



LUND UNIVERSITY
School of Economics and Management

Master Thesis in

Managing People, Knowledge and Change

June 2010

Membership in a complex online project organization

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Experiences of co-creation at Mozilla

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Abstract

- Title:** Membership in a complex online project organization. *Experiences of co-creation at Mozilla*
- Seminar Date:** 4th of June 2010
- Course:** BUSM18 Degree Project within the Master Program “Managing People, Knowledge and Change” (15 ECTS)
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- Keywords:** Co-creation, volunteering, organizational roles, responsibilities, boundaries and membership, complex online project.
- Purpose:** We aim to reinforce the importance of more qualitative empirical studies researching the particularities of co-creation efforts, in the context of new, ambiguous mutations of work and organization generated by internet technologies. While answering our research question we will look into personal accounts referring to the individual’s experience of volunteering for Mozilla, and we will contribute to the critical questioning and understanding of what lies behind the decision to enroll in a co-creation project.
- Methodology:** Within an interpretive epistemological approach, based on hermeneutics and critical theory, we are inspired by the qualitative method called “netnography”. We use internet both as a research tool as well as a research site in our abductive research.
- Theoretical perspectives:** We draw on relevant literature on co-creation, organizational boundaries, roles, responsibilities and membership.
- Empirical Foundation:** Our data consists in: transcribed interviews with five mozillians, located online at Mozilla Digital Memory Bank; blog posts of the respective interviewees, over several years relevant to our research; online content of official Mozilla websites and other relevant sources.
- Conclusion:** Supported by our findings, we argue that the euphoric collaborative discourse around co-creation and Mozilla is not corrupt, but exaggerate. Co-creation is substantially supported by individual priorities and is not always a pleasant experience. However, considering how it demands reflection upon organizational aspects, the concept co-creation has the potential of pushing the way of thinking within and about organizations, from a modernist approach towards a more processual, interpretive view.

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1. Introduction

It has been argued that we live in an “Information Age”, in a “Knowledge Society”, in a “Post-Industrial Era”. Whatever one might call it, one thing is clear: information and communication technology created new platforms for human interaction, shrank time and space and shifted values (Newell, et al. 2002). All the tangibles one needs are a computer and an internet connection and the intangible universe of accessing, sharing, participating, actively shaping and creating the Web opens up. This did not just change how people choose to spend their free time, playing games or watching an online episode of their favorite show, it affected business and society in an irrefutable way, still to be studied and understood.

1.1. Background

Not only does the Web make available enormous amounts of information and knowledge but it also provides support for group communication and for generation of user-content. Today, online presence means participating in an active way - may it be creating an avatar in an online game, commenting on a forum or tagging a photo. Being connected to an online social network is almost compulsory for offline existence as well: how many times did your friends make a Facebook event instead of calling and inviting you?

Undeniably, new technology destroyed most barriers for group action: people can communicate and collaborate easier and faster than ever before without the need of a formal institution to facilitate their activity (Shirky 2008). Arguably, this phenomenon has great implications for the organizational life, since it gives rise to new modes of production based on community, collaboration and self-organization (Tapscott and Williams 2008). Indeed, there are numerous examples of products resulted from (smaller or greater) contributions made by thousands of people, open source software being the most famous ones (like Linux, Apache or Firefox). But how about producing an encyclopedia (Wikipedia) or a movie (A Swarm of Angels¹)? Mass collaboration and co-creation became popular buzzwords and debated concepts. These phenomena would require adapted ways of thinking about work, organizations and market because they blur the boundaries between volunteering and paid work and between producer and

¹ A Swarm of Angels is an open source feature film, and participatory filmmaking community found at <http://aswarmofangels.com/>

consumer, while still producing value (Prahalad and Ramaswamy 2004, Tapscott and Williams 2008). The dynamics of co-production are an interesting growing research field and their particularities deserve the attention of both academics and practitioners interested in the future of the organizational world. Nevertheless, in academia this concept and related phenomenon should get the critical treatment they need. We are aware of the hype co-creation is surrounded by and we plan not to get caught in it. Rather, in this thesis, we will attempt to unravel the hype by means of a localized perspective - individual experiences of volunteers involved in complex online co-creative projects.

Most mass collaboration projects have a non-financial context: the bottom line is that nobody gets rich while everybody gets to enjoy the resulted product. Non-profit organizations are the norm among open source software, in order to protect the interests of the programmers and release a common good (Stark 2003). However, co-production is starting to be a chosen direction for corporations too: take the example of Novartis, a Swiss drug maker who in 2007, after investing millions in research on the genetic basis of type 2 diabetes, made their resulted raw data available online, for any interested party to access it. Type 2 diabetes is one of the most common public health problems. The company expressed its position: the development of new medicine against type 2 diabetes is still in an undeveloped stage and will require global effort. What Novartis did was to provide a starting point for a global community of specialists, give them a shared understanding of the problem to try to leverage their knowledge. Open collaborations arose between Novartis employees and academics, the company nurtured tight relationships with a research community outside its organizational boundaries, with independent academic researchers who want to help cure diabetes but know they cannot develop drugs in their own labs. These relationships built a strong competitive advantage against other pharmaceutical companies and also boosted employee morale, since they were given the opportunity to share knowledge with their colleagues in academia (Tapscott and Williams 2008, 289).

As the above mentioned example shows, corporations see the benefits in harnessing the efforts of a community outside their boundaries. A related key question remains how to access such a community, how to engage volunteer work with a commercial purpose. Organizations could learn valuable lessons from research done on involvement into an existing co-production project.

1.2. The company

We thus narrow down our study to researching individual experiences of an online co-creation effort, in the context of a for-profit organization: Mozilla Corporation. The organization will be presented in more detailed in a following chapter. Here we would just like to mention the reasons why we believe Mozilla Corp. to be a relevant example.

First of all, it has to be emphasized that, although Mozilla Corp. is a subsidiary of Mozilla Foundation, it is a for-profit organization with a growing revenue. Nevertheless, it is different than typical organizations in that its existence is explained by a declared social mission: to keep the internet open and free for everyone. Thus, the respective revenue is used for the greater good of society as a whole. Its most famous product is the open source web-browser Firefox, second most used browser after Internet Explorer. Hence, Mozilla Corp. is also a very successful company whose products are downloaded by millions of users.

Our interest in Mozilla Corp. arose after encountering Mark Surman's blog post² on Mozilla as a hybrid organization. Mark is the executive director of Mozilla Foundation, but he describes Mozilla, as a whole, as being "a mix of social mission, disruptive market strategies and web-like scale and collaboration."³ Indeed, Mozilla's products are available for free, its browser freed internet from the IE monopole and its products leverage the users' choice to promote their ideas and values in an innovative, free way. But what makes it special, Mark admits, is the fact that Mozilla relies on a mass of collaborators all over the world, who actively participates, via the web, to the Mozilla cause and the creation of its products. Mozilla Corporation's social mission is what makes it differ from organizations who's goals are to survive and make financial profit through disruptive market strategies; the successful use of the Web 2.0 technologies is what keeps a big part of society active in the game. Therefore, the Mozilla online community is the secret of its success and future. Questioning what keeps it going is relevant not only for Mozilla, but for any corporate projects which involve masses of volunteer contributors.

² <http://commonsplace.wordpress.com/2009/04/23/what-is-a-hybrid-organization/>

³ Ibid. 2

1.3. Research question

Our study will focus on how volunteers get involved in a complex online project organization. As supporting questions, we will particularly ask:

- a) What constructs the membership of volunteers?
- b) What kinds of roles and responsibilities are involved?
- c) What kinds of boundaries are involved?

1.4. Purpose and relevance

A lot of research has been done on open source software projects, also on what motivates open-source programmers. Not a lot of it has been qualitative. Interesting literature exists on co-creation and mass-collaboration debating their nature and features (Dutton 2008), whether they are a new form of consumer exploitation or if they should change the way we think about consumers and organizations overall (Prahalad and Ramaswamy 2004; Zwick, Bonsu and Darmody 2008; Banks and Humphreys 2008), or giving advice on how organizations could profit from them (Tapscott and Williams 2008). We believe there is a necessity for more empirical, qualitative research treating the possibility of Web facilitated, voluntary co-creation from an organizational point of view and critically assessing it. We also believe there is still a need for understanding this phenomenon from an individual, localized perspective.

Our research will make use of qualitative methods to find accounts of why people are interested to invest time and effort for free in a project led by an organization (Mozilla Corp.).

We aim to reinforce the importance of more qualitative empirical studies researching the particularities of co-creation efforts, in the context of new, ambiguous mutations of work and organization generated by internet technologies. While answering our research question we will look into personal accounts referring to the individual's experience of volunteering for Mozilla, and we will contribute to the questioning and understanding of what lies behind the decision to enroll in a co-creation project.

1.5. Limitations

We acknowledge the modest contribution of our work, caused by the following limitations.

Mozilla is a very complex organization and studying it thoroughly would probably require several thesis works. Our focus will be on programmer volunteers who participated in the development of Mozilla software, Firefox in particular.

The co-creation taking place at Mozilla encompasses a much more varied effort from people without any technology background. People are participating in so many other ways: translating contents for localization projects, advocating the Mozilla cause for an open internet on their blogs or suggesting ideas. The types of volunteering work are as varied in time and content as there are people. For our purpose, it made sense to concentrate on programmer volunteers since co-opting them is essential for the process of production taking place at Mozilla: software development. Indeed, the product that Mozilla is advocating is not its software but the open internet the respective pieces of code guarantee; but software is the main support of the social mission.

A further limitation of our study is its dependency on internet. Our choice of internet as both a tool and an environment for research shall be argued in Chapter 2. Here, we wish to acknowledge the fact that the remoteness of an online supported qualitative study may have an impact on research findings, since we are deprived of face-to-face interactions with the volunteers.

1.6. Thesis outline

In Chapter 1. we presented our interest in the effects of online technology on production processes as well as other reasons for engaging in our particular research question. Also, it resumes the limitations of our study.

Chapter 2 will present our methodological stance, our method and reflections of our choice of internet supported research.

In Chapter 3 the concept of co-creation will be presented and discussed, along with its implication for organizational boundaries, roles, responsibilities and membership.

Chapter 4 will describe the case study company: Mozilla Corporation.

In Chapter 5 we proceed with our analysis: first, we discuss the volunteers' trajectories; then we argue for external and internal regulations of their membership in the co-creation project; third, we analyze the roles and responsibilities both Mozilla, as an organization, and the volunteers take on; lastly, potential individual and organizational boundaries for membership will be observed.

Chapter 6 revisits the concept of co-production in the light of our findings and Chapter 7 concludes our study.

2. Method

2.1. Methodological perspectives

In consideration of our research subject we have chosen to use qualitative research techniques.

Performing research based on a qualitative analysis approach is about subjectively measuring human behavior (Howard 1996). Through qualitative analysis, researchers examine data with the use of their senses rather than by simply gathering facts in form of tangible numerical data. The latter would be more appropriate in quantitative analysis where the research is based on concrete facts and numbers to create statistic results such as diagrams (Alvesson and Sköldbberg 2000). Prasad (2005) points out that qualitative research has taken over social sciences during the last twenty-five years and is successfully used in the research conducting non-statistical methods.

Qualitative research proves favorable against quantitative research methods in particular scenarios. In collecting data where it is difficult to quantify the results as for example in the case of facial expressions, gestures, verbal tones, and nonverbal cues between individuals during interactions; qualitative data can prove to be more valuable than quantitative data (Fisher 2005).

The difficulty with qualitative data is for both the researcher as well as the readers to maintain a clear and unbiased viewpoint on the data collected. Subjective views in the data collection process as well as decoding the data and translating it into information are factors threatening the validity of qualitative research methods and findings.

We proceed to argue our choice of a single case study method since we are interested in the depth rather than the breadth of our research.

The purpose of using a case study methodology is to get a more in-depth and better understanding of a relevant subject or issue and add experience or extend the perspective of a subject which has been previously researched (Yin 2009). A case study, as qualitative research, is a research method which is commonly used in social science. Stake (1992) describes case study as “the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances” (Stake 1992, xi). We have chosen to take a closer, more

in-depth look at activities and actions within Mozilla and at people involved in the organization and its projects. We investigate the case of Mozilla Corporation and its activities involving their volunteer based workforce and we attempt to answer the question of why and how these volunteers chose to get involved. Instead of using examples and go after a structured protocol (in form of a strict set of rules) to study a restricted number of variables, case study methods include an in-depth, longitudinal study of a single event or instance. They supply a systematic way of studying events, analyzing information, collecting data and reporting the results. As a result of this, the researcher is able to increase a sharpened understanding of why things happen the way they do.

