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On the Social Construction of Open Innovation

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Abstract. In this paper we want to illustrate examples of Open Design Spaces (ODS) and raise the question how to organizing the openness for practicing Open Innovation (OI). In a case study, we studied the role of a small sized software enterprise (SME) in a software development project that has the form of a more or less contingent value web. In that way the project constitutes an ODS where heterogeneous actors participate. In our research we study the participation of the SME on that ODS and we study the way the SME makes use of new opportunities for innovational development given by such spaces. In a critical reflection of our experiences, we raise the question, how openness must be organized so that it supports the sustainability of the individual SME as well as Open Innovation (OI) as a whole.

Open Design Spaces as Places for Open Innovation

In the software branch the competence to innovate - coming up with new ideas and bringing them successfully into the market - becomes a sine qua non in general. Therefore, almost any company makes huge efforts to improve their way

of commercialization of their industrial knowledge, with the aim of creating new ideas to reach sustainable growth and to stay competitive. In current innovation management literature the conception of Open Innovation (OI) is suggested as the novel approach to develop innovations more efficient.

OI follows the paradigm that “*firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as firms look to advance their technology*” (Chesbrough 2003, p. XXIV).

This means, that new innovations are not developed exclusively within the borders of one company, but are co-created in networks (value webs) of heterogeneous stakeholders, such as (communities of) users, hobbyist developers, universities or even competitors. OI constitutes and is constituted by a platform or ‘open innovation space’ to create, develop and discuss new customized products and services in a heterogeneous network (Piller et al. 2004). Taking up the ideas of this workshop, we call this room in the following Open Design Spaces (ODS).

This ODS provides the chance for a company to get in contact with new ideas, knowledge or technologies that are created by various stakeholders with heterogeneous cultural backgrounds. Initially, these new ideas often have the form of - metaphorically spoken - tiny, dirty gold nuggets that are burrowed deeply in the bulk of ODS. In the mud of ODS there might be ‘innovation seeds’, which contain novel ‘need knowledge’ or ‘solution knowledge’ (Reichwald and Piller 2006) which have the potential to mature to innovations which can be brought into a rising market.

Herzog (2008) stresses, that the introduction of an OI paradigm should come along with a change in the firm’s innovation culture, because such innovation seeds can only be adopted if a company overcomes the not-invented-here syndrome (Lichtenthaler and Ernst 2006). The organizational culture needs to produce a climate where it is not important whether an innovation seed comes from an external or internal source. Becoming aware of the essential importance of OI processes in economic our work has a strong interest in researching these ODS supporting companies coming up with innovative products.

From this perspective, we interpret ODS as the places which obtain new opportunities for innovational development. In realm of software development, a special case of OI spaces is given by Open Source Software Development (OSSD) (Bitzer and Schroder 2006; Feller et al. 2007; Henkel 2007) or by ICT innovation (Williams et al. 2005) like our case. In particular we illustrate in this paper our empirical data of how a SME of the German software branch makes use of their relationship with its users to drive innovation in the context of a business simulation game which is used in business school lessons.

The paper is organized as follows: After presenting our research methodology and the case study conducted, we will introduce the SME and its value webs in more detail. Afterwards, we will discuss our empirical findings of how the SME makes innovative use of its ODS. The paper ends with a conclusion and some lessons learned.

Research Methodology

In our research we are interested in practices of a SME of the German software branch using innovation potentials given through ODS. Our analysis and our findings are out of a research project about End User Development (EUD). In this project we cooperate with different software companies to integrate EUD concepts in their products. As a part of this project we conducted a case study in a SME, to analyze and understand how the EUD orientation is reflected in their daily work practices. Therefore, we focused in this research not the technical challenges, but the organizational challenges to bring EUD into praxis. In particular, we wanted to analyze the issue, how the SME organize their customer knowledge (cf. Meurer 2008; Nett et al. 2008).

The study was conducted from September to December 2007, mainly based on ten interviews of one hour of duration each. In the study it was possible to interview all employees with a fix contract: the CEO of the enterprise, the CIO, one apprentice of IT-technology, two marketing employees, one additional technician and one designer. Additional interviews were conducted with one former marketing employee, as well as with one designer and one development freelancer, both of them with a long record of contracts with the company. All interviews were based on a semi-structured guideline, which contained questions on the role, tasks and responsibility of the interviewees in the enterprise. Further, questions were asked about processes and communication media in the context of possible knowledge on or contact to the clients. Interviews left room to answer according to an own relevance-system. Interviews were recorded, transcribed, paraphrased and analyzed. We interpreted the empirical material in two steps. Firstly we paraphrased the material and identified on this way sequences which are under our theoretic lens of great interest. Secondly analyzed in detail with the sequence analysis, a hermeneutic Kunstlehre suggested by Ulrich Oevermann (cf. Titscher et al. 2000).

