



University of Southern Denmark

## Lead User Innovation

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Brem, Alexander; Larsen, Henry

*Published in:*

Pursuing Innovation Leadership

*Publication date:*

2015

*Document version*

Final published version

*Citation for pulished version (APA):*

Brem, A., & Larsen, H. (2015). Lead User Innovation: Exploring interactions between lead user and company. In *Pursuing Innovation Leadership: Proceedings of the 16th Continuous Innovation Conference* (pp. 182-193). Continuous Innovation Network.

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# LEAD USER INNOVATION: EXPLORING INTERACTIONS BETWEEN LEAD USER AND COMPANY

Alexander Brem<sup>1</sup> and Henry Larsen<sup>2</sup>

<sup>1</sup>University of Southern Denmark, Mads Clausen Institute, Innovation & Business Group, Sønderborg, Denmark

<sup>2</sup>University of Southern Denmark, Mads Clausen Institute, Design Group, Kolding, Denmark

## ABSTRACT

*User innovation and especially the integration of lead users is a key topic in the innovation management literature of recent years. This paper contributes by providing a rare perspective into what easily could be seen as innovation failure, shown from two perspectives. We show how a lack of shared imagination hampers participation and kills innovation between interdependent stakeholders at the threshold between invention and innovation in practice. We present a first case in the fun-sport industry where an external lead user and diverse firm representatives in different functions fail to create, deliver and capture the value of an innovatively new device together. From the perspective of the lead user, we show antecedents and effects of social interaction between organizational actors and the lead user on the development of social capital, especially trust and shared imagination. The second case covers the opposite view, where a company actively searches and involves lead users, however, with limited success also. Based on both cases, we analyze how, in these emerging processes of relating, meaning is co-created in a way that narrows the shared conceptual space for imagination and collaboration. Complementary, we look at the temporal development and reflect on what we see as key themes in this, such as the development of motivation and commitment over time and the negotiation of identity and trust in the ongoing processes of interaction. Finally, implications as well as limitations and further research are discussed.*

**Keywords:** *Lead user, lead user identification, shared imagination, innovation practice, social shaping, sticky information, innovation*

## 1. RELEVANCE

It is commonly agreed that external partners become increasingly important for innovation today (Von Hippel, 1986, Chesbrough, 2003; Buur and Matthews, 2008; Brem and Voigt, 2009). Hence, customer orientation and especially user experience can be seen as a key topic in the current and future management of innovation. One traditional and very commonly used method for this is the lead user approach (Horn and Brem, 2013). Here, von Hippel (1986) sets a strategic direction for companies to get their inspiration from lead users, which is to date still the key reference for user innovation research. Lead users have been characterized with a leading-edge status, able to anticipate needs that ordinary customers have not yet seen. For that reason it has been seen as critical to identify and integrate lead users in a most constructive way in order to have an efficient new product development process (Bilgram et al., 2008) and it is argued that companies can benefit tremendously from their solution (Mansfield 1968; Urban and von Hippel 1988; Franke et al. 2006).

However, research has shown that lead users are not able to easily transfer their knowledge and ideas to other people, which has been called “sticky information” – and seen as one of the key success factors of lead user innovation (von Hippel 1994; von Hippel 1998; Ogawa 1998). Also for company knowledge transformation across boundaries, this is a key challenge (Carlile, 2004; Thomas et al, 2011; Nicolini et al 2011). In companies this effect is known as well, and has been named Not-Invented-Here-Syndrome (Katz and Allen, 1982).

Our objective is to explore and to provide a deeper insight into how social interaction affects complex innovation processes with external partners, especially lead users. From two cases in which the companies failed to create, deliver and capture value in the interaction with lead users despite apparently good ideas and market demand we reflect what might be at stake in such interactions, that seems to have been neglected in the literature about lead users and their engagement with companies.