In our research we will use an abductive approach (Alvesson and Sköldbberg 2000). Although our study started from data and information about Mozilla and its unique ways, our pre-understanding of it is influenced by what we have learned in the master programme Managing, People Knowledge and Change. During our research, we drew on relevant literature to make sense of our material, going back and forth between the theory and data, as they took turns shedding new light on each other.

Also influenced by our previous studies, we take on an interpretive approach in our research. Combining double hermeneutics with critical theory, we attempt to interpret the interpretations of our research subjects, curious to find what lies behind the hype of a jovial, balanced co-creation which we critically question. We also critically assess the role of the organization in the co-creative project.

2.2.Data sampling and analysis

Our first goal was to find people who would share their volunteering story with us, via email, to use their individual expressions as our data. We explored Mozilla websites with a mission of finding email addresses in order to get in contact with different volunteers who are involved with Mozilla. We started emailing many people, randomly chosen, with a hope of many responses. We only got responses from some of them whereas the majority where vague and short. Some people who answered asked for a more in-depth explanation of what we were looking for and

how they could help us. We wrote back with a more thorough explanation but still did not receive the answers we were looking for.

Parallel to this activity, we wrote an email to a “Get in touch” address from Mozillas “Get involved!” website⁴, explaining our position and asking for help and direction. The answer came quick and led us to a website called “Mozilla Digital Memory Bank”⁵ which is a “a permanent, open, peer-produced digital archive of Mozilla history”⁶ created to be “a lasting resource for generations of students, teachers, scholars, and members of the general public interested in the history of the Internet, open source software, and Mozilla”⁷. On this website we found several interviews of interesting mozillians, both volunteers and employees, taken by history students from the Center for History and New Media (CHNM) at George Mason University.

From the “Mozilla Digital Memory Bank”, accessed in May 2010, we chose as data all the interviews with volunteers and two interviews with Mozilla employees, as follows:

1. Brant – volunteer (interview taken in December 2006, added in February 2007)
2. Ali – volunteer (interview taken in November 2007, added in May 2008)
3. Alex – volunteer (interview taken in April 2007, added in April 2007)
4. Asa – core employee, founder (interview taken in March 2006, added in August 2008)
5. David – in course of employment (interview taken in August 2007, added in August 2007)

In addition, we have studied the blogs of Ali and Alex (Brant did not own one), and browsed through the blogs of Asa and David as follows:

1. Ali’s blog posts between 2004 and 2010
2. Alex’s blog posts between 2007 and 2010
3. Asa’s blog posts between 2006 and 2010
4. David’s blog posts between 2005 and 2010

⁴ <http://www.mozilla.org/contribute/>

⁵ <http://mozillamemory.org/index.php>

⁶ <http://mozillamemory.org/about.php>

⁷ Ibid. 5

For each person, we put together data from the interview and data from their respective blogs in individual files containing all the relevant material for our research question. We then analyzed each of these files separately and observed common themes. A next step was to collect data that fitted in the common themes from each individual file. This way, we could compare their views with each other and notice differences or inconsistencies. Parallel to this process, we always kept regard of relevant information we gathered from official Mozilla websites and other sources that would give us a clue on the organization's position.

2.3.Methodological reflections

We realize it is necessary to take a stance concerning our choice of an internet based research, and to reflect on its implications.

Qualitative research offers a great deal of flexibility. Indeed, in-depth interviews and participant observation tend to be preferred methods among researchers who wish to immerse as much as possible in the worlds of their objects of study. But as the need to be in more places at the same time for observing simultaneous events, or the need to be as invisible as possible to not disturb the natural flow of activity, become hindering issues, another technique could prove to be useful: diary studies (Czarniawska 2008, 11). As a research method, people can be asked to describe in written words their daily life, and thus provide the researcher with data. This practice comes, as all others, with advantages and disadvantages, but as Czarniawska (2008) also admits, diary studies may become more popular within the era of digital technologies, since this technology provides a more and more preferred medium for self-expression. We embrace diary studies as an inspiration as we came to notice the value of blogs as research data sources.

Before we engage in argumenting for and against blogs in our study, we should first assert the value of internet in general as both a viable research tool and an intriguing research site.

2.3.1. Internet as research tool

As people become connected with each other, are able to inform themselves and to share their tastes and opinions with others online, internet has become a debated subject as a marketing research tool. Kozinets (2002) introduces the term "netnography" to describe qualitative studies on internet communities, performed in a virtual environment. He argues for this technique to be a

less costly and less intrusive alternative to market-oriented ethnography: “Netnography,” or ethnography on the Internet, is a new qualitative research methodology that adapts ethnographic research techniques to study the cultures and communities that are emerging through computer-mediated communications. As a marketing research technique, netnography uses the information that is publicly available in online forums to identify and understand the needs and decision influences of relevant online consumer groups.” (Kozinets 2002, 62). The virtual reality of online communities is a reality in itself and, as a medium for social exchange, is relevant for the understanding of what is going on “inside” the participants, what are their thoughts, how they see themselves and others. Kozinets also argues that “netography” will find its way in research fields other than marketing. He just might be right if consider Hatch and Schultz’s (1997) observation about marketing and organizational studies knowledge corroborating each other.

In our study, “netnography” came as a rather natural alternative. Mozilla co-creation happens mostly online. It is true that the co-creators are real people in a real world, but their interaction with the project and with each other takes place in a virtual medium. This is why we assume that the online expressions of themselves are reliable and relevant. We recognize and fully assume the critique according to which a face-to-face encounter provides research with most precious non-verbal information. Probably a combination of online research and interviews would have been ideal, but given the limited time at our disposal, and the global distribution of Mozilla co-creators, it was impossible to achieve it in our study. We admit, thus, that the choice of internet research was also backed up by convenience.

Nevertheless, we humbly stand behind our data, retrieved from publicly available online sites (Mozilla.com, Mozilla.org, Mozilla Digital Memory Bank, multiple blogs of mozillians etc.) as they are just as viable as any publicly available texts. Moreover, the transcribed interviews retrieved from Mozilla Digital Memory Bank have the advantage of not being biased by us, the researchers, for our research purpose.

The data generated by personally contacting Mozillians via email endures the same critique of the lack of personal interaction with the respondent. Indeed, we noticed that without more detailed explanation, people simply did not know what to write about when asked to just relate their story involving Mozilla. We obtained fairly unbiased data, though not as rich as we would

have wished it to be, since the respondents were free to express themselves in any way they felt, just as they would have done in their own blogs.

2.3.2. Blogs as sources of data

At this point we would like to critically argue for the use of blogs in our study. Walker and Mortensen (2002) attempt to explain the role of blogging as a research activity, but their observations about blogging in general support our position that this particular method of expression is worth taking into consideration as a serious source of data, because of its very interesting particularities.

Walker and Mortensen (2002) observe that a blog belongs at the same time to a private as well as to a public sphere: it is inbetween a diary and a publication. “A blog is written by an individual and expresses the attitude and the conviction of its writer; it is strictly subjective though not necessarily intimate” (Walker and Mortensen 2002, 252). A blogger could more easily forget about his audience and expose herself in a more sincere way (since the audience is invisible) rather than, say, an interviewee who is always aware of his interviewer.

In the same line of thought, bloggers write about whatever concerns them and whatever they feel is important and worth mentioning. Blog posts are written from the internal impulse of the blogger - nobody asks a blogger to blog (Walker and Mortensen 2002). This aspect also adds to its value as unbiased data. Perhaps also worth mentioning is the fact that blogs are not isolated piles of posts. Bloggers use links to connect their writing to other pieces of web content, or to other blogs (Walker and Mortensen 2002).

Walker and Mortensen (2002) also point out another interesting fact that makes blogs attractive for us: they are a chronological array of posts which means that, seen as a whole, a blog cannot be considered to follow the logic of argumentation or rhetoric. For the authors, as well as for us, this is important, because blogs are a different way of structuring thoughts (that is chronologically), it means that looking at them could offer a fresh perspective, protected from forms of persuasiveness.

To summarize, we believe blogs to be a free form of expression, which justifies our choice to consider them as valid and valuable qualitative data. On the other hand, we do acknowledge that

being in a written form, blogs deprive us from all the clues a face-to-face interaction would give away, like mimic, tone of voice or body language. They also keep our hands tied in what concerns the content of our data: bloggers write about whatever they want.

Finally, we contend that we are aware of the limitations of an internet based study, but also that in our case, this was the only natural choice, not only for convenience reasons but because the internet is the locus of the social interaction we are interested in, and where interesting narrations of co-creation experience are to be found.

3. Theoretical Framework

3.1. Co-creation

This chapter will review relevant literature concerned with the still strongly debated concept of co-creation.

Scientific papers as well as non-academic works pay increased attention to participative forms of production facilitated by new media communication technologies, referred to under multiple names: “social peer production”, “distributed peer production networks”, “mass collaboration”, “co-creation”, “collaborative network organizations”, “emergent social network markets” , “crowdsourcing” etc. These labels attempt to capture the existing phenomenon through which individuals voluntarily engage in an (online) activity, thus contributing to the creation of an immaterial “product”.

Prahalad and Ramaswamy (2004), the originators of the term “co-creation”, develop the concept in the context of marketing. They advocate a new era in business where the boundaries between organization and market blur, as consumers are drawn in the production process in a revolutionary way: “The future of competition [...] lies in an altogether new approach to value creation based on an individual-centered co-creation of value between consumers and companies” (Prahalad and Ramaswamy 2004, 5). This inclusive practice is argued to go beyond already existing ones, that involve the consumer in the creation of the product experience for the sake of saving labour costs - like taking away your own McDonald tray at the end of your meal or doing the bank clerk’s job yourself by going to an ATM (Zwick, Bonsu and Darmody 2008). Co-creation should instead be about “experimenting with new possibilities for value creation that are based on the expropriation of free cultural, technological, social, and affective labor of the consumer masses” with the goal of “new product development and innovation” (Zwick, Bonsu and Darmody 2008, 166). Prahalad and Ramaswamy (2004) describe the essence of co-creation in the shift of focus from a firm-centric view to a consumer-centric view, whereby both organization and consumer share the responsibility for the product. The authors develop a model of four building blocks on which successful co-creation would rest: dialogue, access, risk assessment and transparency. Maintaining a dialogue with the consumer ensures a two-way

interaction whereby the consumer's voice can be heard; access means the organization makes sure the consumer has all the data and the tools needed to participate in the co-creation process; risk assessment refers to the responsibility the consumers will want to have, after they will be provided with all the needed information about their involvement; transparency should disable the information asymmetry between organization and consumer, contributing to the building of trust and honest dialogue (Prahalad and Ramaswamy 2004).

The seductive term of "co-production" found its way into the growing literature on internet facilitated activity. Dutton (2008) provides a helpful overview on a broad categorization of what he calls "collaborative network organizations" - virtually connected individuals who come together for the purpose of creating online content. These CNO's support collaboration through:

“1.0 *Sharing*: the ability to create linked documents and objects within a distributed network, thereby reconfiguring how and what information is shared with whom. [...]

2.0 *Contributing*: the ability to employ social networking applications of the Web to facilitate group communication, thereby reshaping who contributes information to the collective group.

3.0 *Co-creating*: the ability to collaborate through networks that facilitate cooperative work toward shared goals (e.g. joint writing and editing of Wikipedia), thereby reconfiguring the sequencing, composition, and role of contributors.” (Dutton 2008, 216)

Dutton's research is based on exploratory case studies on multiple online projects, including Mozilla's Firefox, which he includes in the 3.0 type of organization. He argues that the CNO's he encountered do not fall under the category of institutionalized entities (such as firms) but they exist as a result of every individual contributor's decision to participate. The participatory form of online content production is by no means ideal and does not always succeed. For this reason, the author argues, the management of such networks is of crucial importance.

