

# Co-Creation in a Boundary Practice: Lessons Learned from an Engaged Scholarship Approach

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## ABSTRACT

In this article, Engaged Scholarship is disentangled from a co-creation and boundary practice perspective. The focus is on the attached inside researcher in collaborative basic research and action research project. Within the information systems discipline the intersection between collaborative basic research and action research is not that well explored. An extra interest has been on the transformation of descriptions to proposed actions that takes place in this intersection. From our empirical findings of an Engaged Scholarship project we have identified four lessons learned that could be used as considerations and proposed actions for the attached inside researcher. The lessons learned are derived from four theoretical themes: co-creation, dialogue, boundary practice and boundary objects. The empirical data presented in the article is from a project called Free2Ride, which was a co-creation project between researchers, ICT-developers and members from two equestrian clubs.

## Keywords

Engaged Scholarship, boundary practice, co-creation, dialogue, boundary objects

## INTRODUCTION

In recent years, the Engaged Scholarship approach (Van de Ven 2007) has started to receive more attention in the field of Information Systems (Mathiassen and Nielsen 2008; Simonsen 2009), for instance, having a special track in ICIS (International Conference on Information Systems) for the last three years; ICIS 2010 (Kuechler and Mathiassen 2010), ICIS 2011 (Baskerville and Chiasson 2011) and ICIS 2012 (Henfridsson et al. 2012).

Engaged Scholarship is primarily concerned with how academic researchers can engage with practitioners, in ways that somehow meet their often diverse needs (Van de Ven 2007). Van de Ven (2007, p.9) defines Engaged Scholarship as a "participative form of research for obtaining the different perspectives of key stakeholders (researchers, users, clients, sponsors and practitioners) in studying complex problems". Van de Ven (2007) describes four different forms of Engaged Scholarship: informed basic research, design/evaluation research, collaborative basic research and action research. In the above mentioned ICIS special tracks on Engaged Scholarship, the majority of the papers have addressed action research and/or design research.

This paper will instead focus on the last two forms of Engaged Scholarship (Figure 1); collaborative basic research and action research as well as the intersection between these two forms. In these two forms of Engaged Scholarship the researcher is described as an attached insider (Van de Ven 2007). The concept of an attached insider will be explored and described from the analytical lens of co-creation (Prahalad and Ramaswamy 2004) and boundary practice (Wenger 1999) with the research question: What are the challenges and opportunities during co-creation as an attached insider in Engaged Scholarship? The aim of the paper is to identify lessons learned and proposed actions for the inside researcher to follow during co-creation.

During our literature survey (Basket of eight and ICIS proceedings), researchers weren't able to find any articles with a focus on the intersection between collaborative basic research and action research. There are, however, several articles addressing action research (Baskerville and Myers 2004; Lindgren et al. 2004; Costello et al. 2011), design research (Hevner et al. 2004; Åkesson et al. 2010; Henfridsson et al. 2012) and the intersection between design research and action research (Sein et al. 2011). Additionally, there is one article in the Scandinavian Journal of Information Systems (Simonsen 2009) that compares case studies with action research from the perspective of Engaged Scholarship.

We base our findings on the Free2Ride (F2R) project that was initiated by researchers from Halmstad Living Lab (HLL), ICT-developers (from Alpha Bluetooth Inc) and two equestrian clubs (LRF and HRF) during the autumn 2009 and F2R lasted for 13 months. One of the main ideas behind F2R was to develop an ICT-prototype based on wireless technologies that matched the needs of members of the equestrian clubs. F2R was carried out through an open and explorative approach during

the early stages of the project. In particular, insightful conclusions can be drawn from F2R outlined as lessons learned. But in general, we can see a need for disentangling the concept of Engaged Scholarship and the role and characteristics of an attached inside researcher in such projects.

This paper will be structured in the following way: first the Engaged Scholarship will be described in more detail; secondly, the theoretical lens of co-creation in a boundary practice will be presented. In the third section the research approach will be discussed. In the research approach section in F2R will be described (from where the empirical data being used is derived from) together with the data gathering and analysis. Thereafter, the empirical data will be presented followed by a discussion. In the last section, conclusion, the lessons learned will be proposed.