## 2. THEORETICAL BACKGROUND

Usually the engagement of lead users with companies are understood in the light of a concept of knowledge transference. The notion of “sticky information” relates well to ideas of communication as transference of what is already known. Behind the use of such wording lies a conceptual understanding of communication as transferring of already existing knowledge. This way of understanding the nature of communicative interaction can be traced back to Shannon & Weaver (1949) who described what has been named “sender- receiver” model of communication. From this idea the communication as such is solely transferring already made insight from one to another, which is not surprising since Shannon at Bell Laboratories was engaged with the science of transferring data on a telephone line. As a consequence the communication as such is not seen as transformative; the efforts become about how knowledge can be moved, which can be difficult because it can be “sticky”, again this resonates well with communication as solely a tool.

On the basis of the work of George Herbert Mead (1934), Stacey et al. has taken up a radically different perspective on the communicative social interaction, as this communicative interaction as in itself transforming the relation and the individuals engaged. Obviously, from such a perspective the reflections on what might and what might not emerge in the interactions between lead users and companies will get a different focus.

We will be reflecting two cases of interaction between lead users and companies from a perspective of communication as transformative. On the basis of work from natural science (Prigogine, 1997; Prigogine and Stengers, 1984) on linearity and paradox is inherent Stacey, Griffin and Shaw (2000) initiated a work, which led to their notion of *complex responsive processes of relating*. In their search for relevant analogies in social science and psychology they turned to the pragmatist George Herbert Mead and the process sociologist Norbert Elias. Mead explains human communication as processes of ongoing gesturing and responding to each other. Mead notice how the response is at the same time is calling forth a response in the other and in the individual that gives the gesture and consequently in the one and same act influences Mind, Self and Society (Mead, 1934).

Mead was exploring temporality, how the interaction in the present moment is influenced by the perception of the past, and the anticipated future, as well as paradoxically these perceptions and anticipations are equally influenced by the present actions. In his work Norbert Elias has described what he calls power figurations, by which he means the interdependencies among the involved that at the same time enables and constrains the interactions. Furthermore, he also explores what he names the processes inclusion and exclusion that creates group formations of "them" and "us". Similarly as Mead, Elias notices the unpredictability of the emerging patterns of interaction, in line with the notion of non-linearity from the complexity science.

So in the processes of relating we as humans respond to each other in a mutual improvisation. Since we meet with different ideas of the future and of the past, we have to negotiate our action, in processes that Stacey et al. (2000) named *complex responsive processes of relating*. This concept has been the basis for a significant number of reflections of organisational case studies (as an example Sproedt & Larsen, 2012) as well as the thinking has been described as a basis for understanding innovation (Fonseca, 2002).

Looking at the two cases from this perspective will lead to a focus on how the interaction is negotiated over time, in one case beginning with an initiative from a company, and in the other with an initiative from a lead user.

### **3. RESEARCH OBJECTIVE AND DESIGN**

For our research purpose we decided for a multiple case study design, including two different cases. The selection criteria for both cases were that they serve as "extreme or unique cases", as defined by Yin (1994). Hence, a case study approach was chosen to gain further insights into the lead user/company relationship, using ethnographical research methods. As work-in-progress product developments are involved, both cases must be anonymized.

The first case is a lead user project from a big company. They put together a project team, which was in charge to plan and execute the workshop, together with external help. So here the approach was to identify and involve appropriate lead users based on a strategic decision. The uniqueness here lies in the fact that this approach can be seen as a standard procedure for companies applying the lead user methodology. One of the authors was responsible for the workshop, and this case draw on this experience.

In our second case, we present a case study of a lead user innovation project in the fun-sport industry (kite surfing). This is a very traditional area for the application of the lead user concept, as the first workshops were in the sports area as well (Lüthje et al., 2005). Our research is based on the detailed analysis of the lead user, who's experiences, notes and observations are the basis for reflections and analysis in this paper. The other of the authors has been following this individual in his attempts to approach the company. Since he was a master student in design, the student produced several deliveries about this, amongst other a master thesis.

