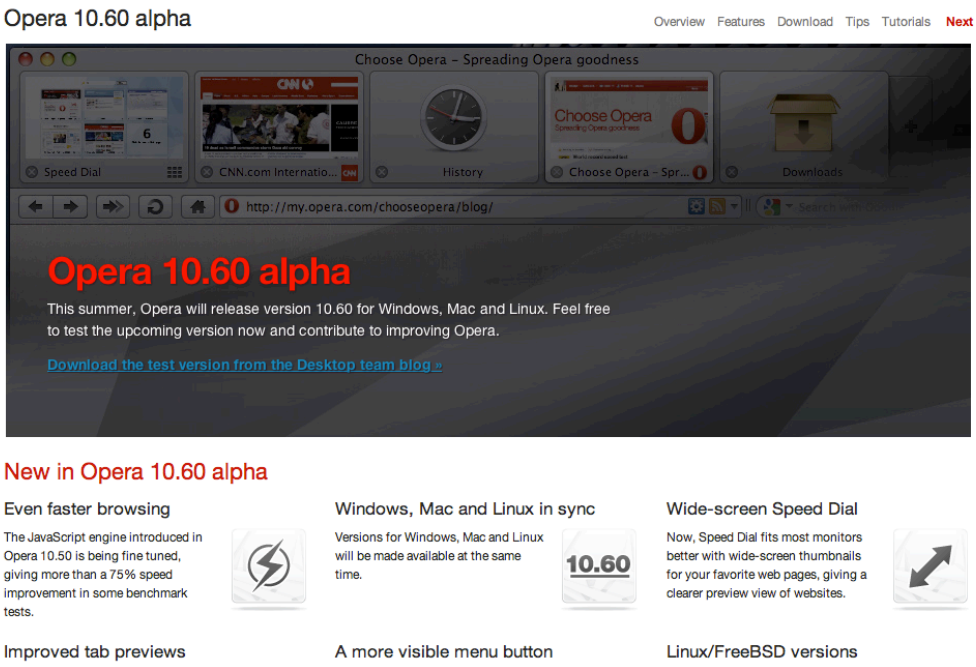


Illustration 3: Alpha version of Opera 10.60 open for testing

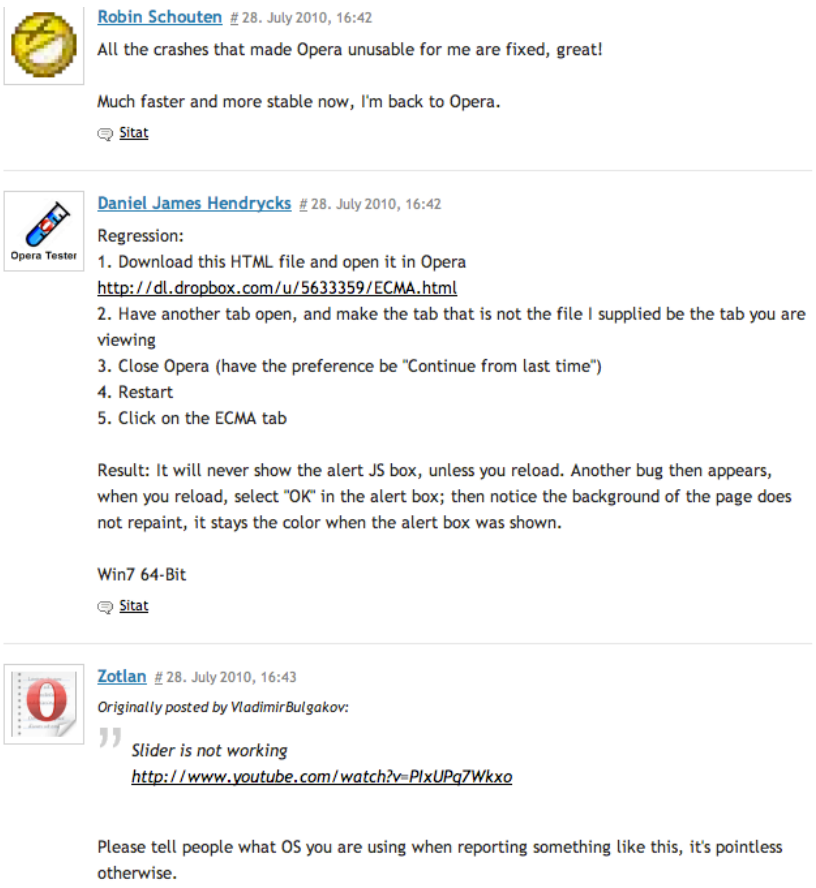
3.1 Announcement on opera.com



3.2 Announcement on Facebook:

Illustration 4: User-to-user support

4.1 In MyOpera blog post comments:



4.2 In Opera's Facebook page:

Illustration 5:

Illustration 6:

3 comments at the same time.

