

Design Anthropologists' Role in SMEs: Unveiling Aptitude and Attitude

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Research collaboration and methods development within user-centered design and the emerging discipline of user-driven innovation have traditionally taken place in research institutions and large forward-looking enterprises. Due to this fact, concepts, methodologies, approaches have primarily gained foothold in companies with resources, competencies and organizational support to make sense of this seemingly fruitful but somehow elitist approach. The roles that the design anthropologist plays in user-driven innovation will depend on size and competencies of the specific organization. The economic realities of small-to-medium sized companies (SMEs) suggest a more holistic research perspective from the single design anthropologist that potentially constitutes the entire (and affordable) user experience department of the SME. This paper suggests a plausible approach for utilizing the skills of a design anthropologist in a small manufacturing company based on experience from two collaborative projects. Rather than informing about 'how we look at users' the design anthropologist may inform and reframe the company's potential for innovation.

INTRODUCTION

In a European context small-to-medium sized companies¹ play an important role to the national economies. Understanding how design anthropologists may fit into a small manufacturing company is important for the promotion of ethnographic praxis in other settings than large multinational or consultancy companies.

Micro, small and medium-sized enterprises (SMEs) play a central role in the European economy. They are a major source of entrepreneurial skills, innovation and employment. In the enlarged European Union of 25 countries, some 23 million SMEs provide around 75 million jobs and represent 99% of all enterprises. (European Commission 2005)

In a Danish context the theme of User-driven innovation has over the last three years gained much attention by policy makers and companies. The Ministry for Economic and Business Affairs is currently sponsoring projects to ensure a national competitive advantage within the field of user-driven innovation². Anthropology is promoted in government reports as a key discipline in pursuing this strategy and in particular in understanding users' latent needs. (Rosted 2005: 36-37) (Danish Agency for Science, Technology and Innovation 2006: 16) However, as the Danish company landscape consists of a high number of SMEs

¹ See http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/sme_user_guide.pdf

See <http://www.ebst.dk/brugerdreveninnovation.dk/about> for information about the programme.

there is potential room for finding ways of utilizing the skills of the anthropologist in ways that goes beyond employment in large companies or short-term consultancy offered user studies. A full-time employed design anthropologist in an SME is implicitly conceived of as unrealistic as his or her task doing user studies has a certain duration and momentum within the innovation process. I believe that this rather limited perspective of the anthropologist's potential role is due to the fact that anthropologists both have been given and partly accepted a role within the field of user-driven innovation by the co-inventors of the field such as FORA (The Danish Enterprise and Construction Authority's Division for Research and Analysis). Anthropologists are slowly but critically embracing this invitation, but the challenge is now to develop our own role in this game. Do we want to take the expected role as the user experience advocates inspired by large U.S. companies such as Intel, Pitney Bowes and IBM and is this in a SME context even a plausible approach? Or do we need to challenge our own and others' expectations of what design anthropologists can and should contribute with in small-to-medium sized enterprises?

This paper points out some of the implications for design anthropologists working in SMEs based on experience from a single manufacturing company between 2006-2008. I suggest that working in a small or medium-sized manufacturing company can redefine the role of the design anthropologist in several ways but this requires; the design anthropologist to necessarily understand the broader context of the company – the value network (Christensen 1997), as SMEs often are sub-suppliers and thus dependant on larger companies. Moreover the design anthropologist needs a basic understanding of business to be able to argue findings in a relevant terminology. The design anthropologist must pragmatically be able to balance looking into the company and studying end-users (Heiskanen & Repo 2007). This apparently obvious premise might not be that obvious after all as observed by Janice Anne Rohn (2007:25).

An irony of UX professionals is that they are often so focused on understanding their external customers, they do not spend the time necessary to focus on the internal customers: the stakeholders within the company. However, without buy-in and support from internal customers, the products and services will never reach external customers.