**RELATED RESEARCH - ENGAGED SCHOLARSHIP**

The research approaches that stress collaboration with industries are conceptually and methodologically framed using a variety of terms such as: action research (Avison et al. 1999; Baskerville 1999; Baskerville and Myers 2004), collaborative research (Mathiassen 2002) and Engaged Scholarship (Van de Ven 2007; Mathiassen and Nielsen 2008).

Engaged Scholarship is primarily concerned with how academic researchers can engage with practitioners in ways that somehow meet their often diverse needs. As mentioned in the introduction, Engaged Scholarship is about studying complex problems where the perspectives of different stakeholders are important. Engagement in the research is described as a process that involves “negotiation and collaboration between researchers and practitioners in a learning community; such a community jointly produces knowledge that can both advance the scientific enterprise and enlighten a community of practitioners” (Van de Ven 2007, Page 7).

Four different forms of Engaged Scholarship are identified (Figure 1): informed basic research, design/evaluation research, collaborative basic research and action research. These last two forms of Engaged Scholarship; collaborative basic research and action research, are examples where the researcher has the attached insider perspective (being involved) and takes part in the activities alongside with the different stakeholders. The attached insider researcher develops context-specific knowledge that can guide action by dealing with the complexity of the problem. Therefore, exploring the intersection between collaborative basic research and action research is about understanding the transformation from descriptions into proposed actions.

	Describe/explain/predict	Design/control/(change)
Detached outsider	<b>Informed basic research</b>	<b>Design and evaluation research</b>
Attached Insider	<b>Collaborative basic research</b>	<b>Action (intervention) research</b>

**Fig 1: Forms of Engaged Scholarship, inspired from (Van de Ven 2007)**

In all four forms of Engaged Scholarship, the participants are involved in (Van de Ven 2007) activities such as: problem formulation (situate and ground relevant problems), theory building (Engage knowledge experts in relevant disciplines), research design (Variance or process model) and problem solving (Engage intended audience to reach an impact). It is important to notice that, the focus should be on the client’s issues rather than involving the client in the researcher’s issues.

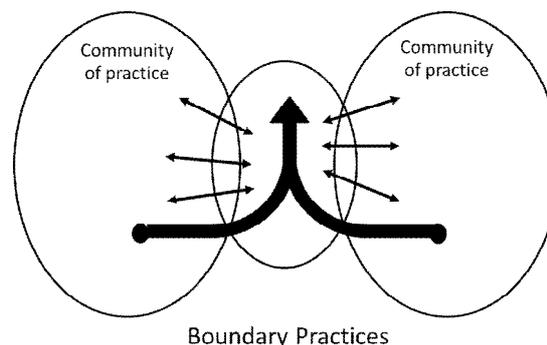
In this study, the researchers adopted an inside perspective (action research and collaborative basic research) and were engaged with, rather than for, the practice. This relationship makes Van de Ven's The Insider Perspective (2007) a natural choice for framing the research reported in this article. There are two main reasons behind the choice: (i) we jointly share activities to produce basic knowledge about a problem (CBR) (ii) we seek consensus on the proposed solutions regarding the expressed problems (AR).