Our longitudinal case design allows us to research a longer-term interaction between the lead user and a company, proposing a radically new idea by the lead user. Hence, we are closing a gap in research, which is to date focused on the short-term workshop design and its results, without focusing on the “lead userness” and the linked sticky information problems.

In picking our themes we have using a method of abduction (Peirce, 1935; Kelemen & Rumens, 2013). In our engagement with the material this means that we notice our surprises, and follow up on them in the reflections. In doing so, we have followed Stacey and Griffin in taking the stance that *‘the insights and findings of the research must arise in the researcher’s reflection on the micro detail of his or her own experience of interaction with others’* (Stacey & Griffin, 2005, p. 9). From this perspective we have focused on our moments of new insight and our own moments of abduction in the interaction with the collected material.

#### 4. CASE INSIGHTS

Before we discuss the results of our research, both cases are introduced.

##### 4.1 CASE A: COMPANY IS APPROACHING THE LEAD USER

In this case, lead users were invited by a company, following a structured approach based on the lead user literature (see figure 1). This was done with the help of one of the authors, who was deeply involved in the methodology acting as a moderator for the workshop.

The flow described by Lüthje in figure 1 is commonly used in various applications in different industries (e.g. Herstatt & von Hippel, 1992; von Hippel et al., 1999; Olson & Bakke, 2001; Herstatt et al., 2003; von Hippel, 2007). Hence, it is an appropriate visualization of a companies approach to involve lead users.

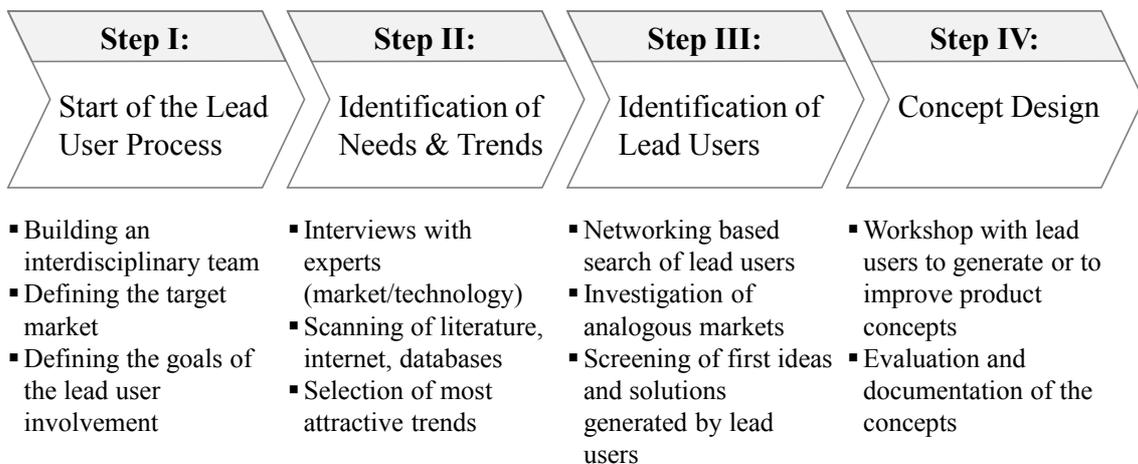


Figure 1: The idealized process of the lead user method (Lüthje & Herstatt, 2004, p. 561)

All lead users were identified with the use of the pyramiding sampling method (von Hippel et al., 2009). The following figure 2 gives an overview of the case company.

<b>Case 1</b>
Consumer goods industry
Multi-national company
Consumer-focused topic
20 participants, 10 internal
1,5 days of duration
Conducted in Germany in 2011

Figure 2: Case details for the lead user workshop (case A)

People from the company were asked which people they know in this domain, who would fulfil the requirements of a lead user. The main focus was on the aspect of their linkage to the product, and that lead users from different areas of interest were put together for a maximum of creative output.