In reaction to the issue of the workshop, we have taken a look on our empirical data using the idea of ODS as an analytical lens. As we have pointed above, we do not assume that the participation in heterogeneous value webs exist in a vacuum, but constitute by interacting new spaces, ODS where new ideas and knowledge can be used as innovation seeds. We use this vague interpretation of ODS as a heuristic construct in order to organize our empirical material.

In particular, we interpret ODS not as physical entity, but as a social entity. From this perspective we argue that the ODS is given by the structure of the social network that becomes relevant in the design process, because these value webs constitute the necessary room for cooperation in distributed production and consumption processes.

To make it easier for the reader to follow our outlines we give in the next chapter a brief introduction into relevant characteristics of the SME and present

the social aspects of the relevant production and consumption networks. Afterwards we focus on the adoption of the innovation seeds in this very ODS.

Introducing the SME and its Value Webs

The SME was grounded in 2002 from three students, who learned to know each other during a common work project in university, which gained a price for its innovative idea.

The software enterprise works in the field of educational products and is one main manufacturer of an online business simulation game. The business game is a web based product implemented in Flash, and is publicly available for the teachers (also called tutors) and the pupils. While the teachers introduce the game in their classes, it is played by their pupils in school or at home. The company develops and administrates the simulation game and also holds the intellectual property.

Particularly, the software enterprise was interesting for our EUD project because they want to redesign their business game after EUD principles. The game which is used in business school lessens from teachers and their pupils should allow its users a more flexible use context in regard to adapt complexity on different didactical learning matters.

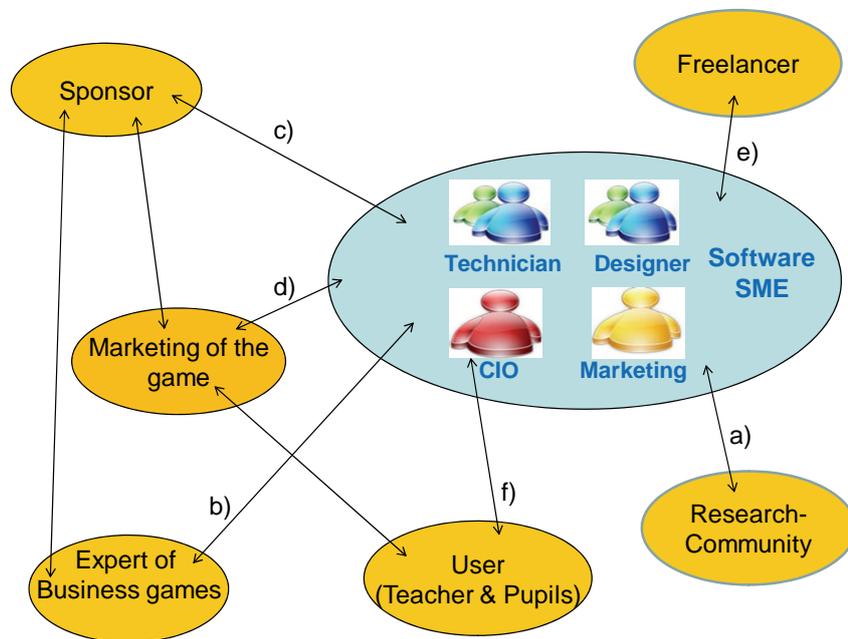


Figure 1. Schematic view of the relevant social network producing and consuming the business simulation game.

The production of the business simulation game is embedded in a wide and complex value web. This is not unusual, but rather often necessary for software SME, especially in the area of new media and creative industries.

In particular, production and consumption of the business simulation game are not completely separated spheres of existence but rather mutually constitutive, shaping the ODS of the product. Figure 1 presents a visualization of the network given by the production and consumption of the software product.

The first relationship in the network is given by the cooperation of the company with the users of the game (f). For them, the game is free of charge, because the development and administration is paid out of the education sponsoring budget of commercial enterprise.

The development activities have to be negotiated with the sponsor (c). In the development of the game logic referring to the didactical topics, the company cooperated with a professional expert on business simulation games (b), additionally it cooperates with a network of free employees in question of interaction design (e).

In addition, merchandise of the game is done by a third organization (d), which was created as a public-private partnership to foster the use of computers in schools. The company was interesting in our EUD research project because they want to redesign their business game in a way that allows its users (the pupils) a more flexible use context with regard to adapt complexity on different didactical learning matters. In designing an EUD version of the game, the SME is cooperating with regional universities (a).