The proposed all-rounder role of the design anthropologist will of course have an effect on how deeply she or he can go into the various fields and thus potentially dilute the quality of the work. These trade-offs might not fit the attitude of the skilled design anthropologist who will have to redefine and expand his or her area of competence and interests by also critically examining the internal organizational and managerial foundations for supporting this approach to innovation. This means challenging procedures, traditions and taken-for-granted ways of doing within the organization and thus challenging the managers who maintain such structures. The attitude and willingness of the anthropologist to leave the comfort zone is crucial (Baba 2006: 35-36). Concurrently the small organization can potentially support the design anthropologists' holistic approach in understanding the business context as well as support quick decision-making in an un-bureaucratic

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environment. This I refer to as the company's *aptitude*. Design anthropologists in SMEs face a number of challenges that can either support or hamper their efforts. How the design anthropologist responds to these challenges is of course individual, but will be important to understand and accommodate in formal anthropology education as more and more design anthropologists move into industry. The smaller SME organization potentially will have a more receptive audience that can support the design anthropologist's attempts through ethnographies and anthropological perspectives to influence strategic design decisions (Dourish 2006) and business development.

Case study

I will briefly describe the context and some findings from my research. The SME categorization is probably not interesting in itself – what is though, is the specific company behind this broad category. Dizplay A/S³ is a relatively small sub-supplier and from a value system perspective, rather distant from the end-users. Dizplay is a leading manufacturer & integrator of Information and Passenger systems for the train industry and the primary customers are train builders and train operators. Products include seat reservations displays, system controllers, emergency speech units and infotainment systems. The company employs app. one hundred people with highly specialized engineering and project management competencies – ranging from software, hardware to mechatronics. It has limited experience with user-centered design methods. Human resources are scarce when it comes to explorative activities that distract employees' attention and time from the core business of running projects. This issue will of course appear in large companies as well. The company develops systems based on (and limited to) their customers' (train builders) expectations and thus has a rather reactive approach to product development. In this example it seems that a conservative market makes a conservative sub-supplier – and if one adds the very strict standardization, quality and safety regulations in the train industry the willingness to take risks becomes even smaller.

This incremental and technology centered approach to product development makes sense to train builders and has given Dizplay a competitive advantage, but hardly nurtures innovating products and services directly aimed at enhancing the passenger experience of traveling by train. The strong affiliation and market focus between Dizplay and key customers has had the effect that the company historically has had limited attention to new (to-the-company & to-the-world) product development and innovation in a broader sense (Schumpeter, 1934). Product innovation within the company can be described as incremental, sporadic and technology driven – a general tendency among Danish SMEs (Rambøll 2005: 8). Innovation based on end-user needs (whether articulated or non-articulated) is practically non-existing and if so, the needs are heavily filtered and formulated by the customers. Operating within this fixed value system is what has made Dizplay a successful and well-established company despite fierce competition. The same value system

³ The name of the company has been changed for the EPIC 2008 proceedings. The company is referred to as Dizplay A/S. Names of people and places have not been changed.