The project team found it difficult to identify lead users with the appropriate requirements. But once they were found, they were easy to motivate without being payed, which were seen as confirming that this might be the right people, since they were engaged because of their intrinsic motivation. Within the workshop, lead users were found to be great for input for new product designs; they loved to talk about their solutions, ideas, and products. However, as they were from very different backgrounds and at the same time very keen on bringing in their ideas these lead users were challenging to the internal participants.

The idea was to involve internal persons from the company in each group of the lead user workshop, five in total. In all groups, two people, mostly from the Research and Development department, were part of the discussion. This has led to two different situations. One was that lead users mentioned ideas, which the company already thought about, but which they did not pursue for different reasons. *“This will not work, believe me”* was said by one of the engineers. However, the lead users showed the person another way to work with the same technology, but in a different way. Hence, the lead user could show that the idea is worth pursuing, even though it was already partly known. In the other situation, it turned out quickly that the ideas were not feasible, because the Know-how of the internal people was exactly in this domain. So it helped also to waste time thinking about ideas, which cannot be put into practice. A lead user said about this: *“I see, this makes sense to me, that you did not produce this product in the past. It is very interesting to see your perspective also”*.

The lead users wanted to be included further, and while the workshop took place, the internal and the company representatives expressed appreciation of the ideas they got. So the company promised to keep them in the loop of what was going to happen with their ideas. However, this became an even bigger challenge for the company.

The following year the company did not really proceed with the ideas developed in the workshop. The reason for that was the fact that the ideas had to be processed within the companies innovation process, which included several steps of technical and market oriented decision criteria. Based on these criteria, and maybe because of some gut

feelings, none of the ideas was taken forward to be developed for the market, even though some ideas were quite easy to put into practice. This gut feeling was maybe that the ideas are not good enough, or too simple, so both related to the not-invented-here syndrome. So the company informed the lead users that it is still work in progress, and that they would keep them updated.

As two years later the company still did not introduce any of the concepts, that was developed in the workshop, people got somehow angry. The lead users were proud of their developed solutions and wanted to see them on the market to buy them. So they were contacting the company what happened, and what they want to do in the future with the ideas

They were asking questions like:

- *“Why did I spent my free time to develop products for you, if you don` t use them?”*
- *“Don` t you take my product ideas serious?”*
- *“Are you sure you really wanted to have such a workshop?”*
- *“Our new product bundle is so easy to put into practice, if you can` t manage that, how should you continue with the other ideas?”*

This led to no further communication, which was even more disappointing for the users. So finally, there was no opportunity for the company to have another workshop, at least not with these users. Moreover, as these people are often well connected, it might be difficult to find other appropriate users. The internal employees were unhappy also, as they really believe in some of the ideas, but articulate that they cannot proceed with them because of the lack of top-management support. *“We feel somehow bad about the way we treat the lead users. But we cannot tell them more than we know. If there is no progress on the ideas, what to say about it?”*, one R&D Manager stated.

#### **4.2 CASE B: LEAD USER IS APPROACHING THE COMPANY**

A design engineer student, for which one of the authors were supervisor was also a dedicated kite-surfer (the author has been in an on-going conversation with this student also after his graduation and following work). While the boards and the kites are continually improved, the control bar has not changed radically, and he started playing with a concept of another control bar that were much more flexible and also might be safer. He was in contact with one of the key companies within the field, knowing one of the local managers of the company well from his sports activities. From him he got in contact with the central brand manager, and they agreed about developing world`s best control bar together.