In such ODS all the different groups can create new innovation seeds whenever interaction and communication takes place.

In respect of our EUD focus, we especially search for examples of user innovations, in the next chapter we want to explore some chosen examples out of our data, where the employees of the SME narrate about their customer's relationships. The given examples are assorted related to our understanding if not or if the SME adopt on innovation seeds.

Making Innovative Use of Open Design Spaces

One observation was that the users of the business game communicate with the software SME through a communication channel, which was originally developed as an electronic registration form. Initially, this registration technology was created by the company to handle administrative affairs such as announcements or notices of removal. However, the users 'mis-'use this channel also as a feedback channel to communicate with the software SME. For example, the users address problems applying to the product, but also made suggestions and proposals, such as to make the business game adaptable, to be able to create individual company names with the own likeable color. Another customer's idea was to play the game as a peer-to-peer version with fragmented company roles.

This example illustrates that although the producer does not offer their users “proper” feedback channels, the users still respond to an astoundingly large extent by a creatively “mis-“use of the registration form and bring themselves ODS into being. From a theoretical perspective this example also demonstrates, that forming and using ODS are connected activities.

In reaction to this respond (“*we get round about three mails a day*”), the company points that they want to act on these suggestions and is planning to implement the mentioned user-ideas. Further the SME developed in this new space of interaction an extra field for contact.

Besides, these felicitous uses of ODS which are opened up by the users and are innovative returned by the software SME, we can also identify many situations where intensive interaction takes place, but where seeds of innovations leave unused.

We want to illustrate some of the examples we have found where ODS are not responded and used as innovation seeds. One characteristic example is that the interviewee, in the preliminary discussion preparing our study, explained how the enterprise lacked of customer feedback. But in contrast, it was just one of our surprising findings that the SME obtains a lot of customer feedback, (and that the company, as showed in the last chapter, even developed innovations in reaction to such unanticipated user behavior).

Another example is illustrated by a speech of another employee, where he states:

”[T]hus, we always get such requests. I want to have this and that, this I would like to do, but I cannot. Can you help me to get this feature? At any time the point comes, where we said, so let’s put these requests together and make a list, such a top five list. Somehow, the mails are saved now“.

The employee describes here a situation, when the company gained a lot of unexpected customer feedback. This sequence shows very clearly a crisis situation, in which the company must decide how to cope with a mass of user feedback as one kind of Open Design Space. But the crises how to interact with the various customer feedback is not initiated by the aim bringing up this social phenomena for OI practices, but to keep handling the feedback in an administrative way. So, the enterprise to adopt the new interaction channel with their customers offered by the ODS mainly from an administrative perspective, archiving the mail and range the feedback after its frequencies. This strategy addresses the administrative issues to manage the various customer feedbacks, but in opposite to concepts like Lead User Innovation (Hippel 1986), the chosen solution is no strategy to identify innovation seeds in the flood of user feedback.

A third example of an unused chance to practice OI is stated by several interviewees as an impressed workshop. They told us, that they “had to” hold a user-workshop which was initiated by the employer of the business game. The workshop took place with the teachers (the users) and with the small enterprise (the developers of the business game).

The SME employees complain that the workshop had “failed”. One interviewee describes the workshop as follows:

„Only one (teacher) was able to play though the game. This one gave good feedback, too. When the teachers played [the business game] with their pupils this was a hole catastrophe. The teachers endeavor but it was a big chaos”. More pregnant another interviewee pointed: “it [the business game] can really design the complete lessons for a half year so extensive it is designed. That has really nothing to do in art and music classes (.) it is perceived wrong by the teachers even through it is communicated properly by us”.

In the phrase “*it [the business game] can really design the complete lessons for a half year*”, the interviewee pointed out the benefit of the business game that it is able to design the whole school lessons. However, an interesting aspect of this phrase is that the game is put in the active role of designing the school lessons, while the teachers obtain a passive role.

The protocol also demonstrates in respect to the designed artifact that the technical and the didactical level are amalgamated, which makes it difficult to analyze both interwoven issues about the use of the business game as separate ones. The protocol also demonstrates in respect of the designed artifact that the technical and the didactical level are integrated, which makes it difficult to deal with both interwoven issues as separate ones. Nevertheless, if software developers want to respect the domain expertise of its users than the analytical separation of technical and domain issues becomes necessary, illustrating that social scientist postulate of ‘value-freedom’¹ becomes a relevant issue for the software design, because the phrase “*it is perceived wrong by the teachers even through it is communicated properly by us*” indicates an amalgamation of the normative judgments made by the interviewee. This is an indicator that the company does not reflect on the difference between their own conception and the conception of their clients, as we know it for example from (semi-) professionalized disciplines like social work or psycho therapy (cf. Meurer 2008 for a detailed analysis of this issue). In particular, using the spirit of the technical product as a measure of the user’s practices reflects the technocratic attitude of the company. The transcript demonstrates that unlike the before communicated aim of the company, to design the game flexible and usable for various user contexts, the enterprise communicates their own role in communicating the ‘right’ usage.

