

OWNERSHIP OF USER RESEARCH IN THE PROJECT ‘WAR ROOM’

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ABSTRACT

This paper develops the notion of a *project war room* as an innovation practice in companies. We argue that the consistent use of a project war room, in which customer and user research serves as a background for design work, improve the quality of product innovation. We describe our experiences from a project with four Danish medium-sized manufacturing companies aiming to become more competitive in the European export market. In the project, one challenge was how to convey results from customer interviews and user studies from the researcher team (which in all instances included a company manager) to the development team in each company. We chose to collaboratively build a ‘war room’ in each of the companies to make sense of research materials and establish design principles for products that would better align with customer needs.

INTRODUCTION

In the move towards participatory innovation (Buur & Mathews, 2008) designers have been striving to develop methods and techniques for involving users and business stakeholders in the innovation process. To involve a multitude of actors has fuelled discussions about the role of designers as facilitators (Sanders & Stappers, 2008) and the means of including decision makers in design (Clark, 2007). In this puzzle of actors and relations we have come to see the emergence of ownership conflicts: Who ‘owns’ the user and customer research, and who ‘owns’ the new ideas? Shared ownership has a profound impact on project success (Mack et al. 2013).

As designers and innovation practitioners we find ourselves in new dilemmas as we learn to navigate participatory settings: In an expert role in the typical problem-solving paradigm, one could proudly present analysed customer and user research and make expert recommendations to what a company/client ‘should do’ (with the risk that very little would actually come from it). In the participatory innovation environment, we learn to pursue ways of “giving away ownership” of the research material, of engaging relevant stakeholders in making sense together and co-creating ideas.

Our work is an action research endeavour, in which we understand innovation as a practice that emerges from interdependent relations. We deliberately choose to work with enabling patterns of practice and empowering organisational becoming (Thomas et al, 2011).



Figure 1. The project war room exhibits visual material from user studies and customer interviews (second iteration, company 4)

Because transferring ethnographic knowledge is difficult (Buur & Sitorus, 2007), we recognise that the involvement of project partners in field studies is important. We therefore invited (mostly development) managers along into the field to ensure that the company will relate to the findings and take them seriously throughout the project. However, our experience has shown that developing a genuine sense of ownership with different stakeholders takes more than simple engagement, like we know it from traditional project meetings – which is the essence of the discussion in our paper.

LAB SPACES FOR (CO-)DESIGN

The use of research laboratories and cooperative design techniques is well known in the field of Human-Computer Interaction (HCI). A practice of constructing spaces to facilitate data gathering and analysis was adopted early on by engineering groups, in particular for usability tests. These *usability laboratories* were equipped with video cameras and specific software, which provided an appealing forum for the product managers to watch evaluations live and to support different stages of the product development cycle (Rohn, 1994).

Alternative formats such as the *Design Collaboratorium* (Bøkdér & Buur, 2002) have later been developed as a reaction to the classical usability approaches. The *Design Collaboratorium*, developed in an action research project, suggests an active collaboration between participants supported by design artefacts and the room as a meeting ground.

With a less engineering approach, Ivey and Sanders (2006) proposed the concept of a *Co-experience Environment* in which the participants are to engage with all of the senses and the intellect. They offered a shift from labs focused on the improvements of existing products towards the co-design and co-experience of new solutions. Another structured way for idea generation and concept development was introduced by *Dialogue-labs* (Lucero & Vaajakallio, 2009). In their work, the emphasis was on the involvement of researchers, designers and users in a systematized process.

Other researchers have developed lab spaces that address transformation in work practices instead of product development, such as the *Change Laboratory* (Engeström, 2007) and the *Design:Lab* (Binder, 2007; Binder & Brandt, 2008).

Comparably to the “XLAB” (Brandt et al, 2011), we advocate lab spaces for (co-)design as a collaborative platform beyond a the physical structure. We argue for an innovation practice that addresses the challenge of transforming knowledge and creating user research ownership shaped by the understanding that innovation is about social shaping of people, space, format and power (Mack et al, 2013).