In the spring 2013 he sent a small-animated video to the local manager and the central brand manager of the company of his concept. The reaction surprised him, on one hand they appreciated the proposal, and on the other hand they told him that it was far too late for the 2014 production, since the molds for that bar was already produced: *“if you want to see your products on the market you have to make the development fit to the companies development rhythm”*, he was told. They did not however show any interest in developing it further, but instead asked questions that for him indicated that they did really understand the concept and left him with quite some confusion. Since he had not made an NDA with them, he did not hear much about their actual plans, so he made his

own interpretation of what was going on. In his conversations with the author he realised that some of the questions from their side came because of him disguising key elements of his invention for them. He did that from the fear of them stealing his idea, which actually were far more developed than indicated in the animated video, that showed only the key principle of the idea. So in our conversation it became apparent, that the holding of cards closely from both parties would create problems, but he could not see any other ways of dealing with it from his side.

He was confused about their response. At the same time as they articulated their appreciation of his idea they apparently did not take any attempts to go further with him about it. Instead they offered him a temporary job for designing a mobile app, which in no way was his key competence, and also this was confusing for him.

When he finally saw their prototype for the 2014 control bar he found it worse in several aspects, even compared to their own former control bar. In some aspects it was different from the previous model but it was far from market leading in any of its functions. Since one of the essential motivations for him to start this whole project was to heavily influence the development of this product to become a new benchmark, he felt disappointed at this point. Due to the obvious poor build quality of the prototype he also realized now that they had not finished the final molds at the time when he presented his animation and he could not avoid thinking about their reasons for telling him so. About the chief designer he said: *“When I saw their bad quality prototype it made me think that he might just wanted me to stop for reasons that were unreasonable for me”*. In the reflections our lead user admitted that he also more or less unconsciously might have avoided contacting the lead designer, as an example he did not send the original mail with the animation to him but directly to the managers since he felt to have the best contact with them and also that it was up to them to decide about important further changes on the development of the product.

Until now most of the interaction had been going on in Skype conversations, but he now sent a mail to the central brand manager in which he in writing challenged their concept, explained that their main competitor had a much better control bar, and again offered to develop the radically new concept he proposed. He was thanked for his honesty, but still without further reaction.

In the summer 2013 he was invited to a seminar in which the top management, including the chief designer presented the 2014 collection for regional shop owners. He got a warmly reception and noticed with satisfaction that they had withdrawn the 2014 prototype he had criticised, and basically continued with their 2013 model, which on one hand was satisfying for him to experience, and at the same time weird, since they had not asked for a mutual further development of his idea. In a conversation with the head designer he was told, that another time he would have to prepare better. In his own words this left our lead user *“feel very weird as a mix of being misunderstood, unpleasant and even a little bit of anger. I think I remained rather perplex and a bit speechless in that situation”*. Later the same day the head designer offered him to work with other themes in the company with different themes, in the end saying *“whatever might make sense for the company”*. In his reflection from that times our Lead User wrote: *“From my perspective though I considered to have send them enough drawings and animations to enable a trained and open eye to understand the potential. I didn’t send final detailed models though because I didn’t felt confident enough that they wouldn’t just take advantage of my work.”*

In the conversations with the author we shared ideas about what might be their reasons for reacting. Did they not trust his competencies? Did the lead designer feel threatened by an outsider bringing in good ideas? Were their internal discussions more about developing boards and kites, with no capacity to take up yet another development? And were they still relating to him to keep him away from other companies?

While all this had been going on he had intensely developed further on his prototype, but as a reaction towards his own uncertainty kept this for himself. At this point our Lead user was approached from another company, and even if he now had his reservations about the first company, he still felt it most appropriate to not go to the other. He found the articulated values of the first company much better, at the same time as we were confused by their reaction. He was also aware that he might end up in similar dilemmas and that it would take time for him to create the required trust for open sharing of hard detailed work with another company.

In the ongoing process there has been several moments in which trust and identity has been negotiated. When the lead user in the end contacted the company and informed them that he intended to move on if they did not react, he got a mail from the brand manager. He was highly annoyed by the fact that he at the time when the mail ticked in he could see could see that the brand manager was online on Skype, and at the same time knew that the brand manager could see that he was as well, and the lead user could not stop thinking why he was not just called.