## CO-CREATION IN A BOUNDARY PRACTICE

The analytical lens adopted in this paper stems from the situated nature of practices (Lave and Wenger 1991), a practice that takes place during co-creation (Piller et al. 2011) in a boundary practice. Co-creation is an active, creative and social process, based on collaboration between firms and end-users (Piller et al. 2011). It typically takes place in initiatives of innovation and research and development projects (e.g. a living lab projects where an ICT prototype will be developed in a user-driven innovation approach such as the F2R project). Furthermore, co-creation is a complex process with many layers including governance, knowledge sharing, complementary capabilities and assets (Grover and Kohli 2012). In co-creation, dialogue between stakeholders is often forwarded as a key challenge e.g. (Prahalad and Ramaswamy 2004; Grover and Kohli 2012). From the perspective of the producing company dialogue means not only listening to the customers; it means interaction, communication, engagement between two equally empowered problem solvers (Prahalad and Ramaswamy 2002). Dialogue then becomes the capacity of stakeholder groups to suspend assumptions and enter into a genuine "thinking together" mode (Senge 1994). Consequently, dialogue can help organizations to understand the complex nature of the customers' social and cultural contexts (Prahalad and Ramaswamy 2004). There are three prerequisites for a dialogue: participants must examine their assumptions; the participants are regarded as colleagues and last there must be a facilitator to pull strings during the meeting. In co-creation, members of different communities engage in collaboration and meaning making in an inter-community practice (e.g. a Boundary practice).

The concept of boundary practices (Wenger 1999) is a practice that provides an on-going forum for mutual engagement between different communities of practice. A community of practice (CoP) is a group of people that share a concern (or a set of problems) and gain a deeper knowledge by interacting together on an on-going basis (Wenger et al. 2002). The members of a CoP find value in their interaction, spending time discussing their situations and needs in order to accumulate knowledge and learn about their community.

The purpose of the boundary practice is to maintain connections between several CoPs (Vashist et al. 2011). The inter-community practice, such as a boundary practice (Figure 2), is important (Cook and Brown 1999) because it helps to overcome some of the problems a community creates for itself (Brown and Duguid 1991).



**Figure 2. Boundary practices according to Wenger (1999)**

The connection between the boundary practice and the CoPs is created by members acting as boundary spanners/brokers and through their use of boundary objects (Figure 2). Wenger (1999) describes this as reification and participation. Participation is used to introduce elements from a practice into another by being a broker. Brokering (Wenger 1999) and boundary-spanning-in-practice (Levina and Vaast 2005) are both concepts aiming at relating practices in one field to practices in another by negotiating their meaning.

The process of reification uses boundary objects (forms, documents, sketches etc) to interconnect CoPs. Such boundary objects are any objects that are relevant to the practices of multiple communities (Star 1990; Brown and Duguid 1991; Star 2010). Levina and Vaast (2005) distinguish the difference between designated boundary objects and boundary objects-in-use; where a boundary objects-in-use has to be locally useful (incorporated into practices), meaningful and must have a common identity across fields. A crucial quality of boundary objects that facilitates sharing and coordination is their interpretive flexibility (Star 2010), which allows for multiple interpretations by the multiple parties utilizing them (Pawlowski and Robey 2004), for instance, during co-creation.

The concept of boundary practice neatly frames the challenges of a co-creation project where members from different CoPs join together in a new setting. Through focusing on translational activities, such as boundary spanning and the negotiations

triggered by boundary objects, we can begin to understand the central challenges of Engaged Scholarship during co-creation in practice.

