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Analysing Multi-voiced Strategising and Firm-stakeholder Interaction in Open Source Software Communities

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Abstract—**This paper discusses how to analyse the firm-stakeholder interaction in open source software (OSS) communities by looking at the process from a multi-voiced strategy perspective. We argue that current business models are built on a single-voiced understanding of strategising and interaction. This means that different stakeholders in the OSS communities are left without a voice in firms' strategy processes. As different actors involved in the OSS communities have sometimes very contradictory intentions and expectations, it is important to discover ways that will help us to better understand the nature of interaction in these communities and to create new ways of strategising that will take into account the different stakeholder perspectives.**

Keywords—**open source software, communities, multi-voiced strategizing, interaction**

I. INTRODUCTION

The utilisation of open source software (OSS) has increased remarkably in the recent years (Meyers & Oberndorf 2001). Researching OSS networks and communities has received a lot of attention from scholars in the fields of organisation and innovation, too. At the same time as OSS has become a serious alternative for the utilisation of proprietary software as well in the office as in personal use (Helander & Rissanen 2006), it challenges our conventional understanding regarding the role of firms, intellectual property rights, and organisational forms (Dahlander & Magnusson 2005). Given that open source communities themselves are networks mixed up by individual developers and firms participating in the community, OSS is an interesting research context from the stakeholder viewpoint. There are largely over 100,000 open source projects in the world. These projects, and the OSS communities created by them, are usually in some way linked to each other. Thus, it is not a surprise that OSS communities have been in the interest of quite a few network researchers as well (e.g. Kidane & Gloor 2005, Ye & Kishna 2003, Lakhani & von Hippel 2003, Lee & Cole 2003, Nakakoji et al. 2002).

However, the number of studies that specifically take into account the role of firms in these OSS communities or emphasise the firm-stakeholder interaction is still rather limited (for exceptions, see Goldman & Gabriel 2005, Dahlander & Magnusson 2005). One of the most remarkable features of OSS is that the knowledge to create the product is not in the hands of firms, but resides within different actors around the firm (Dahlander & Magnusson 2005). As actors involved in the OSS communities have sometimes very contradictory intentions and expectations, we find it important to seek ways of strategising that will take into account the perspectives of different parties by analysing the nature of firm-stakeholder interaction in the OSS communities.

The purpose of this paper is to discuss how we can analyse the firm-stakeholder interaction in OSS communities by looking at the process from a multi-voiced strategy perspective. Multi-voicedness is defined as a company's understanding of multiple stakeholder interests. The paper starts by discussing what it takes to formulate a multi-voiced strategy process that incorporates varying or even contradictory stakeholder views. As a result of the discussion build on stakeholder thinking, we present a way to look at strategy making from a multi-voiced stakeholder perspective.

After that, we take a look at OSS communities and relations between OSS firms as well as other actors in the networks by assessing the elements of multi-voiced strategising in OSS communities. Finally, based on these elements, we discuss how multi-voiced strategising and firm-stakeholder interaction in OSS communities can be analysed at the empirical level. The paper is part of a larger research project, which aims to study the various business

opportunities and business models provided by the open source software.

II. FROM SINGLE-VOICED TO MULTI-VOICED STRATEGISING

The idea of multi-voiced strategising builds on the basic assumption of the stakeholder approach that an organisation's purpose, be it public or private, is continuously constructed from multiple stakeholder views that often contradict each other. The purpose of the stakeholder organisation stems from the goals of its stakeholders and becomes identified by engaging in dialogue with different stakeholders. (See e.g. Evan & Freeman 1988, Wheeler & Sillanpää 1997.) This means that corporations and their managers have obligations to a large set of different stakeholders, not just stockholders or owners. Effective strategising in such an organisation needs practices that celebrate the multi-voiced nature of the operations. However, it seems that current strategic theories and practical models do not support strategising in multi-voiced business settings. Rather, they promote single-voiced strategy processes (Eriksson & Lehtimäki 2001).

The single-voicedness of strategic thinking refers to the deterministic manner of prevalent strategy making discourse in determining, who are strategically important actors and who are not (Knights & Morgan 1990). In current strategy making practices, it is natural to view top managers, strategy consultants and large institutional stakeholders as legitimate participants in the strategy processes. It is as natural to neglect the role of, for instance, employees or all less influential stakeholders, such as activist groups and other NGOs, citizens and members of local communities or even raw material or component suppliers, in strategy making processes (Lehtimäki 2000).