Contributing to the perspective that co-creation is a revolution, a most promising mass development which cannot be directed or imposed, but should be supported and harnessed for profit, are recent popular books like "wikinomics" (Tapscott and Williams 2008) or "Here Comes Everybody" (Shirky 2008). Tapscott and Williams see mass collaboration as a

manifestation of a global mind, an unstoppable, friendly, creative experience possible through the happy hunger for knowledge and sharing of everyone and anyone with an internet connection. They argue that this new sense of togetherness and the infinite possibilities of change and innovation forged by co-creation can and should be channeled by organizations for the sake of success. Clay Shirky (2008) is also a fervent advocate of co-creation, however he does not put emphasis on organizational opportunities it generates.

As one could infer from the above paragraphs, co-creation gives rise to several debates since it exists at the crossroads between commercial and non-commercial, between work and play, between producer and consumer. Exploitation of the volunteer co-producer by the organization who wishes to reduce labour and R&D costs is a common theme in literature, drawing on literature on labour relations and neo-capitalism. For example, Zwick et al. (2008) argue that co-creation is not preached by business gurus for the enhanced value it could bring to customers or collaborators, but because it gives rise to new forms of power organizations will benefit from. The authors suggest that “what is being discursively constructed [...] has more to do with a need to reconfigure marketing as a technology of consumer exploitation and control suitable for the complex machinations of global information capitalism than with a concern for increasing ‘customer value’” (Zwick, Bonsu and Darmody 2008, 167). In their view, co-creation is the ultimate marketing trick, because it not only gets customers to do the organization’s job, but it also makes them more responsible for it and thus, less liable to complain about the results. This perspective on co-creation pinpoints it as an instance of “free labor” within the logic of neo-capitalist views on work and organization in the knowledge economy (Terranova 2000).

Another, more interpretive, take on co-creation suggests that the traditional ways of thinking about organizations and their activity are not helpful for understanding this complex phenomenon. Banks et al. (2008) favor a dynamic and emergent approach on non-paid contributions of user-producers, that considers the complexity of hybrid relations between social networks and financial markets. They suggest that “[t]he intersection and co-evolution of these two economies (the social/affective and business) produce not outright exploitation of unpaid labour by capital, but a terrain of negotiation and power relations quite different from those of industrial era production.” (Banks and Humphreys 2008, 402). Indeed, if co-creation is the result of users and consumers becoming more knowledgeable and empowered by communication

technologies, more pretentious of how and what products are designed and generally, more aware of their leverage on organizations (Prahalad and Ramaswamy 2004) it is fair to say that they are not as naïve as to be tricked into free labor. Rather, co-creators are actors with full agency who decide to contribute entirely aware of what they are doing – that is volunteering (Banks and Humphreys 2008). This perspective acknowledges the co-creators' power to negotiate and have expectations about their contributions. Banks et al.'s (2008) study on Auran gamers show that their involvement with co-creating the game and the game experience was a result of bargaining for meanings and conditions with the organization that owned Auran. Nevertheless, the authors do acknowledge that in the co-creation process, although both user-creators and organization have leverage for negotiations, a power asymmetry in favor of the enterprise still exists. In this case, co-creation can be considered to be “a process in which economic outcomes sit alongside significant social and cultural outcomes” (Banks and Humphreys 2008, 405) in a permanent redefinition of the relation between the two.

In our work, we support the perspective that a process of a negotiation and re-negotiation of the contributors' involvement and of the meaning of this involvement, between co-creators and the co-creation organization, is essential.

Whether it's a congenial, novel way of exploitation (Zwick, Bonsu and Darmody 2008), a manifestation of people's social spirit of mutual aid, facilitated by communication technology (Benkler 2006) or a dynamic hybrid at the intersection of commerce and cooperation that needs a total rethinking of work and organization (Banks and Humphreys 2008), co-creation is happening. Wikipedia, Firefox, Linux, A Swarm of Angels and a lot more projects attest the existence of a phenomenon yet to be understood. However, it is important to note that it may not be a good idea to rush into the hype of co-creation literature, be it popular or academic. Van Djic et al. (2009) urge to a necessary deconstruction of the co-creation discourse, pointing out the overemphasis on collaboration and on a fellowship spirit that “implicitly endorse a notion of public collectivism that functions entirely inside commodity culture.” (Van Dijck and Nieborg 2009, 855). The authors argue for an analysis of the rhetorical strategy of Web 2.0 manifestos of collectivism, collaboration and creative sharing who “cleverly combine capital-intensive, profit-oriented industrial production with labour-intensive, non-profit-oriented peer production” (Van Dijck and Nieborg 2009, 856). They identify the successful combination of “communalist

thinking and good business sense” (Van Dijck and Nieborg 2009, 858) in co-creation propaganda in the simultaneous use of two registers of discourse: the economy discourse and the community discourse. Not only do they question the rush to believe in Web 2.0 collaborative magic, they also identify another danger of exploitation targeted at the user/co-creator: it is not free labor, it is advertising power companies are after. The authors argue that the large majority of co-creators are in fact rather passive users, attracted by the hype of the new Web 2.0 community discourse. This important mass of users, flatteringly called co-creators, release metadata about the social behavior of a profitable consumer segment right in hands of the advertisers (Van Dijck 2009). Finally, they contend “Rather than defending or attacking the cult(ure) of participation, mass creativity or cocreation, we urge a more critical awareness of the socioeconomic implications of these emerging trends. Despite the convergence of companies, business interests, technological platforms, cultural actors and other agents, it remains essential to untangle the succinct positions and interests of various players” (Van Dijck and Nieborg 2009, 869).

In the following, we intend to briefly discuss the possible implications of co-creation for the consideration of several organizational aspects, in order to further understand the relevance of the concept for organizations. As mentioned above, the concept of co-creation has the potential of pushing the way of thinking about organizations from a modernist perspective towards a more processual, interpretive view.

3.1.1. Co-creation and organizational boundries

A modernist analysis of organizations implies knowing where they begin and where they end, what is inside the organization and what is outside - the organizational environment. This means identifying organizational boundries, an attempt that can prove to be a challenging one (Hatch 2006). The reconceptualization of the market done by Prahalad et al. (2004) by taking co-creation in consideration, places this proces at the interaction between organization and consumer (which is external to the company). At best, the organizational boundry becomes less of a drawn line and more of a blurry area, where inside and outside coexist.

An alternative way of thinking about co-creation in connection with organizations is an interpretive approach which emphasises the organization as community: a locus for shared knowledge and values and for voluntary social action (Hatch 2006). Wenger and Lave (1991)

introduce the notion of communities of practice to be “a system of relationships between people, activities, and the world” (Lave and Wenger 1991, 98) as a way knowledge is produced and shared among people with common goals and interests. While co-creators of, for example, Wikipedia or any open source software, do not necessarily share common goals or interests, they are united by a flow of created and shared knowledge. And just like in a community of practice, co-creators are free to come and go as they please and interact with whoever they wish, inside or outside the community. In this situation, organizational boundaries are the boundaries of the community, difficult to control and impossible to pinpoint in time or space.

3.1.2. Co-creation and organizational roles and responsibilities

The social structure of organizations is defined by modernist theorists by three types of relationships: hierarchy, division of labour and coordination mechanisms (Hatch 2006).

It is tempting to believe that co-creation, as an ideal form of collaborative production, is, as are communities of practice, self-generated and self-sufficient. Indeed, online projects of co-creation appear to have, if any, a very flat hierarchy, typical for most knowledge intensive, ad-hoc organizations (Alvesson 2004). The degree of competence of co-creators cannot be attested but the fact remains that their activity is largely immaterial and ambiguous, hence they can be considered knowledge workers who “need open organizational structures to produce, because the production of knowledge is rooted in collaboration” (Terranova 2000, 37). This being said, co-creation would lead to quite unconventional ways of organization.

However, the freedom of co-creators and their supposed individualism could lead to catastrophic results – vandalism, for example. There is a reason to believe co-creation needs management in order to maintain a critical mass of contributors, to structure tasks and attribute responsibilities (Dutton 2008) . For instance, open source software development is observed to be the perfect example of meritocracy in decision making: people in charge get there after they have earned their stripes with the community (Stark 2003). Division of labour and coordination mechanisms are still in place, but they are the result of consensus and self-selection.

As the concept of co-creation relies on volunteering, the length and intensity of each contributor are highly variable. Therefore, it is natural to assume that the role and kind of responsibility an

individual contributor has, change rapidly and freely. Also, since there is no formal contract of employment with the organization, this change is possible and accepted.

It may be considered, though, that organizations keep their role as coordinators and decision makers and push the responsibility away to the community, which is a common critique of the co-creation model. At this point, it is worth mentioning again that although the power balance may incline in favor of the organization, individual co-creators have leverage to rely on and should not be considered entirely naïve. Arguably, the role and responsibility of each co-creator results from the dynamic relationship with the organization and the community, and from a negotiation of meanings.

3.2. Organizational membership in the context of co-creation

We argued before that co-creation contributes to the dissolution of traditional organizational boundaries because it functions based on voluntary participation to the work of a whole community. Here, we would like to emphasize that the notion of community, in the context of co-creation must not necessarily imply a sense of shared identity or goals, but a mass of people contributing to the same effort. When an organization chooses co-creation as a part of its productive processes, it relies on this kind of community and on the interaction between communities and networks, inside and outside of it. Hence, the challenge that results comes from the breakdown of boundaries between internal and external aspects of the organization. What is inside and what is outside the organization becomes difficult to grasp and may require connecting knowledge from marketing (in charge of what is going on outside the firm and how the company is seen by others – that is, in charge with the image) and knowledge from organization studies (focused on internal processes and phenomena which boil down to the construction of an organizational identity) (Hatch and Schultz 1997). This alternative approach, that Hatch et al. (1997) base on interpretivism and social constructionism, argues that the separation between inside and outside should be substituted by a way of thinking that considers internal and external aspects as interconnected in the context of culture, which the authors define as “a context within which interpretations of organizational identity are formed and intentions to influence organizational image are formulated” (Hatch and Schultz 1997, 357). We draw on the author’s perspective to point out that being inside or outside a contemporary organization does

not have to mean signing an employment contract. In this context, participating as a co-creator in the networked community is what brings an individual “inside”. Participation is, in this context, membership.

Scholars have studied how membership in social groups shapes the individual’s self-concept and also how the knowledge that she/he is a member of a specific organization affects her/his identity (Dutton J. 1994). In the present study we are less interested on how membership leads to perceived organizational identification, or on how this process informs the sense of self. Rather, we attempt to see how the individual comes to know she or he is a member in the first place and in what way this contributes to her decision to participate in the co-creation effort. This raises the question of what defines membership, what makes up a member.

3.2.1. What constructs membership?

Self identity is constructed in two dependent phases: the “me” a person is aware of, “a set of attitudes one himself assumes” and the “I” as the “response of the organism to the attitudes of the others”, which both informs and is informed by the “me” (Mead G.H., 1934 in Hatch and Schultz, 2002). We argue that being a member is a facet of the fluid, dynamic self-identity (Alvesson and Willmott 2002), and, thus, is also constructed by external acknowledgements of the member position and internal reflections of them. Alvesson and Willmott’s model of identity regulation argues that “self identity, as a repertoire of structured narrations., is sustained through identity work in which regulation is accomplished by selectively, but not necessarily reflectively, adopting practices and discourses that are more or less intentionally targeted at the 'insides' of employees” (Alvesson and Willmott 2002, 627). Following Alvesson and Willmott’s model (2002), we suggest that, in the case of co-creation, external acknowledgements (as identity regulation) affect the way individuals perceive their membership in the co-creation effort (as identity work). Because we see membership as an instance of self-identity at a given point in time, we may suggest that membership (and therefore involvement in co-creation) is coined by:

1. Practices and discourses that acknowledge and/or instigate membership
2. The individual’s perception of membership.

1. There is a lot that can pin-point people in a certain position: titles, rewards, formal processes they are involved in - show where they are in terms of membership. From the symbolic value of all exterior acknowledgements of membership, conclusions can be drawn about the individual's involvement. What matters is that any discourse and practice targeted at the co-creator by the community or by the organization has an impact on whether the individual will become/remain a member or not. The way an individual is addressed, the feedback she obtains, eventual rewards - place the individual in a certain position.
2. It is also relevant to consider the individual's perception of her involvement. Masterson et al. (2003) developed a model of perceived organizational membership to describe the employee's perspective of the overall employer-employee relationship, based, in their argument, on social exchange and on the distribution of rights and responsibilities. The authors argue that the extent to which an individual feels a part of the organization depends on three dimensions: need fulfillment, mattering and belonging. In the employer-employee relationship, need fulfillment refers to both parties: employers should confer enough rights to fulfill the employee's needs and the employee should take on enough responsibilities to fulfill the employer's needs. This dimension is the basis of the social exchange within which membership is negotiated. The other two dimensions each depend on only one of the parties. An employee feels more valued by the organization ("mattering") the more rights she is conferred, which heightens the perceived organizational membership. In addition, perceived membership is higher if the employee agrees to voluntarily engage in more responsibilities towards the organization, because she identifies with it ("belonging") (Masterson and Stamper 2003).