**RESEARCH APPROACH**

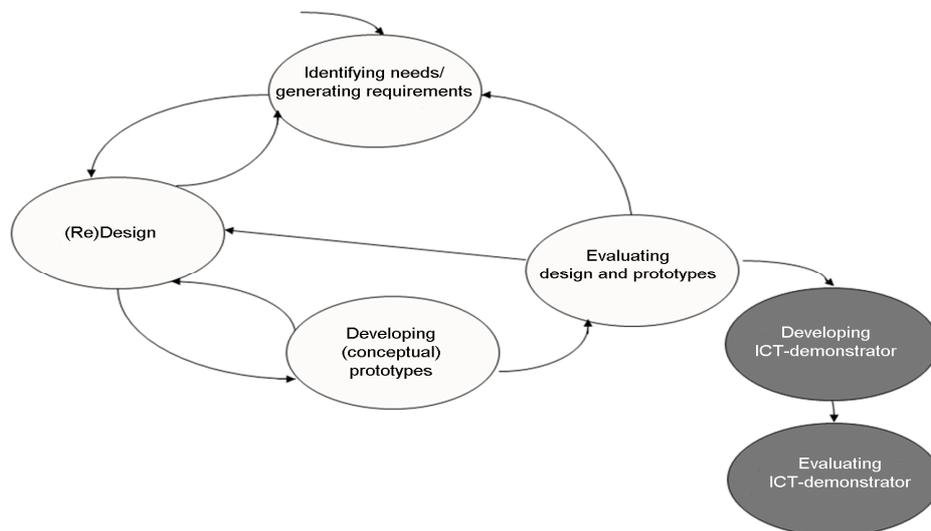
In our approach we applied two of the before mentioned forms of Engaged Scholarship (Van de Ven 2007; Mathiassen and Nielsen 2008); action research and collaborative basic research. Action research is very well described in the literature (Avison et al. 1999; Baskerville 1999; McKay and Marshall 2001; Baskerville and Myers 2004; Mårtensson and Lee 2004) as an intervention intended to treat a research problem and a practical problems at the same time. Collaborative basic research is described as creating basic context-specific knowledge that can guide action in dealing with the complexity of the problems (Van de Ven 2007). Collaborative basic research has similarities with basic social science research (Mathiassen and Nielsen 2008), but it is unclear which forms social science research it is similar with. The research approach will be structured in three sub chapters: Describing the Free2Ride project, data gathering and data analysis – co-creation in a boundary perspective.

**Describing the Free2Ride project**

The Free2Ride (F2R) project was initiated by researchers from the Halmstad Living Lab (HLL), ICT-developers from Alpha Bluetooth Inc and two equestrian clubs (LRF and HRF) during the Autumn 2009 and lasted for 13 months. One of the main ideas behind F2R was to develop an ICT-prototype based on wireless technologies that matched the needs of members of the equestrian clubs. F2R was carried out through an open and explorative approach during the early stages of the project.

The F2R project followed a structure of six phases conducted in an iterative manner (Figure 3) according to the principals of a living lab (Ståhlbröst 2008): *identifying needs and generating requirements, (re)design, developing conceptual prototypes, evaluating the design and prototypes (the design concept), developing the ICT demonstrator and evaluating the ICT demonstrator.*

The first phase of F2R was to come up with new ideas, which were generated by members of the two equestrian clubs. The three most urgent areas according to the ideas related to safety during outdoor horse riding, communication during competitions and indoor equestrian training activities. In order to identify the most urgent area, a survey was distributed and used during different horse shows (show jumping, dressage, etc.). The prioritized area, according to the survey, was safety during outdoor horse riding.



**Figure 3: The F2R process model for innovation**

The second, third and fourth phases focused on creating and evaluating a design specification. Notable is that the design focused on a solution involving two units: a sender and a receiver. The first unit (a sender) should be attached to the horse's (Figure 4) bridle and communicate through Bluetooth with a smart-phone application (the second unit) that is carried by the horse's rider (Figure 4).

In the fifth phase, the development of the sender followed the design specification and standard models from ICT developers. During the fifth phase the ICT-developers reported in a continuous manner, and progress was made visible to the equestrian clubs on the F2R website. The members from the equestrian clubs also had the opportunity to give feedback to the developers through the website.

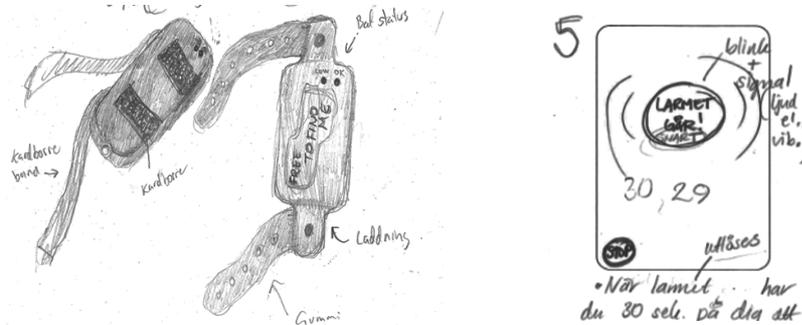


Figure 4: The sender to the left, the application interface to the right

Prior to the final phase, four pairs of prototypes (IT demonstrator and application) were developed and tested in their natural environment at the equestrian clubs. During this period a test person documented the testing on a blog, where the members could comment on the test. A list of suggested changes to both the application and the sender was compiled after the test period.