The core of the multi-voiced strategy process lies in the criticism of the conventions of strategy making which define other than the focal organisation's understandings of its purpose and goals as less valuable, opinionated or even worthless information. A multi-voiced business setting calls for a multi-voiced strategy process that allows for different opinions and understandings to be heard in strategy making. In Table 1, single-voiced and multi-voiced strategising have been illustrated by paying attention to three dimensions: strategic actors, strategic activities and strategic actions (c.f. Lehtimäki & Kujala 2005).

TABLE 1

SINGLE-VOICED AND MULTI-VOICED STRATEGISING (ADAPTED FROM LEHTIMÄKI & KUJALA 2005)

	Single-voiced strategising	Multi-voiced strategising
Strategic actors	Rational and opportunistic actors	Willingness to listen and respect for others
Strategic activities	Hierarchical Instrumental	Relational Networked
Strategic actions	Unified strategic vision Rational planning	Open strategising Stakeholder inclusion

Concerning strategic actors, multi-voiced strategising is a way to break away from predominant actor categories that limit open dialogue. The presumption in multi-voiced strategising is to allow for participants to be heard and treated as knowledgeable in their own terms. Thus, multi-voiced strategising requires that actors are willing to listen and respect for others instead of rational and opportunistic actor view of single-voiced strategising. (Lehtimäki 2000.)

In multi-voiced strategising, the strategy process is embedded in a broad range of stakeholder networks. This means that strategic activities are seen as relational and networked compared to hierarchical and instrumental activities of single-voiced strategising. Of course, power issues are always present whether we talk about hierarchical and instrumental or relational and networked activities. But, instead of brushing them away, they need to be taken into account. Strategic management meets a challenge in trying to piece together all the goals of different stakeholders. One should keep in mind that all actors are actively seeking to accomplish their own purposes, but these purposes can be negotiated and discussed. (Lehtimäki & Kujala 2005.) Ideally, taking the multitude of goals and purposes as the starting point leads to deeper level interaction and allows an open dialogue between different actors. Only then we can talk about genuine relational and networked strategic activities.

Finally, in multi-voiced strategic actions, single-voiced strategising with unified strategic vision and rational planning is replaced with open strategising and stakeholder inclusion. This means, for example, that strategy practices are changed from closed and tightly scheduled expert and management meetings to listening to different stakeholder viewpoints, analysing the argumentation behind the viewpoints, and building an understanding of the value structure guiding different agendas under discussion (Kujala et al. 2005). Furthermore, strategising becomes understood as an ongoing process rather than a sequential process that begins with planning and ends in published strategy documents to be implemented in the organisation. Multi-voiced strategising brings stakeholder dialogue into

the strategic focus. Visions, purposes and other ways of strategic actions become formulated in the continuous process of stakeholder inclusion.

III. MULTI-VOICED STRATEGISING IN OPEN SOURCE SOFTWARE COMMUNITIES

Previous literature on OSS communities has discussed the different actor roles that the individual developers have in the networks. For example, Nakakoji et al. (2002) and Ye and Kishida (2003) have modelled the roles of the actors by their involvement in the OSS project. They have identified in total eight roles: project leaders, core members, active developers, peripheral developers, bug fixers, bug reporters, readers and passive users. Although not all OSS networks have all these participants, these eight roles can serve as a starting point for the empirical analysis of actors in the OSS communities.

Another important point is to consider what kinds of firms and firm roles can be found in the OSS communities. Räsänen (2004) has identified an OSS value chain, starting from OSS developer communities and ending to the potential utilisers, for example different industry segments and public or private organisations, for the open source software. However, these potential utilisers rarely interact directly with the developer communities. This creates a need for intermediators between the utilisers and the developer community. In the OSS value chain model, Räsänen (2004) identified several different kinds of intermediators. Some firms operate almost entirely in the open source software business, either as software developers, integrators, service providers or pure consultants, whereas some other firms represent the more traditional, proprietary-based software business, but are producing software products and systems that are used in OSS environments.