So the connection with the company stopped here. In his reflections he wrote about this: *“Still, I could have called. There was another influencing factor for me not to call: I didn't hear from the head-designer yet at that point and I knew there was only a chance for a successful collaboration when he and me would find a way to work well together”*. When he finished his master he decided to take some months in Hawaii, partly for kite-surfing, partly for creating new relations about his control bar. He is now negotiating with a leading kite surfer that is in close contact with good investors to create a company solely focusing on the control bar. Ironically the first company has now recently offered him a full time job that he has declined.

## 5. DISCUSSION AND CONTRIBUTION

We have two cases in which external lead users and diverse firm representatives in different functions fail to create, deliver and capture the value of the interaction with lead users. Further, we analysed how, in these emerging processes of relating, meaning is co-created in a way that narrows the shared conceptual space for imagination and collaboration. Complementary, we looked at the temporal development of the interactions.

In case A we saw that:

- Identification and selection processes can be tough, but were doable
- Lead user did challenge the large organization
- Top management was not involved, which became problematic for the company people engaged in the interaction with lead users.

When it comes to the recruiting of lead users, there is some research, such as netnotgraphy and pyramiding, but there has not been much focus on the management of lead users after the workshop and beyond. The case shows that lead user are extremely helpful in bringing new perspectives, but if they do not feel treated well, they might even get on opposition to the company. In this case we did not (yet) see a “shitstorm”, like other companies have experienced with dissatisfied customers.

A remaining question is: how to work with lead users beyond the workshop (long-term)?

One perspective could be that it seems to be critical that companies are very aware of the right choice of internal staff, in dealing with lead users. Beside having a good understanding of the companies’ products and goals, they also must have a high sensitivity when it comes to the communication with these special persons that is usually perceived as having either hedonic or utilitarian user motives (Stock et al., 2015). However, in this case the interaction at the workshop went well. It seems more the case that the problems are caused from the following conversations within the company, in which the staff engaged with lead users seems to come into trouble in following up with meaningful conversations within the company, in the end placing the responsibility for the lacking support at the top management. The problems might then be understood as difficulties in challenging the current ideologies about product development. In following an internal change agent Larsen and Bogers (2014) have explored how the dynamics of similar conversations have lead to conflicts and shadow conversations.

As introduced, lead users are anticipating needs, which ordinary customers do not have yet. The companies might benefit tremendously from their solution as they do not develop a product for somebody else, but for their own sake and use (Mansfield 1968; Urban and von Hippel 1988; Franke et al. 2006). In case B the lead user was basically bringing in what he developed, and was curious about its development in the company. However, there it did not fell on fertile soil as he was expecting it. So the question arises, if this is due to the transfer of knowledge and ideas to other people, which is called “sticky information” – and which is seen as one of the key success factors of lead user innovation (von Hippel 1994; von Hippel 1998; Ogawa 1998). The lead user created over time a feeling of not being taken serious, with resembles the emerging dissatisfaction also seen among the lead users in case A. The question is also here whether we can understand this as mistakes in their communication, which then lead to loosing trust and identity at the side of the lead user?

Paradoxically, our case also shows how such failures of collaboration can – at the same time – turn into new creative developments leading to unexpected turns. For example:

- A radical improvement of the design, which mainly happened in moments where the tension with the company were at the highest
- The challenge of how to interact with a lead user
- The challenges in the relation with one company served as an incentive to contact a new company
- and even to create a company