**Data gathering: during and after Free2Ride**

In F2R, the researchers were involved in the arrangements of various meetings and workshops. In particular, we concentrated on encouraging and supporting co-creation. F2R held (Table 1) 12 workshops with the members of the boundary practice (researchers, ICT developers and equestrian clubs as end users), five meetings between researchers and developers, four field visits at the equestrian clubs, on-line activities that lasted for three months, real life testing/evaluation of the ICT demonstrator and six follow-up interviews after the project. The workshops were recorded and notes were taken, which were also documented by photos. We also took field notes during the meetings and field studies. There were at least two researchers at every workshop or meeting that compared notes afterwards.

Data collection	Period	Descriptions
Field visits	Identifying needs and evaluation in figure 3	Understanding and documenting the activities that take place in the equestrian clubs
Meetings	In all the phases of figure 3	The meetings took place between the researchers and the ICT developer and were related to the progress of the project, such as deliverables, project documentation etc.
On-line activities	Evaluation and development in figure 3	Blogs, questionnaires, videos and news. All with the possibility to make comments was used during the evaluation
Workshops	In all the phases of figure 3	12 workshops where at least 15 people from two different communities of practice met and discussed needs and problems in relation to the project
Interviews	After F2R	Follow-up interviews focusing primarily on questions related to expectations in contrast to the actual outcomes but also covered questions in order to clarify different issues revealed in the analysis.

Table 1: Summary data collection

A typical workshop during F2R lasted for three hours and consisted of the following activities: a progress report (What has happened in the project since the last workshop), presenting the activities and goals of the workshop (How? Why? and What?), teamwork, presenting the result of the teamwork, summing up and the future.

### **Data analysis – co-creation in a boundary perspective**

The empirical data from the F2R project was analyzed in the framework of co-creation (Prahalad and Ramaswamy 2004) and boundary practices (Wenger 1999; Vashist et al. 2011). Some specific concepts such as boundary objects-in-use (Levina and Vaast 2005) and dialogue (Senge 1994; Prahalad and Ramaswamy 2004) are related to exploring, understanding and describing a boundary practice.

Two episodes were identified from F2R, based on the criteria for inclusion, which requires an affect on all four dimensions of Van de Vens (2007) Engaged Scholarship diamond model (problem formulation, theory building, research design and problem solving). The two episodes (presented in the empirical data below) demonstrate how the members in the boundary practice are engaged in problem formulation and problem solving. The outcome of the first episode affected the research design (The researchers started to think of F2R as Co-creation, which is a process theory) and theory building (Relating Co-creation to our literature survey).

### **EMPIRICAL RESULTS**

These two selected episodes from the F2R project, the questionnaire episode and the video episode, match the earlier presented inclusion criteria.

#### **The questionnaire episode**

Just a couple of days before one of the workshops, an equestrian club member (Rachel) sent an e-mail to the researchers to inform them that she could not participate in the upcoming workshop. At that workshop, the researchers had planned to present the results of a survey conducted at the equestrian clubs which aimed at prioritizing the needs of their members. Instead of participating in the workshop, Rachel developed her own questionnaire (inspired from the survey) and asked 48 of her pupils (Rachel worked as a teacher) to fill it out. Some of the questions were open-ended, while others were designed to choose one or several options from a multiple choice list.

The presentation of both surveys was made by the researchers at the workshop, during which there were naturally a lot of questions about the results. The results of the first survey were primarily presented as average values; medians or cross tables relating to specific questions in the presentation. All of the results indicated that F2R should prioritize safety aspects of outdoor horse riding. During the following discussion all the participants agreed that the focus should be on safety aspects.