In conclusion, we believe the dynamics of membership are valid aspects to be taken into consideration for approaching our research question: why do Mozilla volunteers get involved and why do they stay involved. We do so also because membership is not seen as a rigid state but, as any facet of identity, fluid and changing, influenced by the individual's interpretations of the organization's efforts and other practices and discourses.

4. Company description

4.1. Brief history

The Mozilla project started through Netscape Communications Corporation. It started in 1998 in Mountain View, California. The project started off through a release of the Netscape browser suite source code. The 22nd of January 1998 Netscape Communications Corporation (NCSP) introduced their famous and popular Netscape Communicator client software code as an open and accessible product which people could use under free licensing on the internet⁸. This allowed people to download the program without charge and also gave them the opportunity to modify the program code, according to open source principles. The freedom for anyone to get involved in the software development created a community who was interested in the project, who discussed, fixed and tested the code (Hoyt, Sutton and Hayagreeva 2009).

Netscape formed in February 1998 a team that they named “mozilla.org” within the company. The main purpose of the team was to deliver leadership and to endure the development of the code.

Netscape was bought by AOL in November 1998. AOL continued to invest in Mozilla with mainly Netscape employees in the lead.

The Mozilla project had a vision of getting people involved and active in an internet community with great innovation and broad diversity. This vision was brought to life using open source code with free access, allowing new community members from all around the world to get involved and help improve the product.

Netscape released their Netscape 6 suite in November 2000; this was based on code created in the Mozilla project. It was argued that the product wasn't ready for the market and got bad reviews. It became clear that the Mozilla project no longer was a priority, which made the Mozilla team to want to create their own browser.

⁸ Information is retrieved from Mozilla's official websites if no other source is stated: www.mozilla.com; www.mozilla.org

In June 2002 the Mozilla team released the Mozilla 1.0 on the market. The product consisted of a browser, an email client and more. The release was successful but it was difficult for a new product to break out on the market due to the great competing company Microsoft that owned the biggest market share with their similar Windows and Outlook Express programs. Microsoft, with Internet Explorer, had 98% of the browser market.

The Mozilla team needed to think differently, they needed to launch a product which it was a demand for on the market. The team made the decision that they were going to create an improved stand-alone browser and a stand-alone e-mail program. Mozilla team presented Phoenix 0.1 (which later would evolve into Firefox) in September 2002. It was the first stand-alone browser which was able to be used on several operating systems from the Mozilla project (Hoyt et al. 2009).

The Mozilla project decided to take a leap and create a corporate long-time structure. It was not likely that AOL/Netscape would fund them in the long-run so they created a non-profit organization – the Mozilla Foundation.

4.2.Mozilla Foundation

The Mozilla Foundation was launched on July 15, 2003 (Hoyt, Sutton and Hayagreeva 2009). Mozilla Foundation is, as mentioned above, a non-profit organization that is situated in California and is, like many American charity organizations, free from income taxation. The Mozilla Foundation is constantly working to develop possibilities to make the internet a resource for everyone. On its home page it is stated that the Mozilla Foundation promotes openness, innovation and participation on the Internet. A remarkable thing with Mozilla Foundation is that, it is run by a team with very few members. Many organizations nowadays share the principles of Mozilla and support Mozilla's principles. Under Mozilla Foundation there are two subsidiary organizations: Mozilla Corporation and Mozilla Messaging.

4.3.Mozilla Corporation

Mozilla Corporation is a subsidiary of Mozilla Foundation. Mozilla Corporation is leasing the software license of Firefox from Mozilla Foundation.

Some people reacted strongly when the non-profit organization decided to split in two and make a part (Mozilla Corporation) for-profit, even though Mozilla keeps to its promise of providing a freely available product and an open source code. People got worried that the mission statement of Mozilla being a non-profit organization would be in contradiction with the organization creating a corporate part. On the other hand, corporate companies stand for much of the funding and the resources which made Mozilla successful, and Mozilla started off as a commercial project in the first place. Many volunteers who work with Mozilla are also from corporate firms.

However, “Mozilla Corporation will not even own the software they develop; if another company tried to buy the corporation it would accomplish nothing. The foundation retains the rights and will continue to direct the ongoing Mozilla project. The goals of the company and the foundation are for all purposes the same: those of the Mozilla project.”⁹

4.4.Firefox – Mozilla's most successful product

Mozilla Firefox is one of the most successful products ever developed by Mozilla, starting off as a project by Dave Hyatt and Blake Ross from the experimental branch of Mozilla. Other web browsers had been developed by the company before but had a different cross-platform which didn't make them as versatile as Firefox but served as an inspiration for the then experimental project. The first version, Firefox 1.0 was released in the fall of 2004 with newer and more updated versions becoming available ever 6 to 12 months.

4.5.Mozilla's organizational structure

Mozilla is based on volunteer help which means that they are very much dependent on them as a reliable resource. “Those who became involved in volunteer organizations must realize that responsibility and commitment are necessary if the organization is to grow or even survive” (Penn 2009). Volunteers are a crucial resource which is difficult to manage or lead since they cannot get fired or replaced. However, the organization needs to proceed with specific tasks and goals set out in order to succeed. The backbone of a traditional organization exists: there is a set

⁹ <http://www.devshed.com/c/a/BrainDump/Mozilla-Goes-Corporate/>

hierarchy in place, topped by “benevolent dictators” who only intervene in unsolvable disputes. Mozilla functions based on project work. Each project has a “module owner” in charge.

John Lilly, who is the CEO of the Mozilla Corporation stated that the organizational environment as being “chaordic system” which refers to a combination of both chaos and order (Hoyt, Sutton and Hayagreeva 2009).

As of 2005, Mozilla volunteers contributed with about 40% of the organization's work. It is challenging to manage and motivate hundreds of talented software developers who all contribute as volunteers.

5. Analysis

5.1. Five Mozilla volunteers - How their membership started and developed

In this section we would like to introduce the five people whose experiences with Mozilla fueled our research, and expose our findings in what concerns the question of how they got involved with Mozilla projects. Their backgrounds and volunteering trajectory will be discussed.

5.1.1. Short presentation

Brant was at the time of the interview doing his BS in Computer science. His first contact with computers was in 2nd grade. Brant's volunteering days started around the year 2000, while Brant was in high-school, and date at least until 2006 when the Mozilla Digital Memory Bank interview was taken.

Ali is around 30 years old, has a wife and a 3 year old child. His home is Hong Kong but has studied for 5 years in the US. He has a BA in Economics and Political science. Ali's only formal computer training date from his high-school times. Ali has been an active volunteer within the Mozilla community between 2003 and 2005. At that time he was still a full time student in the US.

Alex is around 32 years old and working as a software engineer for Skyfire Labs, Inc., but this day job requires him to be involved in Mozilla projects. Alex has no formal computer training, he never went to college. He is self-taught. His first involvement with the Mozilla community dates back around the year 2000.

Asa is around 36 years old. He is one of the most well-known mozillians, famous for his work as a community coordinator in numerous projects. Asa is also considered one of the founders of what Mozilla is today, as his first attempts to volunteer were in 1998, when Mozilla was just a team of Netscape employees. He was employed by Netscape in 2000 to work on the Mozilla project and later, in 2003, was one of the first employees of the Mozilla Foundation. Now, he is a Mozilla Corp. employee.

David is a Swede, around 31 years old at the time we are writing the thesis. He has a Master degree in Computer Science. After he finished his studies, he worked in Sweden as a software engineer. He now still lives in Sweden, after a stay in the US when he was employed by Mozilla Corp., in 2007. Until 2007, he was an active volunteer since around the year 2000.

5.1.2. First encounter with Mozilla

Brant first got aware of Mozilla when he was in 7th grade. At that time he had to choose an elective course and he chose an HTML class. Documenting himself for it, he stumbled upon Mozilla and tried their browser (available at that time). The first step was becoming a user.

Ali, as a Political Science student, was introduced to the open source software product Phoenix¹⁰ by a friend working in IT and then: “I don't know why but something clicked and I enjoyed the experience enough to want to contribute something back.” So his “recruitment” in the community started through word-of-mouth, with the encounter of the software product.

Alex was interested in Java Script¹¹ and wrote articles about it, as a free time activity outside his day job. Related to this activity, he used a Netscape newsgroup to ask for information. He was asked to help out by writing a JavaScript guide, which Alex refused, thinking he was not capable enough. As he got more confident with his JavaScript knowledge, he began to write a book entitled “The Developer’s Dictionary for JavaScript”. The documentation for his book led him to Mozilla community members who helped him out. This is how he first got aware of Mozilla community. At that time (2001) he was around 20 and having random day-jobs.

Asa’s background is in architecture and fine art preservation but he liked Netscape and was interested in open source. Mozilla appeared as a combination of these two points of interest and this is why Asa was attracted to the project. From the very beginning (1998), he wanted to be active: “I actually attempted to get involved, right, in early '98 when the source code was released. But I wasn't a developer. And so I failed miserably”. Asa then spent some time on different news groups to see what was happening and how things were being done.

¹⁰ Browser made by Mozilla, before Firefox

¹¹ JavaScript is a scripting language used to enable programmatic access to computational objects within a host environment, designed to be easier for non-programmers to work with. Wikipedia: <http://en.wikipedia.org/wiki/JavaScript>

As a website developer, **David** was a supporter of Netscape 6 (in 2000), because he used some of the previous versions and because Netscape 6 technology had “catchy names” (like “Geko”). Through Netscape he discovered Mozilla, found out the Mozilla software is the same as Netscape, but with better maintenance. “The more I was using Mozilla, the more I wanted to learn about it.”

5.1.3. Volunteering trajectory

Brant’s involvement developed from being a 7th grader who didn’t know anything about Mozilla, to being a user, to becoming a contributor. This happened because he was discontent with something about the browser (that’s why bugs¹² are filed) and then he “found that you could actually contribute to the project”. The product and his own need to fix a problem he had with it, led to his contribution.

Brant’s activity within Mozilla was manifold: he did tech evangelism¹³, he wrote code and he did testing, bug triage and other activities involving quality assurance¹⁴. Within every project he got involved in, there was a person who “headed” it. Whatever he contributed, Brant always self-selected himself to do it, ignoring requests for help in areas he was not interested in: “There were always pages here or there that asked for help in certain areas, but I always worked on things I cared about.” For example, he did tech evangelism because: “it was something [he] felt [he] had the skills to do and it definitely had a need since there were sites that were still rather IE-specific”.

From the interview we could not infer that Brand stopped his volunteering for Mozilla (until 2006, when the interview was taken).

Because **Ali** was attracted by the product as a user, he began “lurking” around on Mozilla forums. This means that at the beginning Ali was (rather passively) participating in conversations with other Mozilla contributors. This, he admits, was how he first contributed: by “keeping a tab on developments”.

¹² “A software bug is the common term used to describe an error, flaw, mistake, failure, or fault in a computer program or system that produces an incorrect or unexpected result, or causes it to behave in unintended ways.” Wikipedia http://en.wikipedia.org/wiki/Software_bug

¹³ People with experience in web development and quality assurance analyze sites and make recommendations to sites on how to upgrade to support Mozilla. <http://www.mozilla.org/projects/tech-evangelism/>

¹⁴ This would be called “doing QA” <http://quality.mozilla.org/>

Then “as I learned the ropes I also began to respond to queries”.

The next step for him was a more creative one: providing unofficial builds¹⁵ for Firefox.

Further, he started being one of the few people working with Bugzilla¹⁶ (relative to now). A mozillian who noticed his intense and useful contribution “asked [him] if [he]’d take responsibility for the Download Manager QA, and [he] agreed.” His activity did not consist in fixing the bugs¹⁷, which was the job of people with code writing skills. Ali was in charge of “keeping Bugzilla in a clean-ish state so the real developers could work more efficiently” - weeding out bugs that were filed several times or were invalid, and confirming the ones that needed real work done. He saw himself as an enabler for people doing the real creative work, but who could not get to doing it without him.