Mead (1934) understands the emergence of self as essentially social. In case B the lead user is negotiating his identity in these interactions. Mead says that at the same time as

the external conversations is going on, internal conversation between what he called "I" and "Me" is also happening. Mead describes "Me" as the perception of the other the individual creates, which Mead also called "the generalized other". From this perspective the lead user were over time negotiating with himself and creating a more or less coherent understanding of the role he assumed he was supposed to play, in his perception of their actions. As he also discussed with others, such as one of the authors of this paper he created particular understandings of what was going on, such as that he might be challenging the lead designer. For Mead, the "Me" is in a dialectical conversation with "I", who cannot avoid challenging these perceptions of the other. By doing so, Mead does not understand the emergence of human identity as a mere result of the environment, because the "I" will respond to "Me" and influence the next action taken. In the case we saw how the "I" responded with increasing mistrust and we also see how small incidents, that might not be noticed by the people from the company have had a major implication for his evaluation of what is going on.

Stock et al. (2015) talks about user motives as hedonic or utilitarian. They conclude that utilitarian motives increases motivation, but the more an innovator is in it for fun, the more creative they become. Although this general pattern seems to also fit for the lead user in case B it seems to be much more complex, if we look at how it emerges over time. His interest for the sport led to the initial development. It was put on pause when he initially were recognized by the company, and paradoxically he got into an almost insane development at the time where he did not feel recognized by the company. The lack of recognition of his skills at crucial incidents were important, but he also were looking for a more solid recognition as a written agreement or a job. Paradoxically, when they were able to offer him that, he had drawn other conclusions.

We see an interesting extension of the notion "sticky information", which we can draw from our investigated cases: "stickiness" in the information transmission is not only a phenomenon in the direction from the lead user to the company, but the other way round also. Companies are sometimes challenged also to put their communication in a way so that the lead user understands it. The referred understanding here is obviously not in terms of acoustic understanding, but lies in the transformative nature of the communication in itself, that none of the actors can control. From such a perspective, the most important attentions point for people from companies, in dealing with lead users might be to

- find ways to continue an open conversation, to keep the conversation open also when it becomes difficult
- focus on the challenges the emerging conversations create within the company. In which way is the relation to the lead user(s) challenging the existing identities of the engaged? How can new conversation, having the quality of meaningfully challenging the existing conversations (Buur & Larsen, 2010) .

Our findings are relevant for both researchers and practitioners in the field of (user-driven) innovation and entrepreneurship because our case pinpoints critical events that can kill innovation with external partners, based on their communication.

By only dealing with two cases this paper is limited when it comes to drawing wider conclusions. We do however contribute by providing a rare perspective into what easily could be seen as innovation failure. We show how the temporal interactions between lead users and companies can lead to a lack of shared imagination that hampers

participation and kills innovation between interdependent stakeholders at the threshold between invention and innovation in practice. We believe that more insight is to be gained in doing more of such qualitative longitudinal studies with a focus on the emerging qualities of conversation.