is what limits Dizplay in exploring passengers' needs and thus hampers a proactive approach to new product development that goes beyond the existing systems and value system (Dizplay - Train builder – Train operator – End-user/passenger). Or maybe it is the managers and employees who are more likely the main reason why the company has been successful. Perhaps it is not even the value system that limits anything – but rather our (the Dizplay employees') imaginations of what is possible. Broadening the boundaries of what is possible and provoking existing assumptions on value systems and business models is in my opinion what is at stake here. Whether the small sub-supplier should be limited by traditions and value systems is a negotiation that takes place between people and of course in the context of the market. One example of Dizplay's focus on optimizing activities within the existing value system was in 2006 when the company received the IRIS certification, which is an industry specific quality standard measurement certificate. At that occasion Senior Manager of Sales & Marketing, Jens Møldrup, commented in a press release: 'We are now even more prepared for conducting the development within passenger information in the next many years. And our customers need no longer audit Dizplay to approve us as supplier', thus implying an alignment of Dizplay's value chain activities with the customers' value chain activities. The IRIS certificate reflects the company's ability to structure complex project management with a focus on quality and standardization. The conditions for dealing with the complexity of innovation activities are present, however optimization is not innovation and does not lead to new products. The point I wish to make is that the design anthropologist is equipped to facilitate this kind of knowledge creation of the relation between the *habitus* (Bourdieu 2006) of the organization and the untapped potential in both product and business development that arises in the wake of bringing in end-user perspectives to a company with non or little experience with this approach. In sessions of making sense of user studies it therefore becomes essential that the design anthropologist can couple the analytic and constructive approach to new product and service development with a more reflective approach. By facilitating and investigating how the same user studies potentially can inform and provoke assumptions of a company's product development approach, how value networks are conceived of and their strengths and weaknesses, the design anthropologist can assist employees and managers in articulating strategic implications. The anchoring and positioning of the design anthropologist within the organization would preferably be between and within conceptualizing product/service ideas and business opportunities typically in R&D and Management. I suggest that the design anthropologist should engage not purely in user studies and the translation into concepts, but to also help link organizational learning with product & business development.

Three collaborative projects

In the following I will describe two projects in collaboration with Dizplay during my M.Sc. IT Product Design studies at the University of Southern Denmark. The third project is a part of my doctoral research and is ongoing. What I wish to illustrate is my attempt to make not just user studies, but also design anthropological perspectives on the organization resonate within the company. The first project was a user-centered design approach including user studies, co-ideation and concept development. Nevertheless the activities and

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especially a co-ideation workshop opened up to some very interesting questions and perspectives that led me to dig deeper into the organizational conditions for the innovation approach I want to introduce to the company and its value network.

Studying end-users

Project one was a three months full-time user-centered design internship that took place in 2006. The R&D manager in Dizplay was interested in getting new perspectives on the potential of in-train infotainment e.g. LCD screens that can display content such as news, passenger information and advertisement. My approach to this challenge was desk research and a competitor study to map what was in market, and field studies in European trains for a period of three weeks. I held a pre-ideation workshop and invited ten participants from various Dizplay departments to help make sense of the material. From this I prepared a project report with a number of suggestions for further action. Moreover I made a simple prototype that illustrated one of the main points that the workshop participants derived from the user studies; that passengers want relevant passenger information and not advertisement mixed with news. This will probably not come as any surprise to anyone who has actually been traveling on a train, however this understanding stood in striking contrast to the typical expectations from customers, the train builders. The concept spurred some interest but was left on the shelf. What I as a design anthropologist was puzzled by was the fact that the participants were very sensitive to the data and had an ability to both articulate concept ideas and strategic implications, however neither the responsible managers nor the organization did support taking such knowledge further. From a professional viewpoint the dilemma between this lack of will, skill or motivation combined and the employees' ability to easily come up with concepts and turn them into functional prototypes was a surprise to me that needed further investigation. From this short project it became clear that user studies do not necessarily trigger innovation.

Engaging the organization

The second project which ran over a period of five months, focused on Dizplay's value chain activities (internal organization) in relation to Dizplay's value system (Dizplay – Train builder – Train operator – End-user/passenger) (Porter 1990: 41-43) and especially how and why this structure had been built up and maintained over the company's twenty years of history. I coupled this analysis with insights from interviews and participant observation of the daily life within Dizplay. I would sit among the engineers and read and write at my own table, have informal chats with them during lunch, participate in meetings and have more formal interview rounds. I was in the company almost each day for a three months period and established close relationships with several employees. Through Pierre Bourdieu's (2006) analytical framework I sought to argue how one may talk of a sort of Dizplay *habitus* as a function of the company's history of being a sub-supplier in the previous mentioned, fixed value system. I argued that the workshop represented a heterodoxic situation in the sense that the missing actions taken from the created knowledge showed how structures are