He admits working daily, for a few hours on this. Indeed, in his blog, he says he spends “too much time” on Bugzilla, posting jokes like: “you know you’ve been spending too much time on Bugzilla when... you right click somewhere in your MS Word document, and the mouse action triggers the page to scroll in an unexpected manner, and your first reflex is to think: <I should probably file a bug on this>”

During his volunteering years, among other posts which address his (rather obvious) interest in politics, blog posts about Firefox and Mozilla are frequent. His writing consists mostly in spreading the word about Mozilla and encouraging people who read his blog to try its products, for instance: “Firefox 0.9.1 and Thunderbird 0.7.1 have been released! Both releases contain bugfixes for some of the biggest bugs in their 0.9 and 0.7 releases. You really should check them out.” He also commented on news about Mozilla, defending its reputation, encouraged people to take part in marketing efforts (to donate for the famous New York Times Firefox ad - “I think its an excellent idea, and encourage you to donate to them too”) or in development efforts (“firefox bugdays — we need help!”).

¹⁵ “The term software build refers either to the process of converting source code files into standalone software artifact(s) that can be run on a computer, or the result of doing so.”

Wikipedia http://en.wikipedia.org/wiki/Software_build

¹⁶ “Bugzilla is a Web-based general-purpose bugtracker and testing tool originally developed and used by the Mozilla project “ Wikipedia <http://en.wikipedia.org/wiki/Bugzilla>

As time passed by and his studies in the US were over, Ali moved to Beijing for a one year Mandarin language class in August 2004. The traveling kept him away from his volunteering which he acknowledges as a rare exception: “All of these things have kept me very busy, and away from Mozilla/Firefox. In fact, I think I went a whole month without logging into Bugzilla. That must be some sort of a personal record.”

This hiatus is not a one time thing, it happens again around the beginning of 2005. Obviously, there are more important things than Mozilla, like traveling to see his fiancée. What is interesting is that, when he does return to volunteering, this appears to be a part of his normal, day-do-day life. It’s not necessarily a chore, but it is also not a part of the same universe his home or his fiancée live in. Whenever he travels to them, he is too busy to even blog, let alone contribute to Bugzilla. Returning, he calls his post “Back to real life” and says “I hope to get back in touch with Firefox happenings, so I can start triaging bugs again as soon as possible.” Mozilla is a priority in his daily life, but not in the list of real priorities, like family and home.

In July 2005, Ali returns to Hong Kong permanently. He gets married in September. Towards the end of 2005 his volunteering days are over. He doesn’t mention this as a conscious choice, there is no day where his involvement as a Download Manager QA officially ends. He just mentions in the interview that he actively participated to Mozilla projects until 2005, and then his blog does not say anything anymore about Bugzilla or “daily triages”. In 2005 though, he has 2 blog posts called “Challenges faced by community projects” and “Community building”. It is as if, after a long involvement, he sums up his experience in observations which shape his opinion about what it means to work in a volunteer community.

After 2005, Ali’s blog continues (at the time of our writing, his last post was in January 2010). The posts are rarer, but this time he does not feel a need to mention why so much time passes between them. Still, he does continue to be a supporter of Mozilla. Among the usual posts (mostly involving his political views) he still talks about experiences he has with using Firefox or announces the release of new versions. He cannot use Firefox at work (though, he does have a post about wanting to) he remains a fan at home, but not a fanatic. Ali appreciates good software in general and does not let himself biased by Mozilla. For example, in the midst of his volunteering, in 2004, he openly “converts” to Opera as a mobile browser, since he believes it’s better than Mozilla’s attempts. This raised “irritated” comments from other mozillians.

Alex volunteering work also consists of more activities, all of them having to do with programming and higher software development skills. At the beginning, he had a lot to learn but he insisted in writing and rewriting patches¹⁸: “It's a very painful way to learn the development process”. Until today, he is one of the programmers fixing bugs in Mozilla.

Alex describes his development in a 2008 blog post: “I have always been a fan of the Mozilla code base - dating all the way back to my early high school years when Netscape was appearing on the scene. Shortly after I'd finished writing my book on JavaScript, I discovered Mozilla's user-interface had a huge JavaScript presence in it. After a few years tinkering around in the Mozilla codebase, a recruiting agency contacted me and asked if I wanted to do that for a living. To which my answer then - and now - is <absolutely, yes!> A few years later, I'm working at Skyfire Labs, Inc., [...] and I'm having the time of my life. I'm doing what I wanted to do, and I'm getting paid nicely to do it. What could possibly be better than that?”

Maybe confirming a common stereotype programmer, Alex sais he is rather the “lone wolf” when it comes to working. He does admit that he enjoys communicating with peers: he writes articles about his work and blogs about it (he mentions these activities as some of his ways of communication, aside newsgroups and IRC). Also, he enjoys meeting mozillians face-to-face: he goes to reunions and parties organized by Mozilla, on his own expense. As much as he is aware of the fact that his work depends on other code writers and vice-versa, he still sais that “I've never really considered myself a core member of the community - someone on the innermost circle.[...] most of the time, I feel like someone on the outside looking in - this despite the fact that I've now been involved with mozilla.org for about seven years now, and my work on Mozilla-based projects has directly led to the last two jobs I've held.”

Programming for Mozilla represented “side projects” for Alex, and they are not the only ones. He has his own programming project, which he considers to be something that is missing from the Mozilla portfolio: a web authoring tool. At his job, as well as in his spare time, Alex is a programmer. Work and hobby seem to come together in a life style which he is more than satisfied with. As a proof for his commitment to programming we could consider the fact that he even works on it on holidays: “As I started my vacation, I was thinking, <I'd like to edit regular

¹⁸ A patch is a piece of software designed to fix problems with, or update a computer program or its supporting data. Wikipedia http://en.wikipedia.org/wiki/Patch_%28computing%29

expressions in Mozilla. But I don't want to edit one at a time. I want to edit a bunch, and see what they all do to a bunch of text>”.

Asa should be considered a special case since he has been paid for his contributions since very early beginnings of the project. However, it is interesting to observe his stance on the Mozilla developments and volunteers, as he was and is one of the core employed mozillians. We could consider his voice to be representative for the formal institution of Mozilla, for the organization.

Although he had no background in informatics, Asa found open source projects fascinating and really insisted to get involved:”I realized that it was all about developers and their co-developers. And I was going to work my way into it because it was interesting enough for me”. It was a lot of work and he had to insist on contacting a lot of developers to finally make himself useful for them: “I finally got into some pretty consistent communications with developers about certain problems in the browser. And they convinced them that I was valuable, that I would help them find the problems they were introducing, or problems that affected their areas of code. And I started to learn how to create a good bug report that would be sufficient information for them to work with”. Then, together with few other non-developer Mozilla enthusiasts, Asa managed to merge two websites where people could be kept up to date with developments and the areas where help was needed. The numbers of registered users of that site – volunteers of all sorts: with less programming skills or experts – grew exponentially. What Asa did was to lower the barriers of entry in the open source project for the non-developers. It was also a lot of work for him, as he was busy training the new-comers in what it means to make themselves useful for the programmers: “Bugzilla had gotten enough sort of visibility through MozillaZine and other websites that the number of sort of casual testers were coming in and reporting those same low-quality bugs that I had in the early days. And developers were getting, I think, more and more frustrated by the degradation, the signal to noise ratio in Bugzilla, in the news groups and elsewhere. And so, I decided to take it on myself to go in and be a layer between the developers and a lot of these new people”.

After about a year of volunteer involvement, Asa went to a party for the volunteer community, got an award for QA¹⁹ and organizing “[a]nd that sort of turned into a job interview” because

¹⁹ Quality assurance.

“[he] was clearly organizing people”. Netscape employed Asa as a member of the team working on Mozilla. When the Mozilla Foundation separated itself from Netscape, Asa was one of the first employees; when Mozilla Corporation spawned from the Foundation, Asa became a Mozilla Corporation employee. Without getting into much detail about his activity as an employed mozillian, it should be mentioned that Asa’s contribution in creating and maintaining the community was essential. He realized that to build a community of contributors, they first need to make a name for themselves in a way that makes people want to be a part of the creation of Mozilla products:”we knew that if Mozilla was going to be successful, we had to - that those of us who early came on, who weren’t developers, we had to find a way to involve nondevelopers.[...] We realized we were going to have to market a product”. Asa thus used open source principles for marketing, and let the community be a part of it. The New York Times Firefox advertisement, as one of the first such efforts, is a relevant example: since Mozilla could never afford to pay for it, community members were asked to make small donations to raise the money. Today, there are a large variety of ways non-developers can contribute to Mozilla, and a large part of them belong in the marketing area, in “spreading the word”.

David’s curiosity and sympathy for the product brought him to a newsgroup of mozillians where he first started asking questions for his own use. With time, he became someone who answered questions, rather than asking them.

His next step was helped by another community member who introduced David to Bugzilla.

Despite the fact that he felt “very involved” with Mozilla, David was unsatisfied with the software. Out of this reason he got involved even more, got in touch with “the developers” and offered them his visions and opinions. One of his suggestions from those days is still in use in the present versions of Firefox.

In 2002, David saw the need for a support site for Phoenix, since he spent “so much time answering questions on forums”. So, by his own initiative and to make his life easier, he started the support website. Also “[he] viewed this as [his] first real opportunity to give something back to Mozilla, and also to practice more on website administration.” His initiative was recognized by “a Mozilla official”. Short time after that, the content of his website moved to mozilla.org and was officially acknowledged by the organization and community.

David spent a lot of time participating to Mozilla efforts: “I was definitely spending more time with Phoenix Help than I did on the homework of all classes combined”.

In 2007, while he was working as a software engineer in Sweden and volunteering on the side, David was contacted by Mozilla, interviewed over the phone, hired and brought to Mountain View, US (Mozilla headquarters).

5.1.4. Summary

The five Mozilla experiences show that being a member of the co-creative community is a trip that most of the times starts from people’s affinity for a Mozilla product or other software involved in Mozilla processes. Brant, Ali, Asa and David were all fans of a Mozilla/Netscape browser and wanted to make it better. Alex was a JavaScript enthusiast, and discovering that Mozilla software uses that language gave him an “Evrika! moment”. The first impulse for contribution comes, therefore, from Mozilla, because it offers its volunteers a platform for involvement, it offers a product they cared about and the opportunity to make it better. It is also important to notice that co-creators ended up promoting involvement in the project themselves. They all started participating because they liked the Mozilla browser. The first phase of their involvement was actually related to marketing. In addition, the programmers admit that the reason they contribute with code is because of personal dissatisfactions with the respective software product (“scratching their own itch”). It seems to come as a natural next step to contribute to spreading the word about Mozilla, its products and creative needs. Whether they do it on their personal blogs or telling friends in person, they become advocates of Mozilla. It can be advertising a new version of Firefox or Thunderbird (Ali), or directly asking for help for a Mozilla project they are currently swamped in (Alex). The important thing is that with their increasing involvement in Mozilla - and their acknowledgement as members - comes an impulse to ask more people to do the same thing

Depending on the level of programming knowledge, the contributions vary from advocacy to code writing and reviewing. Depending on time spent, contributions vary from occupying almost every waking moment (Alex even takes his Mozilla projects on vacation) to long intervals when other tasks have priority and Mozilla is put on hold (like school or family).

Membership in the Mozilla community is fluid, free to expand or contract depending on the individual's physical, intellectual and emotional availability. While this may not seem like a ground breaking observation, since volunteering work is, by definition, tied to individual free choice, its relevance still stands. The fact that people have the power to regulate their contribution, depending on what they believe is more important, may compensate for the fact that their participation does not bring a financial gain. It also complicates the coordination of an online co-creation project in terms of roles, responsibilities, participation forms, and figuring out relevant boundaries, as we will discuss further.