This sounds like a pejorative judgment of the company’s practice based on an anti-technocratic value system of the researchers, but this interpretation would misinterpret our argument. However, our interest is not to demonstrate that the company does not work in a proper way because they do not follow our value system. The point we want to highlight is a different one, namely the question

¹ The postulate of the value-freedom (or the neutrality of normative judgments) can be summarized as the advise that social scientist should be aware, if an judgment is grounded in the own value system or in the one of the subject-matter (cf. Weber 1998).

why we do not found a level of reflection in the company which might explicate their different perspective of business games.

It is plausible to assume, that the company does not see the benefits of such an additional level of reflection. If we study that issue from the technological focus of the company and searching for a plausible explanation for our empirical observation, our first working hypothesis is that the missing level of reflection is an expression of a technocratic identity. This working hypothesis is grounded in the consideration that for a social constructivist the reflection on different world views is an obligatory part of their identity, while for a technocrat it will be optional.² Therefore, one can expect that if the company has a social constructivist identity, the reflective level is manifested in the empirical data, respectively a technocratic identity.

Therefore our first tentative case hypothesis is that the technocratic identity becomes a burden to get aware of the variety of user innovation seeds, because of the missing level of reflection. The contact with the different cultures of participants of ODS should be perceived as a resource, however in our case the different cognitions between them and their customers are mainly perceived as a defect and not as a seed of innovation. While a technocratic position is neither good nor bad in general, but just one way of reality construction, we argue in a generalizing manner that a technocratic identity becomes a burden to make use of the full innovation potential provided by ODS. Committing themselves to the concept of EUD and being an active member in ODS it should be in the intention of the company to be aware of the seeds of innovation. Arguing from this perspective, we would state that it would be also in the interest of the company to reflect on the technique centric identity in order to prevent a shortened perception of ODS.

Although this is a first, very speculative interpretation, it raises interesting topics about the appropriation of ODS. Here, the example of unused chances gives a first impression, why companies do not appropriate these new opportunities of customer interaction given by ODS in order to discover innovation seeds.

² A positivistic, technocratic position assumes that in the case if I make a contradicted proposition about one object than someone else, I can proof which proposition is correct (resp. incorrect), but that it makes no sense to say that both judgment are correct. In opposite to this, an interpretative, social constructivist position would argue that judgments are relative to a specific life form (Lebenspraxis) and in this case, where I and the other person do not belong to the same life form, I have to get an interpretative understanding (deutendes Verstehen) of the different life form, before I can make a statement about the proposition of the other person. At least, this leads on four different options to interpret the contradiction: 1. I do not share his world view, but from this perspective the proposition is right; 2. I do not share his world view, in addition from this perspective the proposition is wrong; 3. we have the same world view and he is right (and I'm wrong); 4. we have the same world view and he is wrong (and I'm right). One might argue that a proposition if wrong, if it is based on a wrong life form, but this assumed that we can judge on life forms in the same way if a life form will judge on proposition. Some good reason, why this is not possible is given by Winch (1958, chap. 4).

Conclusion

In the presented first tentative findings of our empirical case study we identify various ODS which might offer several opportunities for innovations. In particular, we show examples of possible user innovations, where users make creative suggestions and proposals (e.g. the registration form, new areas of applications like music and art lessons, or on the workshop) which we have interpreted as innovation seeds.

Summarizing the given examples of handling the interaction with the value webs, we come to a first conclusion that the main problem is not the lack of ODS in general, but the problem of becoming aware of the opportunities in such ODS and to manage these opportunities. In the observed cases, the company has taken some reactions, but they are not systematically exploited. This raises the question of the social construction of OI and the appropriation of innovation seeds - a question that is often been ignored in literature.

Generalizing our findings, there the little awareness of ODS while OI is related to the identity and routinized interpretation schemes of the actors. In our case study, ODS is neither reflected in the organization as a challenge nor as a basis for innovation processes. This is in line with the finding of Davenport & Prusak (1998), that it makes a difference to develop an innovative product and to develop an innovative development environment enabling the development of innovative products, and that the opportunities to share knowledge are the crucial prerequisite for the latter.

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