## 6. REFERENCES

- Brem, A., & Voigt, K. I. (2009). Integration of market pull and technology push in the corporate front end and innovation management—Insights from the German software industry. *Technovation*, 29(5), 351-367.
- Bilgram, V., Brem, A., & Voigt, K. I. (2008). User-centric innovations in new product development—Systematic identification of lead users harnessing interactive and collaborative online-tools. *International Journal of Innovation Management*, 12(03), 419-458.
- Buur, J., & Matthews, B. (2008). Participatory Innovation. *International Journal of Innovation Management*, 12(3), 255 – 273
- Buur, J. & Larsen, H. (2010) The Quality of Conversation in Participatory Innovation. *CoDesign*, 6, 121-38.
- Carlile, P. R. (2004). Transferring, Translating, and Transforming: an Integrative Framework for Managing Knowledge Across Boundaries. *Organization Science*, 15(5), 555-568.
- Chesbrough, H. W., *Open innovation: the new imperative for creating and profiting from technology* (2003), Harvard Business School Press
- Franke, N, E von Hippel and M Schreier (2006). Finding commercially attractive user innovations: a test of lead user theory. *Journal of Product Innovation Management*, 23(4), 301–315.
- Herstatt, C., & Hippel, E. (1992). FROM EXPERIENCE: Developing New Product Concepts Via the Lead User Method: A Case Study in a “Low-Tech” Field. *Journal of product innovation management*, 9(3), 213-221.
- Herstatt, C., Lüthje, C., & Lettl, C. (2003). Fortschrittliche Kunden zu Breakthrough-Innovationen stimulieren. In *Management der frühen Innovationsphasen* (pp. 57-71). Gabler Verlag.
- Horn, C., & Brem, A. (2013). Strategic directions on innovation management—a conceptual framework. *Management research review*, 36(10), 939-954.
- Katz, R., & Allen, T. J. (1982). Investigating the Not Invented Here (NIH) syndrome: A look at the performance, tenure, and communication patterns of 50 R & D Project Groups. *R&D Management*, 12(1), 7-20.
- Kelemen, M. and Rumens, N. (eds.) (2013) *American Pragmatism and Organization: Issues and Controversies*. Gower Publishing, Farnham.
- Larsen, H., & Bogers, M. (2014). Innovation as Improvisation ‘In The Shadow’. *Creativity and Innovation Management*, 23(4), 386-399.
- Lüthje, C., & Herstatt, C. (2004). The Lead User method: an outline of empirical findings and issues for future research. *R&D Management*, 34(5), 553-568.
- Lüthje, C., Herstatt, C., & Von Hippel, E. (2005). User-innovators and “local” information: The case of mountain biking. *Research policy*, 34(6), 951-965.
- Mansfield, E (1968). *Industrial Research and Technological Innovation: An Econometric Analysis*. New York: W.W. Norton.
- Nicolini, D. et al. (2011). Understanding the Role of Objects in Cross-disciplinary Collaboration. *Organization Science, Articles in Advance*, 1-18.

- Ogawa, S (1998). Does sticky information affect the locus of innovation? Evidence from the Japanese convenience-store industry. *Research Policy*, 26(7/8), 777–790.
- Olson, E. L., & Bakke, G. (2001). Implementing the lead user method in a high technology firm: A longitudinal study of intentions versus actions. *Journal of product innovation management*, 18(6), 388-395.
- Peirce, C.S. (1935) *Collected Papers of Charles Sanders Peirce*. Vols. V–VI, Pragmatism and Pragmaticism and Scientific Metaphysics. The Belknap Press of Harvard University Press, Cambridge, MA.
- Sproedt, H., & Larsen, H. (16.-18. September 2012). Social Shaping of Innovation – The Practice of Dealing with Paradox and Conflict. Proceedings from 13th Continuous Innovation Network Conference, Rome.
- Stacey, R.D., Griffin, D. and Shaw, P. (2000) *Complexity and Management: Fad or Radical Challenge to Systems Thinking*. Routledge, London.
- Stacey, R., & Griffin, D., *A Complexity Perspective on Researching in Organizations. Taking Experience Seriously*. (2005), Routledge, London
- Thomas, R. et al. (2011). Managing Organizational Change: Negotiating Meaning and Power-resistance Relations. *Organization Science*, 22(1), 22-41.
- Urban, GL and E von Hippel (1988). Lead user analysis for the development of new industrial products. *Management Science*, 34(5), 569–582.
- Von Hippel., Eric. (1986). Lead Users: a Source of Novel Product Concepts. *Management Science*, 32(7), 791-805.
- von Hippel, E (1994). Sticky information and the locus of problem solving: implications for innovation. *Management Science*, 40(4), 429–440.
- Von Hippel, E. (2007). Horizontal innovation networks—by and for users. *Industrial and corporate change*, 16(2), 293-315.
- von Hippel, E., Franke, N., & Prügl, R. (2009). Pyramiding: Efficient search for rare subjects. *Research Policy*, 38(9), 1397-1406.
- Yin, R. (1994). *Case study research: Design and methods*. Beverly Hills.