THE PROJECT WAR ROOM

In participatory innovation (Buur & Mathews, 2008) ordinary people (often users) and emerging power relations are recognized as valuable sources for situated co-creation and playful learning (Sproedt, 2012; 2013). A central element in this approach is to understand difference and conflict as opportunities (Buur & Larsen, 2010) for doing, making and relating across boundaries and eventually as sources for creativity and innovation by learning from, with and about each other through participatory inquiry (Sproedt & Heape, 2014).

Recognizing and valuing conflict, improvisation and the uniqueness of situated challenges and opportunities led us to the ‘war room’ metaphor. Despite its terrible aspects, war has always been the source of unexpected alliances as well as complex, rapid and major innovations. We first thought about the term ‘play room’ – as play is a valuable source for exploration, creativity, learning and innovation – but many stakeholders felt uncomfortable with the term play in a serious endeavour. The term war room has been applied in organisational development about spaces used for working, co-creating and learning together across boundaries in challenging and time-pressured situations. For instance, in software development team members work together synchronously in war rooms in all phases of the project beyond status reviews (Mark, 2002). The idea of “War Room Command Console” is an example of a mechanism of visualisations for team coordination (O’Reilly et al, 2005).

In another example, Mark (2002) highlights the uniqueness of a particular type of war room, located in NASA’s Jet Propulsion Laboratory (JPL). She calls the type of design activity present there as “extreme collaboration”, emphasising the quality of an enclosing electronic and social environment that maximises communication and information flow. According to her, studies of war room-based work show that such environments lead to increased productivity far beyond what project managers expect from traditional efforts. She also suggests that “*a war room is most effective for teams responsible for tasks that are highly interdependent and when the relationships between individual participants are highly dynamic*” (Mark, 2002: 89).

War rooms are places where ownership emerges through active involvement. Strategy development and hands-on problem solving happen simultaneously in overlapping iterations of co-creating meaning between various relevant stakeholders. Depending on the challenges and the stakeholders, the war room can hold different situated activities, artefacts and practices. Co-creating a dynamic war room together with the project partners and documenting progress in tangible forms is shaping a structural object that has boundary, activity and epistemic dimensions (Nicolini et al, 2010), which empower organizational becoming (Thomas et al, 2011).

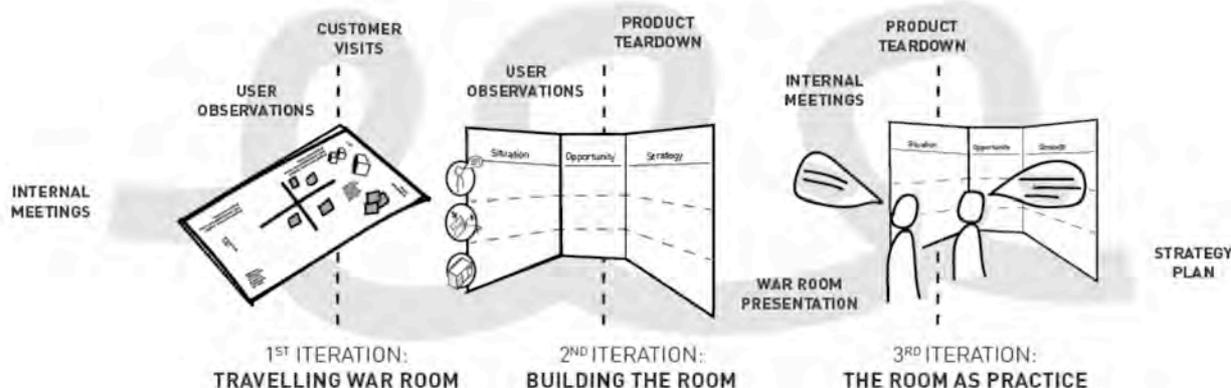


Figure 2. Three iterations of the project war room: Travelling, Building, Practice

THE SMART PROJECT CASES

The aim of the SMART Project (**S**uitable, **M**oderate price, **A**tractive value, **R**eturn on investment, **T**imely to market) is to support Danish medium-sized companies become more competitive in the European market by ‘creating more value for customers at lower prices’. It is organised by a Kata Fonden, a private research foundation financed by The Danish Industry Foundation, and the immediate goal is to develop a set of methods for developing existing products to better meet customers’ changing needs. So the challenge is incremental innovation rather than developing entirely new products. The fundamental assumption of the project is that there is a mismatch between company offerings and customer needs – that Danish manufacturers tend to over-specify their products and thus end up too expensive for the bulk of their market. The methods described in this paper were developed and validated through a 12-month project in collaboration with four different manufacturing firms. For each firm the project runs through four phases: Understanding customer needs and preferences (Phase 1); exploring current solutions through product teardown and cost analysis (Phase 2); developing new solutions involving the entire company value chain (Phase 3); and verifying the new solutions in direct customer contact (Phase 4).