maintained, but also how individuals or agents can question the existing situation and in this case through end-user input. From the descriptive and analytical level I suggested an organizational structure for how to implement user-driven innovation in Dizplay. By this I want to emphasize the opportunity for the responsible design anthropologist to utilize his or her analytical skills on the organization and turn it into prescriptive and concrete recommendations. By linking the past, the present and the future potential situation of the company in close relation to a focus on new products and services I believe the design anthropologist takes full advantage of his or her disciplinary skills. From my experience this knowledge enabled Dizplay managers to get a helicopter view of their praxis and a clear vision of how Dizplay could benefit from user-driven innovation through changes in activities and the business model. In this concrete situation it moreover led to co-funding my doctoral research in user-driven innovation in SMEs. This project revealed that the SME alone may not be in control of innovation.

Engaging the value network

My ongoing research deals with opening up new windows of opportunity between current and potential value networks – new constellations of companies that will add value to each other's activities, products and services. The analysis in the previous project clearly showed Dizplay's interdependency to other companies. By constructively utilizing such relations between people and organizations the project aims at establishing a forum and concrete partnerships to develop innovative products, services and systems across companies. The project is named Trackers and takes place in collaboration with researchers from the Sonderborg Participatory Innovation REsearch centre⁴ (SPIRE), which is a part of the University of Southern Denmark. Our assumption is that Dizplay as a sub-supplier necessarily must strategically and practically embrace the user-driven approach in consortium with partners in its value network to share the vision of system innovation. Innovation in this field necessitates collaboration among a number of players as each of the companies has a limited field of expertise. Understanding the potential synergies between the companies and how to practically utilize them to serve end-user needs is one of the challenges. One of the outcomes of the research was a Value Network Vision Seminar co-hosted by the SPIRE centre and Dizplay. The intention was to kick off internal Dizplay activities and send a strong signal to the value network partners that Dizplay has a pro-active approach to innovation and create an event that directly inspires and challenges traditions and ways-of-doing. The reasoning behind this is very similar to Rohn's (2006) observation. Dizplay must involve and understand the central stakeholders to achieve results. In this case the central stakeholders are found not only in the internal organization but include external partners and potential customers as they have the same importance in bringing novel products to market for a small sub-supplier. The purpose of the Vision seminar was first of all to facilitate the vision of user-driven innovation and make it resonate within the value network. By bringing various perspectives into the seminar we spurred some interest and willingness to embrace this approach. We invited speakers from Denmark's largest train operator to frame the

⁴ www.sdu.dk/SPIRE

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seminar activities in a business perspective as well as an experienced design anthropologist to share her experience.

Less orthodox was our approach to invite participants to make sense of our user studies of train conductors and train passengers and (hopefully) see the potential in involving end-users in the innovation process. One of the partners in the SPIRE centre is the Dacapo theatre⁵ that for a number of years has worked with change management in organizations through interactive theatre. By collaborating with the theatre in the planning of and the facilitation of the seminar our intention was to utilize their skills in opening up for fruitful and eye-opening discussions. Throughout the vision seminar the participants were engaged with small plays performed by three actors. The discussions would allow the participants to discover new ideas for products, systems and types of collaboration. We invited the train conductors who have participated in our studies as a source of information and as participants in the innovation process. This process allowed for sharing several perspectives on the same situation seen from the perspective of the train operator, the train builder, the supplier of passenger information, the train conductor, researchers and open a discussion about how to change this situation into a preferred one e.g. through new products or services. The themes that we have extracted from the user studies are;

Crosschecking - passengers tend to crosscheck with several train conductors to be sure that they are in the right train. Our assumption is that people do not always need more information. Rather they need to know that the information they have is consistent. This opens up to questions such as: How can we help people to make meaningful links between disparate information sources?