Sitat

Artur „Jurgi" Jurgawka # 20. August 2010, 09:59

Got for it! Ehm, I mean:

Sitat

Aleksander Aas # 20. August 2010, 09:59

Originally posted by Tamil:

Sitat

Artur „Jurgi" Jurgawka # 20. August 2010, 10:02

Another two at the same time.

Sitat

vlrGE # 20. August 2010, 10:09

aww im not at home

Sitat

Alexis # 20. August 2010, 10:15

Will the best blogger get an Opera pan?

Sitat

Illustration 7:

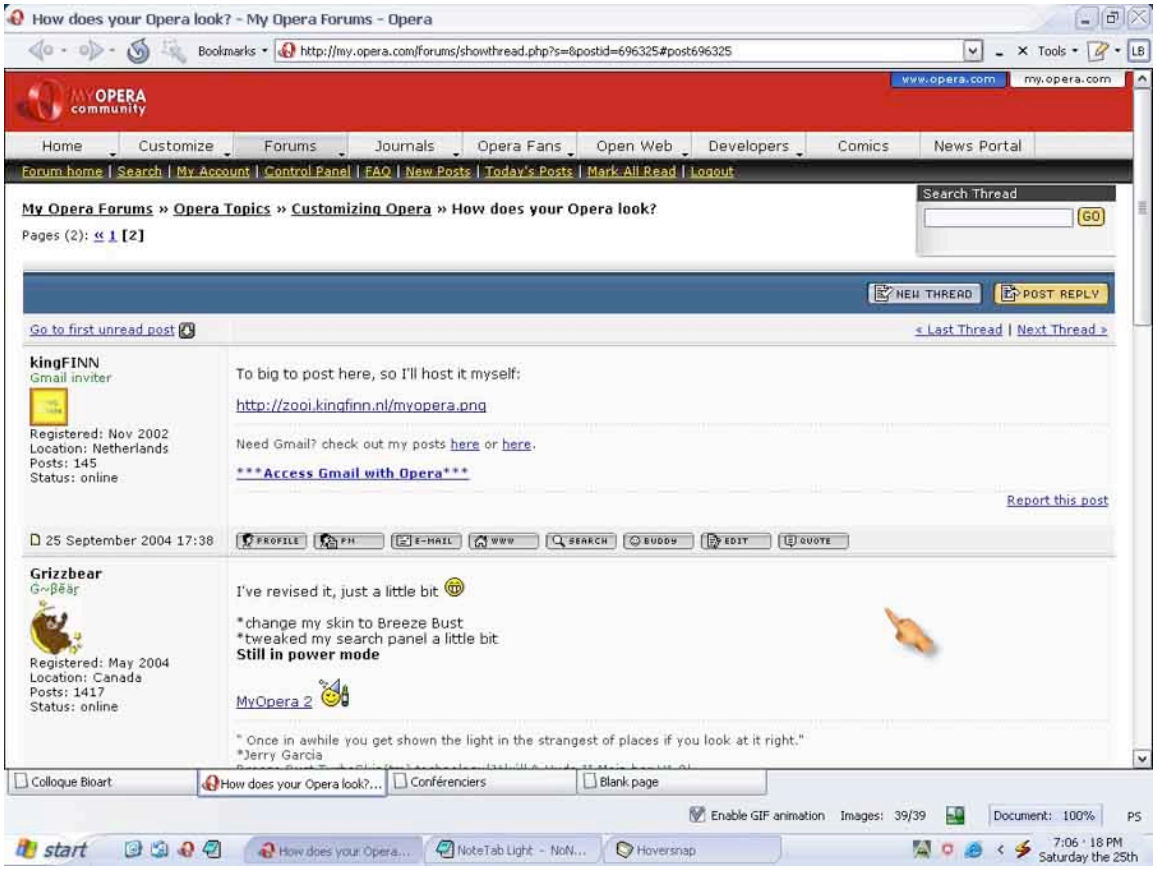


Illustration 8:

Z1-AV69 # 18. March 2010, 14:31

It's not possible to avoid that with the MDI Windows.

Sitat

Steve Kyle # 24. March 2010, 21:06

Who gives a shit if the stripes are there ?))

I never felt so much happy than now with this glass skin on my Win 7 Pro. I always wanted and look for this kind of skins for centuries ; now my dream is fulfilled . Thks for the skin , it's above awesome :X Cheers

Sitat

Anonym # 16. April 2010, 19:30

Skipper writes: This doesnt work with my build and win 7 x64: Version 10.51 Build 3315 Platform Win32 System Windows NT 6.1

Sitat