As a university group with strong competence in user research, we were asked to complete Phase 1 for all companies on a consultancy basis. In our planning we suggested that Phase 1 should include an introduction workshop with each firm, customer/user visits in at least two European markets, establishing a project war room to make sense of the field material, and a hand-over meeting. We insisted that a company manager should join the customer visits, and that also the consultant responsible for Phase 2 should accompany us to ensure the transfer of customer knowledge into the next phase.

The idea behind the co-creation of a project war room with the company was basically to provide the project

partners with a shared experience of customer opinions in a form that would enable their daily practice, rather than hand over a written report. We worked out these guiding principles:

- The project war room must be easy to equip, i.e. simple tools and materials with a low threshold for non-designers to use them.
- It shall invite people to work playfully with the field data (e.g. text, pictures, video, numbers, prototypes, etc.) in dynamic and creative ways.
- It shall be open and big enough for several people to meet, relate, and co-create.
- The room needs to be co-created with the people from within the firm.
- The room should be centrally located in the firm, have a friendly atmosphere, and be well equipped so that employees recognize that their leaders value this approach.

At the time of writing, four manufacturing companies have been engaged in, at least, the first phase of the project in its full process. In this paper we draw on observations from the four companies we have been involved with. As the project unfolded, it became clear to us that we should see the project war room not as a one-time construct, but as a practice developing in three iterations, Figure 2.

1ST ITERATION: TRAVELLING WAR ROOM

The development of the project war room starts earlier than its physical setup. A series of customer interviews and user observations are conducted to investigate the situation of the specific industry in at least two different export markets.

Based on successful work with ‘tangible business models’ (Buur & Mitchell, 2011), we engage customers with tangible material in discussing price, competition, product features and so on. We take the materials to the company visits as a way to facilitate conversations and create unfiltered data to bring home.

We try to collect all information from the customer during each visit on a “tablecloth”: a large roll of white paper that helps collecting thoughts from the participants around the table, inviting them to take spontaneous notes and sketches, Figure 3. Typically, when starting the meeting with introducing the “tablecloth”, the participants sensed that the meeting would be more collaborative than usual. It also helped solve the double challenge of creating an engaging interview while keeping up with the interview notes. We later used parts of the tablecloth directly in the war room as ‘untainted data’.



Figure 3 shows customer interview around tablecloth with tangible tools

The first company we worked with was an industrial camera manufacturer that produces sophisticated optical equipment (COMPANY 1). We visited three of their customers together with the sales manager. As it turned out, the quality of the data we gathered had a direct effect on the interactions later on while constructing the war room.

The customers we met reacted very differently. The FIRST customer met us with four people: the purchasing team leader, who is responsible for costs and is concerned to get the best value for money; the optical design engineer who mainly determines the technological requirements and clearly expressed that cost are of secondary importance if a certain technology is necessary for the product. The team leader hardware and the head of innovation were responsible for scouting of new technologies and their implementation. The atmosphere was friendly and it did not take long until the discussion between them and us turned lively. Also, they seemed to have a good conversation between themselves. Especially the purchasing team leader and the optical design engineer negotiated their (sometimes) diverging understanding of priorities. They eagerly made drawings on the paper cloth, and used the small figurines to talk about competitors.

The head of site, an electronics engineer, who seemed very distant - if not unfriendly, represented the SECOND customer. He spent much time demonstrating

that he was on top of the situation and flatly rejected to use the material we had prepared. The THIRD customer met us with three people in a constellation similar to the first visit. In contrast to the previous customer, in this meeting there was a friendly atmosphere with good engagement with the interview material.