The results of Rachel's questionnaire were presented at the same workshop. As it turned out, Rachel's survey complemented the first original survey, confirming and highlighting central aspects of the ICT-product to be developed. During the presentation of the Rachel's questionnaire, the focus was set on the open-ended questions, one of which was, "Who is the buyer of this product?", to which one responder stated, "my mother" and another answered, "parents and relatives", showing that the workshop participants recognized themselves in the answers, relating to discussions at home or at the equestrian clubs.

Another question in the survey was, "What functionality should be included in the ICT-product?" The responders could choose from a list of options as well as having the possibility to propose additional functionality. Ninety percent of the pupils marked both GPS-coordinates and separation alarms, and one of the responders wrote as a proposition, "a reset button to take care of false alarms." This comment raised a discussion which led to the group quickly agreeing that the prototype in development should handle false alarms. A third question in the survey was, "Where should the ICT-product be attached to the horse?" Options included the bridle, the saddle, and the pupils also had the possibility to propose places to attach the ICT-product. Almost 100% of the respondents preferred the bridle as an option. One effect of this result was that a saddler became involved in constructing the bracket.

#### **The video episode**

During the last phase of the F2R project, evaluating the IT demonstrator, we used both a video and a blog to document the use of the smartphone application and the IT demonstrator in the real life environment of equestrian club activities. One of

the video cameras was taken care of by an equestrian club member, Monica, who documented the use of the ICT-prototype and the smartphone-application during practice.

After a couple of weeks, Monica contacted the researchers and said she had made some recordings (Figure 5). In order to see the video we arranged transportation of the video camera and the actual movie. The researchers converted the video's special CODEC to a format that could be edited on the laptop in order to make it viewable on the F2R website. The video was uploaded to the F2R website where some of the other members of the equestrian clubs posted comments in response, but no comments were given by the ICT developers during the time between the workshops.



Figure 5: Monica testing the prototype

A decision was made by the researchers to show the video at the last workshop of the project. During the presentation of the video a lot of comments were not only made by equestrian club members, but also from the ICT-developers. There being three false alarms in the video led to a rather long discussion about the problem of false alarms (Figure 5). The distance between the horse rider and the horse is approximately one meter, and there is nothing that interferes with the Bluetooth signal between the smartphone and the IT demonstrator. It was decided that the ICT-prototype needed some further testing in a more controlled environment. During the workshop, after the video, the participants became involved in constructing a first version of a “to-do list”.

## DISCUSSION

In the empirical data, two episodes are presented. The two selected episodes meet the inclusion criteria presented in the research approach; the episodes should affect all four activities in Van de Ven's (2007) Engaged Scholarship research diamond (problem formulation, theory building, research design and problem solving). The discussion will be structured in relation to the important concepts presented earlier: boundary practice, co-creation, dialogue and boundary objects. The aim of the discussion is to derive lessons learned as proposed actions for the attached inside researcher to follow during co-creation. After all, the attached insider is herself involved in co-creation in a boundary practice.

### Co-Creation

Co-creation is described as an active, creative and social process, based on collaboration between firms and end-users (Piller et al. 2011). In both episodes members from the ICT-developers collaborated with members of the equestrian clubs in exploring, understanding and describing the different problems in the innovation process. One of the challenges in co-creation is the dialogue (Prahalad and Ramaswamy 2004; Grover and Kohli 2012). Dialogue means not only listening to the customers; it means interaction, communication and engagement between two equally empowered problem solvers (Prahalad and Ramaswamy 2002). If we examine the two episodes regarding interaction, communication and engagement during the presentations, the episodes could be regarded as examples of a dialogue. The members from the equestrian clubs are experts

on horse riding, the ICT-developers are experts on technical issues, while in the problem solving process the two groups are equally important. Rachel conducting her own survey with her pupils is an example of engagement in the co-creation. Rachel wanted to contribute to the problem solving. Thus, it is important to integrate the context specific knowledge from the various CoPs into the collaborative problem solving process. The researcher acted as a facilitator during that process.