Trust and local knowledge - there is a tendency among certain passengers to trust printed journey plans more than the train conductor, who can have up to 40 years of experience. But train conductors often have the most locally relevant and recently updated knowledge. From this we ask questions such as: How can we ensure that passengers benefit from this expertise?

Special needs – some passengers e.g. hearing impaired people can have special needs such as being informed when the train reaches a certain stop. We all have special needs from time to time. How can we support train conductors in recognizing and supporting the various needs of individual travellers?

The reasoning behind choosing the above themes was that they serve three purposes. Firstly they address issues such as providing service either through people or machines or both. Secondly, the challenges that the passengers meet in our examples are typically unresolved and can be addressed by companies individually or in collaboration. Thirdly, they all convey a story about the imperfect system. No matter how well functioning systems are,

⁵ <http://www.dacapoteatret.dk/wm108807>

there will most likely always be a need for personal service. The question is then how to balance this perspective in the products and services that the seminar participants develop.

Now, two months after the Vision seminar, I have had the opportunity to receive written and oral feedback on the activities primarily from fellow researchers and Dizplay participants. The question is of course – did this seminar fulfill its purpose and how did it make an impact both on the short and on the long run? The latter is of course impossible to give an answer to and I shall focus on the immediate feedback and actions. As stated the purpose was double-sided. To kick-start innovation activities both internally in the company and within the value network. In the following I shall share some insights from the seminar and discuss their implications.

A puzzling value network

The invited key-note speakers included Head of Traffic Information in DSB (Danish State Railways) Tony Bispekov, Design anthropologist Anna Kirah and Dizplay Senior Manager R&D, Lars Bo Kjølmg-Rasmussen. One theme, addressed by all the speakers, was the notion of the experience of the entire journey and that this was a great starting point for innovation. The theme was given different names such as ‘the big solution’ (Tony Bispekov), ‘the entire process’ (Anna Kirah) and ‘the whole service’ (Lars Bo Kjølmg-Rasmussen). All shared the vision of systemic innovation - innovation that is made possible when combining individual companies’ technologies, products and services and from this add value to the experience of train travel. This could include ticket purchasing, passenger information, connecting lines such as busses, on-board services, infotainment services etc. Tony Bispekov from DSB, which is Denmark’s largest train operator, challenged the audience that consisted of many sub-suppliers by saying;

My advice to suppliers; each supplier is actually very good at what they are doing. So if you are making systems for the train let us say it is monitors for the train - within the train or if you are making monitors for the platforms or traffic information systems of some kind – all of our suppliers are very good at what they are doing – exactly what they are doing. What we are looking for is a big solution. A solution that really focuses on all the data we got – how do we relate all those data and how do we distribute those data afterwards to all those different information channels we’ve got?

This challenge apparently is the Achilles’ heel of this particular industry context. Everybody is good at *exactly what they are doing* and the same time everybody is aware of that this is not sufficient when it comes to fulfilling the needs in the market. The big solution and the whole experience that both the train operator and passengers are looking for, depends on the ability for both large and small-to-medium sized companies to strategically and practically share the vision and the risk of participatory and collaborative innovation across companies.