Throughout our visits to customers, the boundary between data gathering and analyses was fluent. In particular, the “moments in-between” visits played an important role. On our way from and to customer visits, we talked about our observations and began an informal analysis before the “data collection” was complete. During these, sometimes long, travel moments in cars or on airports, our reflections upon previous visits influenced the plan for the following ones. In line with theories of complex responsive process (Stacey, 2011) this temporal iteration of reflection not only influenced our following actions but also shaped how we made sense of what happened. We see this as a paradoxical and interdependent process of iterations in collecting and making sense of field knowledge.

The fourth company we engaged with was manufacturer of refrigeration equipment for industrial kitchens (COMPANY 4). We ran a series of customer visits in Germany and in the UK together with the internal product manager and a consultant responsible for the next phase of the project. At the time we had conducted the visits in the second country, both the product manager and the consultant became familiar with our ‘tangible interview’ approach. Motivated by the in-between conversations we invited the product manager to conduct one of the sessions with the tangible material himself. Interestingly, although he had previously posed some critique to our approach, he seemed to have appreciated the course that the interview took. There, we could see a shift of roles, supported by materials and relations that seemed to be crucial to create a sense of user research ownership.

2ND ITERATION: BUILDING THE ROOM

The main effort of building the project war rooms was concentrated in a two-day workshop activity, within a week after the customer visits and user observations so impressions were still fresh. It was a process of shared sense making, where the ones who had visited the customers could share their observations, challenged by employees who had not joined. To create a clear frame for all participants to contribute, we suggested three main walls organised as follows:

The SITUATION WALL contains descriptions of the different customers and users interviewed, highlighting their wishes and complaints. This wall should provide an understanding of how the customers perceive the company and the competitors in terms of product offers, service and price.

The OPPORTUNITY WALL holds unexpected situations encountered in the field and inspires solutions identified in the lab (i.e. from activities like the “product

teardown”). From the field, the concrete material can be a collection of images that shows the product in everyday routines from different context of use together with field notes. From the lab, pictures of valuable details of the competitor products worth further study might fill part of this wall. From both field and lab studies, sketches and technical drawing of potential concepts are relevant opportunity contents.

The STRATEGY WALL calls for decisions based on the material co-developed previously. It shall draw on how the company is currently perceived in order to establish goals for its future positioning. This wall may feature market focus and strong selling points, as well as decisions of product specifications, cost configurations, margins and target selling price.

To further help structuring the gathered knowledge, we defined three rows of focus: “Customer & Users”, “Price & costs”, and “Product”, Figure 4.

We began building the war room by meeting up with the “tablecloths” generated in the customer visits, as well as our notes and video recordings. Together with particularities of the room itself, placed inside the company, these materials grounded our discussion of how we should concretely structure the room. We drew an outline of how we could organise the materials, discussing which wall should be dedicated to what. At this point, we were usually the same four people who had been involved in the field activities, which made it easier to understand and relate to the collected material. We then started cutting extracts of the notes from the “tablecloths”, printing pictures, and organised the material from each visit accordingly. We clustered the type of material and content in groups for creating the first wall. We revisited the recorded videos to add missing and unclear details and found strong quotes to characterise customers in-depth.

On day two we typically finished the situation wall and created the opportunity wall. It often required sketching of initial ideas and the development of brief texts that highlighted interesting insights, which were not clearly represented by the materials brought from the field in their raw format.

In the case of the first company, the atmosphere from the three customer visits indeed was reflected in the project war room. The curious dynamics at the first

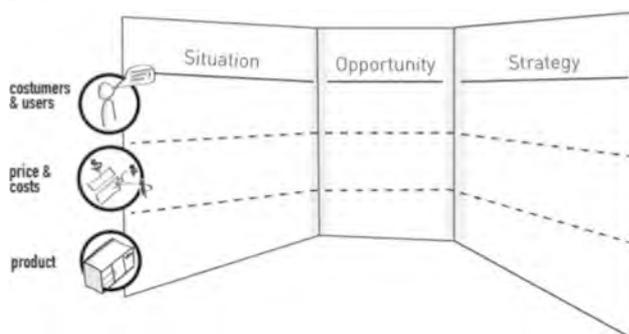


Figure 4. Basic structure of the project war room

customer, the negative, arrogant attitude of the second, and the patient friendliness of the third seemed almost replicated in the room when looking at the video and drawings. Our company partner appreciated it, mentioning that this is very important for developing an understanding of customers – especially for those employees who seldom have the opportunity to meet customers.