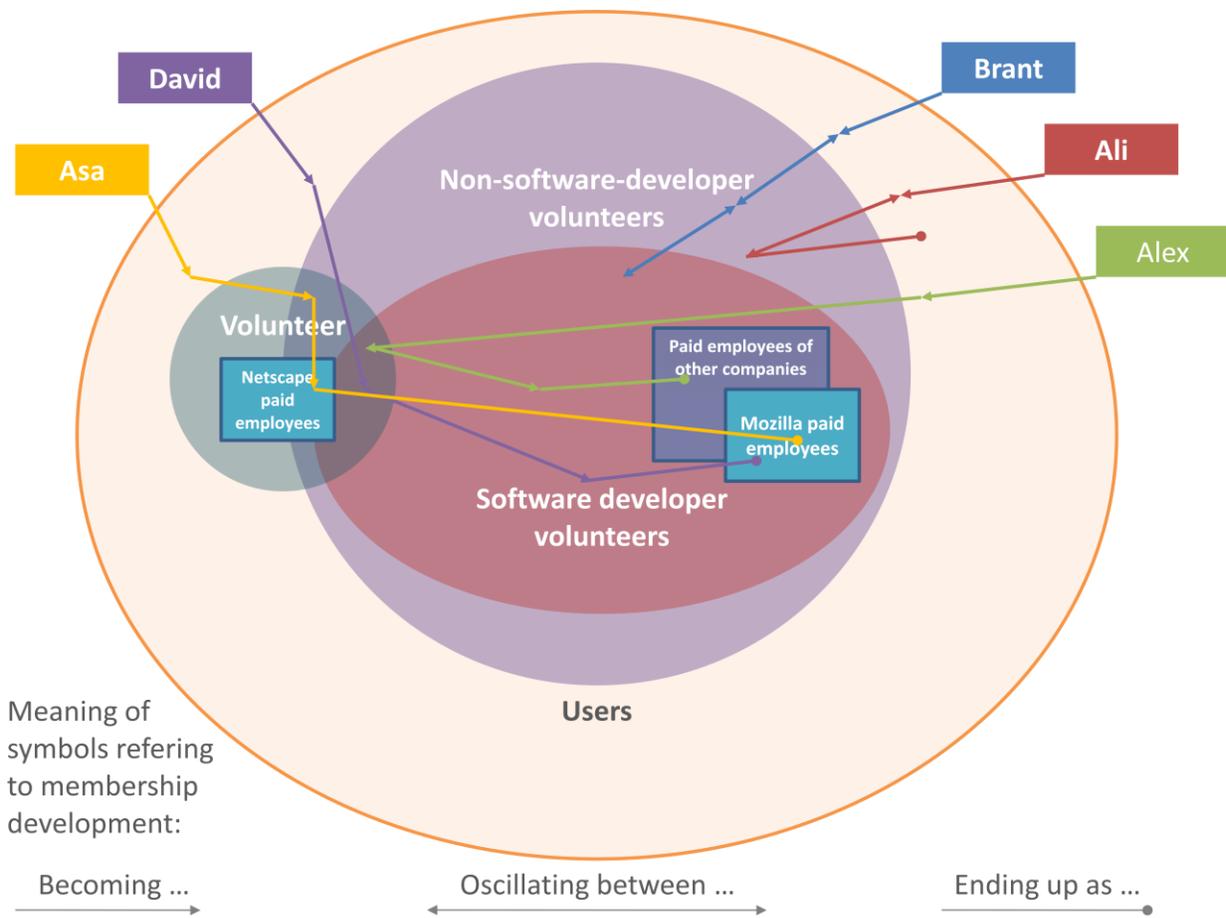


Figure 1.: Five membership sequences in time (authors' representation)

We introduce Figure 1. to illustrate the trajectories of the five volunteers within the Mozilla community. The arrows show their movement to or between different levels of involvement

(represented by the differently coloured areas). As an example of how the figure is to be read: Ali first became a user of Mozilla software, then he became a non-software-developer volunteer; during his volunteering years he took breaks from his Mozilla related activity (oscillated between volunteer and user) until he finally gave it up completely (ended up as Mozilla software user).

To conclude this section we argue that membership in a complex online project organization is as unstable as the individual's availability and competence to participate to it; it is rather tied to narrow, individual priorities and preferences than to the big picture of the organization, in spite of the collaborative discourse, coming even from volunteers themselves, that "people or corporations work towards a common goal"(Ali).

5.2.How is the membership of the volunteers constructed?

We engaged in our research eager to find out how volunteers get involved in a co-creation project, particularly one led by a for-profit organization, like Mozilla. Therefore, in this section, we will discuss how the membership of the five volunteers in the co-creative community developed, by looking at what external influences regulated that particular development and at the way the development is perceived.

5.2.1. External influences

Community responses

The initial response from the community plays a very important role. Except for Asa, who, we argued, is a special case, all the others had an easy time entering the community. With low barriers of entry, (the "Get involved!" website points people in the right direction very quick; numerous newsgroups and mailing lists are available for orientation etc.) the way one is welcomed becomes essential.

Brant said "I think it was pretty easy to get into the community. It was also fairly easy to get access to contributing the Mozilla Website. However, I still have not obtained access to the actual code tree." Though he found enough direction to get involved in what he wanted, he never got full access. Still, this did not hinder him, because he worked together with somebody who had the needed access. Brant had no problem with having fewer rights than others, as long as he

had from them the support he needed to solve his own problems. Brant's interview makes us believe that the relationships with his peer co-creators were less important than the relationship he had with the creation itself. He never uses "we" when talking about his involvement, or any other form of expressing his attachment to the community. Although other people were in charge of the projects he was contributing to, he worked alone, keeping the necessary contact on IRC²⁰.

Ali's participation got a boost from requests he got for his Firefox builds. The community – that is other users or volunteers – encouraged him to build more. "The response from the community was amazing", he said. Because his work was appreciated by his peers, Ali felt useful and competent. He created because he had an audience he had to please, and was proud to do it: "many people would choose to use my builds over the official Mozilla.org releases".

Alex first found out about the Mozilla community by getting help from it: help for his book. Ever since he has come to realize that his volunteering work depends on others' and the other way around, many people depend on him. While he revels in meeting community members face-to-face and values any kind of communication with them, he said he does not feel a "core member" of the community; rather he is a "lone wolf". This shows that positive and supportive responses do not necessarily add to the salience of an individual's membership. They are acknowledged and appreciated but seem not to influence Alex's way of thinking about his belonging to the community.

Asa has a long and unique history with the community. At the beginning he was pushy and patient enough until the software developers realized his usefulness. He is (and was, at the time of Brant's, Ali's, Alex's and David's volunteering days) recognized as one of the early members of the community and one of the most influential ones. As a Mozilla Corp. core employee, his role for our research lies rather on the other side, as someone who recognizes membership, not someone whose membership needs to be recognized.

To conclude, we argue that, for a volunteer to contribute, it counts if and how community members provide feedback, help and support to each other, but it is enough if they don't stay in the way of each other. Not for all of the volunteers is community something they are emotionally

²⁰ Internet Relay Chat (IRC) is a form of real-time Internet text messaging (chat) or synchronous conferencing. http://en.wikipedia.org/wiki/Internet_Relay_Chat

connected to. The community has also instrumental roles. The co- in co-creation might not have as much to do with emotional togetherness and collective satisfaction as with providing combined support for individual purposes.

Rewards

In our research we paid attention to more or less formal rewards volunteers got from Mozilla, which we also considered to be regulating their involvement and, thus, membership.

With regard to rewards, **Brant** (briefly) mentions a prize he got from a member of the community (employed by Netscape at that time) who sponsored a contest on tech evangelism. Mozilla itself did not reward him; it was an individual who sponsored the contest. This does mean, however, that his volunteering got him a material gain. While we cannot say this is a main reason for his involvement, it does attest his contribution.

Ali's contribution in Bugzilla was acknowledged by an "official", Mike Connor²¹ who offered him a formal role within the community - "Download Manager QA". At the same time, this naming confers Ali both with higher status and with responsibilities. Mike Connor pinpoints Ali as a member of the community and not only that, one that has a special position within it. Ali's enhanced knowledge resulted from enough time spend tracking bugs and the fact that he was one of the few people who did that, made him valuable enough for the project to earn him a formal title that would ensure the continuance of his activity.

Further formal acknowledgement of Ali's efforts were so called Spread Firefox points ("sfx points"). Promoters of Firefox who registered within an "Affiliates Program"²² would get points for convincing others to download Firefox or to participate in any other way. Based on these points Ali got to be honored "Community champion" because his promoting efforts got the most people to donate for the New York Times Firefox add: "Wow! I'd like to thank everyone who has donated to the SpreadFirefox New York Times advertising campaign via my blog or personal prodding. When I first set out to refer people, I never expected *this* kind of response!" (Ali).

²¹ At the time of writing the thesis, he is a Firefox lead engineer

²² <http://www.spreadfirefox.com/affiliatesfaq>

Another kind of reward volunteers would get are events and parties Mozilla organized for them. Alex mentions going to more of them to meet people he'd only known virtually, though the travel costs he supported himself. The first such event Asa participated in, transformed in a job interview. So these events are not only a celebration of their involvement, but also an opportunity to network and to make an impression.

Obviously, Mozilla does not pay its volunteers. But this doesn't mean volunteers do not get paid for their contributions. **Alex's** paid job requires him to stay involved in Mozilla projects, because his employer has an interest in it. Like him, there are a lot more professionals employed by technology companies whose jobs consist in Mozilla related tasks. These, together with Mozilla employees, are considered to do "the lion share" of the work (Ali).

As we could have expected, volunteers who prove themselves worthy get non-financial rewards which potentially establish their reputation within the community and boost their self-esteem. However, some of them get indirect financial rewards, by being employed by other companies interested in Mozilla development. Also, though money never switches hands, volunteering for Mozilla can come with a financial advantage in the form of a future job which volunteers would get because their employer considers involvement with Mozilla as work experience. Even more generally, volunteers can use the knowledge they gathered while writing code for Mozilla in their paid day jobs. For some of them, committed volunteering for a long time gets them the best reward they could expect: getting hired by Mozilla itself. David is such an example. He was ecstatic: "It's both exciting and confusing at the same time. I was actually dreaming about this day five years ago, and now that the dream is becoming a reality, it's almost frightening. ☺ ". Asa sees this as a way Mozilla can pay back the people who made a considerable sacrifice. He also admits they could never hire all remarkable volunteers, but they invest in people in other ways like founding scholarships at IT universities.

To conclude, we have noticed that in spite of the non-commercial aura around Mozilla, financial implications exist for volunteers as well, whether they acknowledge them as such or not.

In addition, Mozilla rewards per-se do not represent Mozilla's side of the social exchange with the volunteers. The "sfx" points, parties and awards are not what the volunteers get involved for but they acknowledge the volunteers' membership in a formal way. What the rewards stand for is

also important: reputation, knowledge, networking etc. Nevertheless, for our research, these rewards are relevant because they identify the respective volunteers as members of the co-creative community, also conferring them a special status.

Symbolic acknowledgements

Lastly, we would like to mention how the way volunteers were addressed and the titles they received also played a role in determining their membership.

For example, **Ali's** title as a "Download Manager QA" which did not change his activity, but acknowledged the long hours he spent triaging bugs.

David's Phoenix support site was acknowledged by "an official". The symbolic fact that someone important personally contacted David, the very day he started the support site, and thanked him mattered for David. He said: "That was probably more important for me than I first realized, because it really sparked my enthusiasm to keep working on it." That made David feel like he was doing something useful. Another symbolic way his work was recognized was when the content of his site moved to an official location, mozilla.org.

Concluding this section is our remark that not all volunteers got rewards or significant recognition. Brant never talks about his position as seen by the community, but that is mainly because he doesn't really care about it. For him, it is important that he got to do what he does care about: exercise his knowledge, enrich it, and fix his problems with the Mozilla software, including the fact that some websites do not support it (hence, the evangelism). Being a member in the community reduces itself to participation, as we have argued in our theoretical framework.

5.2.2. Perceived membership

As we have argued in the theoretical framework, being a member in a co-creation project is perceived differently by each individual, depending on the amount of rights and responsibilities they perceive to have (Masterson and Stamper 2003). We have observed the volunteers' interpretation of how balanced the exchange between rights and responsibilities was in their expression of frustration, excitement, exhaustion or disappointment, which we will discuss in this section.

Excitement or frustration?

Given the hype of co-creation which emphasizes the pleasure and satisfaction provoked by working together, we expected to find overwhelming accounts of fulfillment triggered by collaborative volunteering work. Indeed, most of them mentioned that one of the reasons of their involvement was the opportunity to be connected with experts from their field they could learn from, or just other people with the same interests. But talk about sheer happiness of working together *with* somebody else was not as often as we had expected.