The feedback I have received circles around this dilemma. Apparently there are great collaboration opportunities and a willingness to explore new concepts, but who takes the initiative and what are our organizational foundations when it comes to competencies, resources and time? At the same time there is a concern that the complexity of combing technology forecasting, user needs and collaboration across companies, simply is too risky. These concerns are valid and will of course need to be addressed over the coming months. The immediate actions that we (the R&D senior manager and I) have agreed on taking to inform this process are to run a series of concept development workshops within Dizplay. The reasoning behind this is that we cannot and should not wait for a *big solution* to somehow appear by itself in the shape of a large-scale innovation project across companies. Instead we plan to have three teams of two people focusing on a theme from the user studies. The purpose is to test what results can be achieved within a certain time scale and with fixed resources. The end result will be three prototypes that both addresses user needs from our user studies, that suggests innovative use of current in-house technology and complementary technologies and suggests potential development partners. Our hope is that this project will inform the previous mentioned concerns and help bridge a practical approach with the strategic implications. Moreover the ambition is that the process of making the prototypes will serve as a tangible process tool to free us from the habitual number-focused straitjacket that limits innovation by focusing more on numbers than of purpose and use. Prototypes we believe are a pragmatic and accessible entrepreneurial way of creating interest and commitment with partnering companies and customers. This build-and-show approach to innovation has exceptional aptitudal foundations in this particular company due to the fact that the engineering competencies within the company are both very specialized and diverse. This means that the distance (theoretically) from concept idea to mock-up to prototype is short but so far unutilized. By this approach we believe that we can challenge ourselves e.g. how we perceive innovation – as process, as tangible results and the underlying organizational foundations. With the prototypes we believe we can challenge the value network to commit to collaborating on the development of novel products and services. Before *the big solution* is decided on we need such internal processes in the organizations of the individual sub-suppliers to play together. In this way the challenge is to share visions, but also to take the first steps towards building the first brick of the puzzle and set an example.

These actions of building prototypes based on user insights could and probably should have been taken two years ago during and after my internship. At that stage, however, the strategic implications were not clear, deciding on earmarking of resources was difficult, the awareness within the value network of this approach to innovation was not present and to put it in popular design anthropological terms *the need was still unrecognized by managers within the organization*. All of which are preconditions for such a project to succeed and thereby to be addressed by the design anthropologist.

Broadening the notion of users

I hope to have outlined how a design anthropological analysis can be turned into actionable recommendations, how to both practically and strategically work with concept development and influencing the *habitus* (Bourdieu 2006) and value network traditions through collaborative sense-making of user studies with a broad range of participants in the vision seminar.

Based on the case descriptions and especially the last one which we have just started to understand the outcome of, I want to show how the design anthropologist can serve various purposes in the innovation process of an SME by.

- Facilitating co-ideation sessions based on user insights to help identify strategic implications.
- Creating the argumentation of why the user-driven innovation approach despite its inherent economical, methodological and organizational implications can make sense to a small manufacturing company.
- Broadening managers' boundaries of how product development can happen within a historically fixed value system and critically co-reflect and spar with management on methods, processes and strategies.
- Facilitating the creation of new value network relations based on field studies with the help of a theatre group and bringing this insight across to concept development teams.
- Creating constructive links between the past, present and the future of the organization through anthropological analysis.
- Broadening the notion of users to include clearly stating and showing their relation and contribution as participants in the innovative process.

The *users* we as design anthropologists are studying are *not* limited to current or potential end-users of products or services. Rather I suggest that we as design anthropologists in an SME context expand our roles and apply our skills to understand, involve and facilitate learning and innovation across all participants within the value network. That means studying our own organization, partner and customer relations as well as those end-user groups that will have day-to-day interactions with our products and systems.

Conclusion

I hope to have shown that design anthropology has a potential in SMEs and not just in multinational corporations. What the potential is will of course differ from company to company. Unveiling this potential is exactly what design anthropology is also about beyond end-user studies. Whether this role in which organizational, business and design anthropological perspectives melt together fits the design anthropologist is a matter of attitude. Based on my experience it is clear that to become an expert in a specific field is very difficult in the SME context. Shifting from empathetically telling stories about train conductors, to arguing how concepts strategically creates a need for a new value network and to critically sparring with managers can both be rewarding and a tough job and especially in small organization with close relations between employees. I hope to have illustrated that Display managers and employees have welcomed this, for them, novel approach to product and business development. Their flexibility and openness represents in itself is innovative and underlines the company's aptitude for user-driven innovation.

I believe my research addresses questions of what design anthropology is and can be. Such implications may be considered in anthropology departments in universities that wish to understand the potential of design anthropology by broadening the notion of users, of unveiling the potential for innovation and in which settings we can apply our analytic skills.

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