While working with a producer of compactor machines for handling cardboard waste (COMPANY 2) we visited customers both in Poland and in the UK. The company was highly engaged and willing to put an effort into organising customer visits, so the data was ready for the project war room within a month. However, the question of “how to move on with the war room after building it” turned out to be as important as it was difficult to answer.

3RD ITERATION: THE ROOM AS PRACTICE

The project phases, which were planned in advance by the management partner of the project, suggested Phase 2 to focus on a cost analysis of competitor products.

In the process with the company of compactor machines (COMPANY 2), due to the size of the machines, the activities of ‘product teardown’ and cost analysis were moved to a bigger room in the factory, instead of being conducted in the war room in the office building.

Following an internal decision, the war room materials were also moved from the office to the factory. There, in the factory building, the team created two rooms: one for the competitor machines with cost analysis graphs on the walls; and a smaller one right next to it with the field data: pictures, quotes and visualisations of customer perspectives. The project war room turned into a space for internal workshops to develop solutions to the challenges identified in the first two phases.

Here we observed an interesting occurrence: due to the lack of space, the material produced in the workshops was glued on top of the material collected from the field, Figure 5. Regardless of the practical reasons, this occurrence might inform the role of the war room itself. Does replacing field material with idea generation suggest conflicting perspectives on their relevance? Was the fieldwork discussed sufficiently to generate new ideas, or did it “simply” lose importance in the phase of developing new prototypes?

In the fourth company the product manager, who was quite recently hired, worked with employees who have 20-30 years of experience in the company (COMPANY 4). Coming from a marketing background with some experience of user involvement it was easier to convince him of the importance of customer research; however he was less easy to impress with the tangible approach and the quality of the insights. While such relational aspects might appear irrelevant for the process of building the project war room, we claim that they can have strong influence on each of the four war rooms we built. They

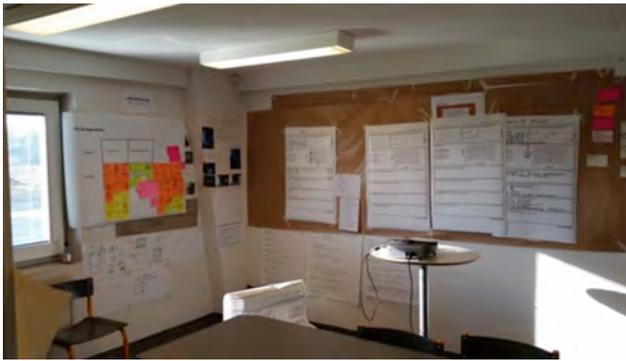


Figure 5. A second layer of material placed on the opportunity wall covers the customer insights (company 2)

set the scene for an innovation practice beyond untraditional spaces and materials that results from a process of actions towards a goal. Instead, it acknowledges a practice that emerges from a web of relations in the shadows (Larsen, H., & Bogers, M. 2014).

DISCUSSION

While innovation is often seen by design, business, engineering and other neighbouring disciplines from particular angles, we strive to grasp it through an iterative and relational process beyond disciplinary boundaries.

We argue for the project war room as a practice of innovation in its essence. We claim it takes more than the simple engagement of different stakeholders (universities, industries and users) or the reach of interdisciplinary perspectives (from designers, managers, marketers and engineers). There is an urgent need for participatory inquiry and co-creation activities where knowledge is transferred and transformed by doing, making and relating together. We promote an open *situated* process that changes fluidly with relations, space and materials in a temporal series of iterations. We equally stress innovation as a learning practice that ought to create room from improvisation and unexpected outcomes, celebrating conflicts as opportunities.

Defining and drawing plans together with all the ones involved in building the room helps setting expectations. People who have never put up a war room before are able to take actions without detailed instructions, which promotes individual pro-activeness and a sense of material ownership.

We argue that the war room has the potential to actually empower business and engineering firms to enable and cultivate ownership of participatory innovation practices that would otherwise be performed by external consultants, if at all.

TEMPLATES OR SKETCHY MATERIALS?