For instance, Ali defines community projects as what “bring[s] like-minded people together”. However, he does affirm the success of such a project as a whole, depends on individual contributions. His feelings of joy and excitement in his volunteer days were rather triggered by the fact that his own contributions were useful for others and that he was able and knowledgeable enough to keep up with the fast pace of Mozilla developments. David also reveled in the fact that he could help others, seeing this as “giving something back” to the community who welcomed him and offered him the opportunity to change whatever he was dissatisfied with, software-wise.

Denying that the opportunity of collaboration did not positively influence volunteer’s involvement is far-fetched. Nevertheless, we observed a more colorful variety of effects.

Alex first felt frustrated when his patches were considered not good enough. For most of the time, he felt overwhelmed by the quantity of work that needed done and desperately asked for help in his blog. “At present, I’m directly cc’d on, the reporter for, or the owner of about 600 open bugs in mozilla.org’s Bugzilla. I can’t possibly fix all of them quickly (and keep my day job)” (Alex). David and Ali also spent considerable amounts of time contributing, since there was obviously too much work to be done.

On other occasions, some of them were disappointed about how things got done by Mozilla officials: Alex complains about Mitchell Baker’s official policy statement, Ali manifests his disagreement with the way Mozilla core people wanted to enhance Firefox’s reputation by asking users to post 1000 reviews on a particular website.

A common reason for involvement was the need to “scratch an itch”. All the volunteers we researched identified their dissatisfaction with the software as an initial reason to get involved

and resolve that specific problem. Alex and Brant even go as far as to state that it is why all programmers actually get involved: to fix their own issues with the respective piece of software. The fact that they actually could do it, represents the extended rights the organization gave volunteers. In exchange, volunteers took on the responsibility to optimize the software and put time and effort into it.

Our point in this section is that participation, and thus, membership, is shaped by dissatisfaction (with software, with too much work to be done) as well as by satisfaction (with networking opportunities). The imbalance between how things should work and how they actually do is at least as salient in the perception of membership as are the positive aspects like socialization and collaboration. But both, solving a problem and connecting with others do seem to have something in common: a flow of knowledge. By fixing their problem, volunteers admit that they gather experience and knowledge they could not get otherwise. They say the same thing about the possibility of exchanging ideas with peers. And all that, they contend, because they care about the co-creation result: about the software that they are passionate about.

5.3. Practical versus moral reasoning: roles and responsibilities in the Mozilla community

Given the fact that membership in the Mozilla community is not directly connected with financial aspects, the exchange between volunteers and Mozilla (Foundation and Corporation) reveals itself to be a complex one.

Mozilla's stated commitment to its users, and hence, its contributors, consists in releasing user-friendly, reliable, free software, and in its social mission to ensure an open and free internet for all. Asa says that by the very fact that Mozilla relies on open source principles, it exposes itself in the sense that, because anyone can take its code and use it for their own products, Mozilla needs to always be innovative and productive. Mozilla is "kept on its toes" by all the programmers out there who can profit from the Mozilla code. But this "open" in open source, does not mean that anyone can tamper with the Mozilla branded products - change them in real time for all the millions of users who will download it. Mozilla reserves the right and has the responsibility to only use contributions that benefit the unprofessional end-user, who needs an easy, safe way to surf the net. Asa sees a challenge in "trying to figure out how to invite people to participate in a

project, but also shield ourselves from some of the noise that's not very productive, and to do that in a way that doesn't just mean getting opaque". Though the value of the community is acknowledged, Mozilla's loyalty lies with its million of non-professional users. Its role is to protect the user from overcomplicated features some of the programmers would like a browser to have, but also from overwhelming advertising intentions of third parts: "[a]nd it was like - it was so clear that [Netscape] was going to monetize every pixel on the screen that they could - that that was a you know, a fundamental principle in the development of Firefox, was we're not going to whore out to Corel, and we're not going to - the interface is sacrosanct" (Asa).

We can conclude that Mozilla's bottom line is similar to the one of any for-profit organization: the customer comes first. Success means millions of free software downloads, awareness and user commitment, just as for other organization success means high sales, branding and repeat customers. We therefore observe a practical reasoning behind Mozilla decision making, rather than a moral one. To further explain this observation, we need to mention the way projects are run and decision are taken within Mozilla: "The Mozilla project is governed by a virtual management team made up of experts from various parts of the community. Some people with leadership roles are employed to work on Mozilla and others are not. Leadership roles are granted based on how active an individual is within the community as well as the quality and nature of his or her contributions."²³ There are module owners, super-reviewers, release drivers and component owners who, with different degrees and areas of responsibility, shape and approve the activity of co-creators, be they volunteers or not. This way, the contributions that arise from individual priorities and personal "itches" are channeled towards the higher purpose of Mozilla: providing user-friendly software. It is important to note that, while very flat, a hierarchy exists. At the top of the decision-making hierarchy sit two "benevolent dictators"(one for technical issues and one for non-technical issues) who have the final say in any major dispute.

But, if Mozilla "sides with the user", it means that there is a difference to be made between user and contributor. However, this differentiation is ambiguous since all contributors are users, and all users are potential contributors. From our research we have observed that, if a decision has to

²³ Mozilla Roles and Leadership at <http://www.mozilla.org/about/roles.html>

be made between being fair to a few co-creators and keeping a promise of usability to many downloaders, Mozilla, as an organization, will chose to be practical than be fair.

In addition to issues of decision making, it is important to note that a lot of Mozilla's code writing is done, contrary to popular hype, by paid professionals. This comes to prove that the quality of the end co-created product lies heavily in its responsibility. Asa sais: "But there's always been a large core of paid developers on this project, unlike a lot of the other open source projects out there."

On the other hand, many of these paid contributors have been hired out of the community. "I think that we have hired heavily out of the community as sort of a nice way for us to acknowledge the value that these people have given" (Asa). Therefore, Mozilla has the responsibility to acknowledge the community and pay it back. Its growing revenue adds to the pressure to financially participate to the well being of the volunteer community. "It is interesting to try to figure out how to be good stewards of the community, and where is the right balance in terms of do you put money out to community projects, or do you bring community into employment, right?" (Asa) However, hiring out of the community is not only a way of rewarding it, but also a very efficient recruiting policy, since all the hires have gone through extensive and free training while volunteering, and have already proven their competence. It thus makes business sense for Mozilla to hire them.

Having analyzed Mozilla's position in the exchange with the community, it is interesting to observe how this is acknowledged by volunteers and how they make sense of their own role and responsibilities.

"I think the management of open source listens more to its community or at least has a closer connection to it. The reasons for decisions are also more likely to be explained. I think general product direction is similar and driven by the same desires [as for commercial products], but the enforcement of that is different." (Brant)

"Firefox has never been designed by committee and decisions have usually been taken by one person alone." (Ali)

“Even if your project team ends up making the decisions of their own, make sure you reason with the community before doing so. This is basic psychology. The people in the community need to feel they are part of the project and that their voices are heard. Failing to keep the communication transparent can very easily lead to discontent within the community. This is something I have experienced from both sides of the fence - as a member of the community, and as a member of the project team. The lesson I've learned is that there should be no fence.”
(David)

As we can infer, it is a common understanding and acceptance of the fact that decisions are not taken by the community as a whole. Volunteers have rather a consultative role: they are “listened” to and things are “explained” to them. Communication and transparency function better than in other organizations, but the chain of command remains the same, as remains the interest in developing a viable product. Transparency does not empower the community, it just makes it “feel like” it’s a part of the decision making process. It is apparently just the perception of decision power that is enough for the community to stand behind decisions made by the few.

While volunteers do not have formal authority with regard to the final product, they do enjoy an informal right to voice their opinion whenever they feel a bad decision is being taken. But we have noticed that a decision is contested only if it directly affects their work or clash with their personal principles. Ali manifests his disagreement with the way Mozilla core people wanted to enhance Firefox’s reputation by asking users to post 1000 reviews on a particular website, because he considered it to be unfair for the uninformed person visiting that particular website who would this way form her opinion based on an unbalanced participation of Firefox fans. As a political science student, his principles say this action was illegitimate. Alex, on the other hand, has other worries, connected to his own contribution:” Whatever the plans are for Mozilla post-1.9, there's been no discussion of them in public. So while everyone's getting really hyped up about Mozilla 2, out here in the real world, where people are building real applications based on Mozilla 1.8/1.9, we're left wondering <what's next>?”

As unpaid contributors, volunteers take on only the responsibility connected to their particular interest. They do not seem to be concerned with the way this reflects on Mozilla or the end user, or with the fact that they are not paid for their work. As David said: “I think open source in itself is public service. However, the fact that you can actually make a living out of it is another

matter.” None of the volunteers expressed any suspicion of an eventual exploitation directed at them.

We have noticed that whether Mozilla is a business or a social phenomenon is an ambiguous subject. Brant sees Mozilla as “a commercial project [that] turned open source take advantage of the fixes contributed by the public”. Still, he volunteers because “It provides connections to other people in the industry. It is fun”. Ali said “Mozilla is not a business” but he does insist that management and coordination are needed and coins volunteers’ activity as “labour”. David opines: “Basically, the key to success is to involve as many people as possible in all aspects of the project, including decision making and marketing”

To conclude, we have observed that affection and morality play an important role in the decision to participate (volunteers need to care about the software, be passionate about it, morally agree with decisions and technically agree with peers). But we can also infer a practical reasoning behind volunteer involvement: they get education, experience and they “scratch their own itch”.

5.4. Boundaries for membership

In our analysis on why people get involved in a complex internet organization, belongs the observation of reasons which could inhibit their involvement, or even stop it altogether. In this section we will discuss the boundaries we have noticed to potentially stay in the way of volunteer contribution. It is therefore relevant to mention both difficulties in form of personal limitations that could be involved, as well as boundaries determined by Mozilla, the organization.

5.4.1. Individual boundaries

Knowledge boundary

Several of our five volunteers wanted to get involved with Mozilla but were temporary drawn back by their own belief that they were not competent enough.

Alex was asked by a mozillian to write a JavaScript guide, but turned the offer down since he did not think he was expert enough. “I said <no>. I said I didn't know how to do so”. But soon, he gained more self confidence, and, with help from peers, he realized he actually could write a

whole book about JavaScript. Asa, eager to get involved and active in the project, failed at first: "If you weren't a developer, and didn't have the ability to pull a source code and compile it into a build, you didn't get to play in the game". Ali thought that Mozilla provided a challenging environment, but before he actively got involved he waited to "learn the ropes". Only after he felt comfortable and competent enough did he use his new learned knowledge to help others by responding to queries. David saw his lack of knowledge as a motivator for learning, as well: "The more I was using Mozilla, the more I wanted to learn about it".

As we can observe, missing knowledge did not stop the volunteers from participating, but, for a while, kept them from being active contributors. The knowledge boundary is not one that cannot be crossed, on the contrary, participation helps diminish it, because it involves a learning process.

On the other hand, as we could observe from the five membership trajectories, professional programming skills do limit contributions. Non-programmers cannot write code, thus, they will not get involved in projects which involve software development. Ali, as a non-professional, differentiated among four kinds of contributors: "highly skilled, paid contributors; highly skilled, unpaid contributors, who donate significant amounts of time; less skilled, but enthusiastic and eager to learn unpaid contributors, who donate significant amounts of time; less skilled (or unskilled) unpaid contributors, who want to help in a small way that doesn't require a large commitment". His categorization was acknowledged by a Mozilla official. For us, it is a confirmation for our observation of knowledge as a personal barrier and it also points us to another limitation: time availability.

Time boundary

Contributing as a volunteer can be very time consuming. Most of the five volunteers had, at least occasionally, other things to consider such as study, work, travel or family.

Ali and David spend "too much time" contributing, ignoring university work or at least, doing more volunteering than studying (they were both students at that time). Asa spent forty hours a week on his hobby, Mozilla volunteering. For Alex, Mozilla was a side project to which he dedicated a lot of his free time, even vacations. We did observe frustrations provoked by too

much Mozilla work and too little time to do it in. Alex says the developers are “chronically swamped”.

We also observed that, because time is such a limited resource, volunteering starts early, when people are in high school (Brant, Alex) or university (David and Ali), and time flexibility is not confined by a 9-to-5 job. As a proof for membership being limited (even ended) by time issues, we can mention Ali: after his studies he got a job and started a family. That is when his volunteering days are over, for no other reason than new, time consuming priorities. Adulthood seems to be a strong limitation for Mozilla volunteering, since time has to be spent earning a living. As long as the volunteering activity does not have anything to do with one’s day job, volunteering gets limited to the little free time one has left.