When we extend our analysis to the interaction and relationships between the actors, we can utilise the four basic elements of relationships identified by Easton (1992): mutuality, interdependence, different power relations, and investments made in the relationship. OSS macro networks, meaning the network consisted of several OSS communities, are characterised by three elements: mutuality, interdependence and different power relations. However, these elements may vary a lot between different OSS communities. The dependencies between communities can be two-way, leading towards mutuality and usually more balanced power relations between the two communities. However, one-way dependencies are also common, which means that one OSS community is dependent on another OSS community but not vice versa. This usually leads to unbalanced power relations between the two communities, as only one of the parties of the dyad is dependent on the other. Different kinds of power positions can be present just within one open source community. In fact, it is common that the heart of the community consists of central developers that have more power in the community than, for example, the fringe developers have. Central actors with a lot of power can influence the future directions of the developed system, work allocation and other important strategic decisions made within the community.

Literature concerning OSS communities does not tell us much about the strategic actions dimension of multi-voiced strategising. However, we know some examples of OSS firms that are trying to bring new issues to strategic focus by placing their employees in everyday interaction with other actors of the communities. From multi-voiced strategy perspective, such actions can promote the dialogue between different stakeholders and engage new ideas and viewpoints to a company's strategy process. Table 2 summarises the above-discussed elements of multi-voiced strategising in OSS communities.

TABLE II
ELEMENTS OF MULTI-VOICED STRATEGISING IN OSS COMMUNITIES

Strategic actors	Individuals: project leaders, core members, active developers, peripheral developers, bug fixers, bug reporters, readers and passive users Organisations: Developer communities, intermediators, utilisers
Strategic activities	Mutuality, Interdependency, Different power relations, Investments made in the relationship
Strategic actions	Interaction between different stakeholders

IV. ANALYSING MULTI-VOICED STRATEGISING IN OSS COMMUNITIES

In order to analyse the multi-voiced strategising in OSS communities at the empirical level we must develop a research instrument that is able to capture the multi-dimensional nature of the everyday management and strategising. We believe that it is important to gather data from different parties of the communities as well as from different levels of organisations to ensure that we get a rich and versatile description of the OSS communities. In empirical data gathering, we follow the advice of Denzin and Lincoln (2000), who recommend qualitative methods when researchers aim at capturing an individual's own experiences and point of view and wish to secure rich descriptions of the social world explored. To collect the qualitative date, we use personal interviews, as the researched phenomenon is relatively new and unexplored (Hirsijärvi et al. 2005). Based on our theoretical premises of single-voiced and multi-voiced strategising presented in Table 1 and the elements of multi-voiced strategising in OSS communities presented in Table 2, we have developed a suggestion for the empirical research instrument for each

of the three dimensions of strategising (Table 3).

TABLE III
EMPIRICAL RESEARCH INSTRUMENT FOR ANALYSING MULTI-
VOICED STRATEGISING IN OSS COMMUNITIES

	Questions presented to the interviewees
Strategic actors	Which actors are thought to have strategic importance in the OSS communities?
Strategic activities	What are the relations between different actors like?
Strategic actions	How are different stakeholders incorporated as part of the strategic actions of the focal firm?

In the interviews, the dimension of strategic actors is suggested to be researched with a question: Which actors are thought to have strategic importance in the OSS communities? This questions stands for the interest in different individual and organisational actors in the OSS communities. In the analysis of the interviews, we can further pay attention to which actors are presented as active parties of strategising or who are thought to have power in terms of how the communities are developed.

The dimension of strategic activities is proposed to be researched with the following question: What are the relations between different actors like? This question represents the concern for the quality of the relations between different parties of the OSS communities. When analysing the responses, we can consider what kinds of expectations different actors have toward each other, and pay attention to the taken-for-granted basis of actors' relations.

Finally, the dimension of strategic actions can be researched with a question: How are different stakeholders incorporated as part of the strategic actions of the focal firm? This question reveals the characteristics of the strategy process and its outcomes. In the interview analysis, we can pay attention to whether the strategy statements, such as visions or strategic goals, of the focal firm include the views of different stakeholders.

In addition to personal interviews, some other data gathering methods might also be suitable for analysing multi-voiced strategising and firm-stakeholder interaction in OSS communities. For example, by looking at the printed strategy documents or the web pages of the companies, we could find out many things about the strategic actions dimension. A thorough case study of a OSS community could also reveal many interesting viewpoints. But, as a starting point for studying the novel and rapidly developing OSS phenomenon, the interview based qualitative research is believed to serve best. The next step is to move on with testing, and if needed further developing, the empirical research instrument presented above, and after that start the empirical data gathering.

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