Lesson #1: The inside researcher should act as a facilitator during collaborative problem solving in co-creation

### Dialogue

One of the cornerstones in co-creation is the dialogue (Prahalad and Ramaswamy 2002; Prahalad and Ramaswamy 2004). In the literature there are three prerequisites for a dialogue (Senge 1994); participants must examine their assumptions, the participants are regarded as colleagues and lastly there must be a facilitator to pull strings during the meeting. In the questionnaire episode, it was obvious that the equestrian club members examined their assumptions and regarded the researcher and ICT-developers as colleagues when it came time to problem solve. In the video episode, during the presentation of the video which described false alarms during horse riding, the ICT-developers were surprised that there was so many false alarms. They needed help from researchers and equestrian club members to write down a “to-do” list with the most urgent errors. During both the questionnaire and video episodes, it was the researcher who presented the material, summarized what people had expressed during the meetings and asked follow up questions.

Lesson #2: The inside researcher should consider emergent topics during the dialogue

### Boundary practice

A boundary practice is described as a practice that provides an on-going forum for mutual engagement between different communities of practice (Wenger 1999). The boundary practice is important (Cook and Brown 1999) because it helps to overcome some of the problems a community creates for itself (Brown and Duguid 1991). Involved in the two episodes are three communities of practice (CoPs); equestrian club members, ICT-developers and researchers. All three of the CoPs have their problems which they address in the boundary practice as a forum for collaborative problem solving. They all engage in negotiation in the episodes that enhances the possibilities for exploring alternative solutions. In the questionnaire episode, the equestrian club member conducted her own survey, which in a sense means that she acted as a boundary-spanner-in-practice (Levina and Vaast 2005). She related experiences from her CoP to the other involved CoPs in the boundary practice.

Lesson #3: The inside researcher should be permissive for alternative perspectives reaching a mutual understanding

### Boundary objects

In the questionnaire episode, the results from the original survey, as well as the results from the member created questionnaire were both a central part of the meeting, as was the video clip during the video episode. All three of these are examples of a boundary object; an object that is relevant to the practices of multiple communities, but is used or viewed differently by each of them (Star 1990; Brown and Duguid 1991; Star 2010). A boundary object should also facilitate sharing and coordination (Star 2010) which fits very well with the surveys and the video. We regard the surveys and the video not only as boundary objects, but as boundary objects-in-use (Levina and Vaast 2005) because they were locally useful and meaningful in the negotiation and they had a common identity across boundaries.

Lesson #4: The inside researcher should identify boundary objects and utilize them in co-creation

### CONCLUSION

As outlined in the introduction, the aim of the paper was to identify lessons learned and proposed actions for an inside researcher in co-creation with the research question: What are the challenges and opportunities during co-creation as an attached insider in Engaged Scholarship? Our findings show that both collaborative basic research and action research are relevant. In order to bridge the gap between these two research directions, exploring and understanding is crucial in guiding the transformation from descriptions into proposed actions. From analyzing co-creation and theories relating to boundary practice, two characteristics are identified during this transformation; the use of boundary objects and the importance of dialogues.

As a result of the empirical data, we have proposed four lessons learned for the inside researcher in co-creation; this list is not exhaustive, but instead emerged from the F2R project. The proposed lessons learned have not yet been tested or evaluated in co-creation, therefore it is important to evaluate these lessons learned in practice during Engaged Scholarship research.

Another contribution of our research is a description of Engaged Scholarship in practice during co-creation, which could lead to insights for the engaged researcher.

When we started F2R, our initial guiding theories came from user-centric innovation (Hippel 2005), participatory design (Boedker and Pekkola 2010) and open innovation (Chesbrough et al. 2006). During F2R we started to realize that the initial theories did not support the analysis (describing and understanding) of the empirical data. Instead, we started to search for theories relating to co-creation and boundary practice which supported our analysis of the empirical data. From this experience I would like to propose one last lesson learned: the knowledge contribution from the inside researcher may not be what it was initially planned for.

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