Online communication boundary

Most of the volunteers are daily spending a lot of time in front of a computer monitor. However, internet based communication may hold people back by not delivering the necessary feedback and support which are needed for a productive work process. Online projects are defined by little live interaction. This may result in a slower work process and slower response in case of questions or comments.

While volunteering for Mozilla, Alex mostly worked alone but he did depend on other developers. He found that challenging, since communication was limited to virtual connections. That is why meeting the people in person, on the rare occasions of Mozilla reunions and events, are important to him: “I appreciate the face-to-face meetings [...] Because let's face it... I'm a fairly fast typist, but the spoken word is much faster than the written one 😊.”

With mostly just online channels available, the volunteers have to go through information and discover things for themselves. They also have to take the first step in making contact with other people involved. Writing an e-mail to a stranger can prove to be difficult. On the other hand, physically, that person is just one click away. Virtual communication comes with social implications which could hinder contribution. Nevertheless, for outgoing, high-school students who grew up with computers, like Brant, it is a piece of cake: “I think it was pretty easy to get into the community. It was also fairly easy to get access to contributing the Mozilla Website.”

Another barrier for participation is identified by Asa: “If you don’t have experience and some don’t, in developing open source projects, it’s very different. It does expose you to, you know, that fishbowl world. It exposes you to a lot of - in many cases - unfair criticism and, in some cases, legitimate, but public criticism is hard for some people.” As a volunteer, one’s work is visible for anyone in the community and anyone has a right to comment on it. Limitations in communication skills and less than strong self-confidence are barriers for collaboration in a complex online project.

Moral boundary

Accepting the way decisions are taken and the principles behind Mozilla is a matter of moral agreement which can prove to be a barrier in the way of membership. We have already mentioned Ali’s disagreement with what he considers to be astroturfing²⁴ from the part of Mozilla. He said: “asking people to increase mindshare *this* way I think is a step backwards from the kind of organization I’d like to see mozilla.org become. So far I’ve been happy and supportive of all of mozilla.org’s marketing initiatives for Firefox. I can’t say I’m going to get behind this one, though. [...]I’m just a little saddened to see mozilla.org encouraging this kind of behavior.” He admits he will not stop being a member of the community because of this, but the clash of principles is a good example for what we mean by a moral boundary.

We argue that the unfairness of Mozilla activities, as interpreted by each individual volunteer, inhibits membership.

5.4.2. Organizational boundaries

All five volunteers express different personal boundaries when getting involved with an internet project such as Mozilla. They experienced personal boundaries in form of not having enough knowledge to contribute. Many of the volunteers also said that work with Mozilla was too time consuming. Some of them preferred to meet people face-to-face rather than only communicating online. In addition, there is also another type of boundaries involved, limiting membership: the

²⁴ “Astroturfing is a form of propaganda whose techniques usually consist of a few people attempting to give the impression that mass numbers of enthusiasts advocate some specific cause.”
<http://en.wikipedia.org/wiki/Astroturfing>

boundaries defined by Mozilla. We note that these boundaries do not separate Mozilla from the rest of the world, since to become a member one just has to participate, no matter how representative that participation is. The organizational boundaries are more complex in a community organization such as Mozilla. In this section we are going to bring up potential organizational boundaries which volunteers encounter after they have already become members, since we assumed that the step beyond the traditional inside/outside boundary is easily made through any kind of participation.

Access and meritocracy

A significant amount of the work contributed in Mozilla projects is done by volunteers with no tangible rewards such as a paid salary. This results in much individual control from the volunteers on work tasks and schedules. It is, thus, more challenging to coordinate an organization that operates like Mozilla, compared to a more traditional organization. In traditional organizations there are visible boundaries for contribution, such as set schedules and controlled work tasks which are distributed by managers. Volunteers have the freedom of contribution depending on their own interest. For example, whatever Brant contributed with, he always self-selected himself to do it, ignoring requests for help in areas he was not interested in: “There were always pages here or there that asked for help in certain areas, but I always worked on things I cared about”. Since Brant is a volunteer, Mozilla does not have the right to tell him what he has to work on. However, Brant cannot change whatever he feels like in the final product of Mozilla, he has limited access. Like him, limited access have all the volunteers who still are in the process of proving their capabilities and sense of responsibility.

Therefore, we argue that instead of the traditional organizational boundary delimiting the inside from the outside by considering employees on the inside and the customers on the outside, Mozilla’s borders exist in terms of access to organizational processes. While the volunteers are welcomed to come and go as they please, not all of them are welcomed to influence critical processes. As mentioned before, there is a certain pattern of leadership roles (module owners, benevolent dictators, etc.) to be filled by people who have been recognized by Mozilla as well as the whole community, to be fit for the job. This boundary has been formalized by Mozilla in the interest of its end-users, because they acknowledge the variety of other interests held by the

numerous volunteers, which could lead to endless disputes. Access limitation is not a matter of shielding Mozilla from volunteers with dishonest or evil intentions. On the contrary, they all care about its products (that's why they volunteer in the first place), but because they care so much they have "uncompromising views on how things <should> work" (Ali) and these can lead to conflict within the community and with the organization.

However, just as the knowledge boundary can be surmounted by any persevering individual volunteer, the access boundary can also be surpassed. As Asa argues, and as it is explained on official Mozilla websites, the way to access and responsibility is through meritocracy. Employee or volunteer, one can take the lead. The only condition is that one's abilities and authority have been proven both to Mozilla officials and to the community. Our research has also confirmed the fact that volunteers have been granted more responsibilities by Mozilla officials after they have shown their competence on forums and newsgroups. We cannot say, however, if the other community members acknowledged their new position in a positive way, or even if their recognition made any difference for the way things got done.

In conclusion, organizational boundaries in the case of co-creative online projects do not differentiate between internal and external aspects, but among numerous internal levels. Signing an employment contract is not what brings an individual inside the organization, but the decision to participate, which is limited both by individual as well as by organizational barriers.

6. Discussion

In this section we would like to revisit the concept of co-creation and discuss it in the light of our research.

The architects of co-creation, Prahalad and Ramaswamy (2004), consider it a novel way to bring the customer into the productive process. Each customer would create their own experience with the organization, willing to take on responsibility for the end result (after risk assessment) while transparency, dialogue and access from the part of the organization should pave the way to successful co-creation – Prahalad et al.'s D.A.R.T. model.

In our case, Mozilla's production process is free software development and its customers are its users. However, not every single user participates to Mozilla processes, be they software development or marketing related. Co-creation is not totally inclusive. From the volunteers we researched we have learned that two-way communication is successful, among community members. The online environment supports a rich dialogue via IRC, newsgroups, forums etc. But not always is this dialogue successful with Mozilla, as an organization - Alex criticizes Mozilla for not sharing their plans for the future of a project with the developers. Transparency is not complete. Software developers work in a "fishbowl", exposing their work to criticism. The production process is transparent, but the same cannot be said about the decision-making process. Mozilla reserves the final word when it comes to its final products and its promise of a better internet for users. This means that access to co-creation is also restricted. Of course, comparing to a traditional company, an open source organization confers much more space for contribution, but not for crucial tasks and not for anyone. However, the existent degrees of access, transparency, dialogue and responsibility operate well together, since today Mozilla has a substantial community of contributors.

We observe that, while the ingredients for successful co-creation may have been correctly identified (D.A.R.T.), the measures for them and their appropriate level of ripeness remain problematic.

In addition, we need to comment on the collaborative, convivial aura co-creation can be surrounded by. We have observed that being a member of a complex online project which relies

on community support is not always a source of contentment. As a volunteer, one must not necessarily revel in the enjoyment of working with other people. Exhaustion and frustration are also a part of the experience. Co-creation is not always fun and is not always connected with feelings of togetherness. We cannot deny that community plays an essential role in the lives of the volunteers. Rather, we would like to de-emphasize the hype of affectionate collaboration without overemphasizing egoistic, purely rational behavior.

Indeed, in the case of complex organizations like Mozilla, dichotomies like “together-alone”, “affective-rational”, “management-follower”, “bureaucracy-adhocracy”, “anarchy-dictatorship” may not be so helpful to understand what is going on. However, it is difficult to avoid describing social phenomena in dichotomous ways (Kärreman, Sveningsson and Alvesson 2003). In Mozilla, we can observe collaborative behavior and consensual productive processes, freedom of organizing one’s work and of expressing one’s view. But we can also observe a functional hierarchy, roles, rules and discipline. Merely coining Mozilla as a hybrid brings little to the unveiling of its success to involve volunteers and, hence, exist. More in-depth, localized perspectives need to be considered and, if we should believe that co-creation needs entirely novel ways of thinking about organization and work, starting points for that redefinition need to be found. We found them in researching the positions five individual volunteers have had, the roles and responsibilities they took on, the boundaries they encountered.

Our observations lead us to believe that caring for a product is essential for the decision of participating to make it better. At the same time, volunteers understand that if everyone would do whatever they wanted, their own work would be in danger, let alone the end-result. All of them acknowledge a need for management and coordination. Hence, the rules Mozilla formalized are accepted. Practical reasoning does not overcome moral and affective reasoning, but it enforces and supports it.

7. Conclusion

Our research relied on five individual experiences within a complex online project organization. We hoped to gain insight into what lies behind volunteer involvement in a co-creation process. We analyzed formal and informal acknowledgements of membership, distribution of roles and responsibilities and potential individual and organizational boundaries.

Our findings suggest that membership in a complex online project is a changing state that can vary in intensity and duration, influenced by physical, emotional and intellectual dimensions of the individual, as well as by organizational financial or symbolic recognition. Although the trajectories of membership are as different as the people who have them, we observed a common denominator: the origin of membership lies in the individual's attraction towards the co-created product. In our opinion, co-creation starts with marketing.

We have also observed that the commercial aspect of co-creation is not significantly salient at individual level. However, this does not mean that whether Mozilla is a business or a social phenomenon is a clear-cut subject, but one that remains ambiguous in the perceptions of volunteers. While they do not forget Mozilla's impact on the lives of millions of users, volunteers narrow their priorities to their own individual interest, to their own participation within the project. This clashes with the common perception of collaboration for the greater good. Volunteers are "scratching their own itch".

In addition, we conclude that Mozilla is not as open and anarchic as one might think. Bureaucratic elements like hierarchies, division of work, rules and specific roles function as practical measures taken to preserve the integrity of Mozilla's branded products in the interest of its end-users, rather than of its co-creative community. Without being inconsiderate towards its volunteers, Mozilla sides with the users. The co-creatives' role and responsibilities are limited to their own participation, not to the big picture, of which Mozilla, as an organization, is in charge. Volunteers themselves acknowledge the importance of management and coordination for the efficiency of the productive process, and for the health of the community.

Further, we argue that membership in the Mozilla projects means participating to them, in any way. The development of membership is shaped by individual boundaries: knowledge, time

availability, online communication skills and moral principles. For these reasons, membership has been observed to be salient during high-school or university studies, when people have time to invest in participation and when taking on challenges outside school can have a positive impact on personal development. Mozilla as an organization keeps boundaries not in the differentiation between internal and external but in awarding more or less access to employees or volunteers, on accounts of merit.

Finally, supported by the above arguments, we argue that the euphoric collaborative discourse around co-creation and Mozilla is not corrupt, but exaggerate. Co-creation is substantially supported by individual “itches” and is not always a pleasant experience.

Implications for further research

Supported by our findings, we argue that, before joining the hype of co-creation, future research should have a critical perspective on the processes behind it and a localized view in the individual perception.

Also, our study is limited to volunteers who invested considerable amounts of time contributing to Mozilla in technical areas. Studying casual volunteers or volunteers from non-software related projects may offer different and interesting insights.

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Online resources

Ali's blog: <http://blog.ebrahim.org/>

Alex's blog: <http://weblogs.mozillazine.org/weirdal/>

Asa's blog: <http://weblogs.mozillazine.org/asa/>

David's blog: <http://djst.org/blog/>

Mark Surman's blog: <http://commonsplace.wordpress.com/2009/04/23/what-is-a-hybrid-organization/>

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Interview with Brant: <http://mozillamemory.org/detailview.php?id=979>

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