A comparison of the material co-created in the set up of the war rooms suggests that we might have learned from the process while still immersed in it. Because it does

take a little distance to be able to truly reflect, we invited some of our colleagues to look at the material produced across the first three companies. Among other points brought into the discussion, a tricky one questioned the level of graphic quality of the material vs. the impact it has.

Interestingly, from the first to the third war room there seemed to be a gradual increase in the number of “fixed” templates we used to fill in particular types of inputs from the customer visits and user studies. This was probably an immediate reaction to the risk of establishing a chaotic process with strong time limitations and a larger number of busy people involved. The template would help to delegate tasks and organise data in a faster, easier, clearer and - maybe even - more graphically pleasing way.

The search for result-oriented solutions, however, often hides crucial paths towards innovation. In our case, the attempt to systematise the process of organising the material might have not only limited our possibilities to encounter non-expected insights but also set a different relationship between the participants and the material itself. Exactly because it does not align with what seems to be more logical and simple for the process, a shared sense of ownership is, at the same time, essential and rather difficult to reach.

This discussion concerns the impact of analytically preconceived templates vs. that of sketchy materials. By reflecting on the three previous ones, we came to give much more attention to this balance in the fourth company case. There we have made use of templates mostly to take unfiltered field notes from the customer visits to the room, but we have also carefully discussed and decided together on the spot how to organise the material – even with the costs of spending more time and energy together. In the fourth company we were subsequently asked to do additional customer visits, so we had the chance to be part of the development of the room over time - rather than simply setting it up at the beginning.

From this experience, we claim that the ownership of the room is equally important for the continuation of the project as the content displayed on the walls.

CONVERSATION ROOM OR EXHIBITION SPACE?

While project spaces are typically understood as physical areas that contain different kinds of supporting materials, we argue for space as intervals of time in which project reflections and activities are consciously and unconsciously called into existence.

Beyond flexible furniture that inspires creativity, our experience has shown the value of “in-between-moments”, which can emerge in unplanned spaces. The repeated occurrence of relevant debriefings inside the car has attested for this importance. There the space (the interior of a car) played a very different function: instead of actively offering good conditions for acts of talking and note talking, it created a passive and neutral

atmosphere that allowed situated interactions but did not put pressures on it to happen.

We believe that the recognition and value of these informal interactions supports ownership and informs a direct connection between what happens in the field and the dynamics of the war room through active forms of participation. From the reach of a sense of ownership a movement of role taking emerges and actions are more likely to be taken on the base of intentions than on hierarchical structures.

In our case, the war room became a place for sharing and experiencing situated impressions from “the real world” that allowed more people to develop a shared understanding by hearing, seeing and touching artefacts and stories. The room worked as a structural frame/space and the material seemed to work both as a boundary and epistemic object.

POWER OF SYNERGY OR QUALITY OF CONFLICT?

Unlike some managerial strategies that seek for alignment and the suppression of conflicts, we value differences and debate. We do not only celebrate disagreements but we also understand conflict as pre-condition for innovation. We see alignment and conflict avoidance as a kill factor for the complex nature of innovation.

While we argue for participatory approaches that take different perspectives into comparable levels of relevance we do not strive to tame or pacify the power of tensions too quickly. In the process of organising the war room we strive for a certain level of chaos rather than control.

The practice of the war room seems also to have effects on the relations internally. One of the product managers mentioned that being able to watch a video or look at a quote from a customer creates a synergetic relation between sales and development (e.g. about something that the customer wants), because it is actually clear that the customer said it and that it is not just “the crazy idea of a sales guy”. It helps to mitigate power struggles between different departments by enforcing a face-the-facts situation.

However, beyond practicalities, we argue that synergy between people is imperative to reach a quality of conflicts that meaningfully moves the project forward

CONCLUSION

In this paper we have discussed the notion of the project war room as an innovation practice that involves project partners in temporal interactions. War rooms support strategy development and hands-on problem solving in a collaborative sense-making practice. Depending on the project, the materials might result from activities such as field studies, internal meetings and product teardown, and focus on specific aspects like customer/user perspectives, price/costs and product features.

We see this work as part of a move that understands innovation beyond a hierarchical and result-oriented process. We have argued for ownership as a key element in the path towards new perspectives. We have also acknowledged the power of conflicts and non-usual spaces for informal conversations as conditions for innovation.

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