

Exploring *human centred* approaches in market research and product development – three case studies

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ABSTRACT

How can *human centred* approaches in market research and product development improve the process and results of innovation? Based on case studies two recommendations are formulated: 1) use a comprehensive *view on man* for studying people's behaviour, needs and wishes while they use products or services; and 2) employ an *open dialogue* and cooperation between the project's client, people in R&D, and end-users or customers, including a willingness and ability to change the product based on the findings.

Keywords

Human centred design, market research, product development

INTRODUCTION

The authors work at TNO Telecom, a centre of innovation in telecommunications and information technology with some 300 experts. We work in market research and product development in projects for organisations that want to develop or apply telecom products or services. Our clients ask questions like: How many people in this target group use this service in the context of their everyday life? What relative advantages do they perceive? What functions do they people want? In order to answer such questions, we invite people for interviews, group discussions, or usability tests, or we go to their contexts to meet them [cf. 1].

This paper focuses on *human centred* approaches: on the one hand our ambitions to focus on people, and on the other our projects and our clients' innovation processes with all sorts of practicalities. The paper starts with theory and research questions, then three projects are presented as case studies, and the paper ends with conceptualising *human centred*-ness and some ambitions for future research.

RESEARCH QUESTION

Many innovation projects in the ICT sector aim to focus on people's behaviour, needs and wishes. They aim to put end-

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users or customers at the centre because, it is assumed, that helps to create innovations with more value – commercially and socially. The effects of such approaches on the process and results of innovation are studied in [6], from which two working hypotheses are elaborated further in this paper. We want to take *human centred* approaches further than “active involvement of users for a clear understanding of user and task requirements” [3], we want to include e.g. latent needs in different contexts (more than one task and one context), and explore a more “holistic or empathic understanding” [4] of people using technology.

Human centred approaches have everything to do with the *process*, and are characterised by 1) a comprehensive *view on man*, and 2) an *open dialogue* during this process. The first working hypothesis starts with the idea that many projects fail to create value because reduced views on man are used: people are reduced to customers (e.g. wallets) or end-users (e.g. hands and eyes). Strictly *usability centred* approaches see only part of a person, e.g. using a phone; *user centred* approaches add context, e.g. a person with a phone working with a colleague in the park; whereas *human centred* approaches try to see a complete person in different contexts, e.g. planning a trip, sitting in the park, and anticipating to be with his child, see Fig. 1. The working hypothesis is: Using a comprehensive *view on man* enables one to see more of that person, e.g. latent needs in different contexts, which one can use for improving the quality of the product or the adoption of the product.



Fig. 1 View on man – A person using a phone (left); A person working in the park (middle); A person going on a trip, and anticipating to be with his child (right)

The second working hypothesis starts with the idea that creating value requires *open dialogue* between the client who commissions the project, the people doing R&D, and end-users or customers. When people in R&D are open to

what people think and feel, they can report their findings to the client, who can, as a consequence, improve the product. As such, a process of open dialogue implies that those involved have the willingness and ability to change the product, and a dialogue requires reflection, creativity and learning, questioning assumptions, finding new paths, and using progressive insights. The hypothesis is then: *Open dialogue* between client, people in R&D and end-users or customers, enables one to actually use findings from market research in product development, in order to improve the quality of the product or the adoption of the product.

The research question is then: How can *human centred* approaches in market research and product development improve the innovation process – what are the effects of a comprehensive *view on man* and an open dialogue on the innovation process, on the quality of the product or the adoption of the product?

CASE STUDIES

In order to study this question, we studied three projects. Clients commission our projects because they want us to study an innovation from the perspective of end-users or customers. At the same time, such innovations often start with innovative (use of) technologies, so there is a mixture of technology push and market pull. We selected projects, which allowed for a comprehensive *view on man* and an *open dialogue* – projects in which the client had interests in the end-users' perspective, and was willing to let that influence the innovation process and results.

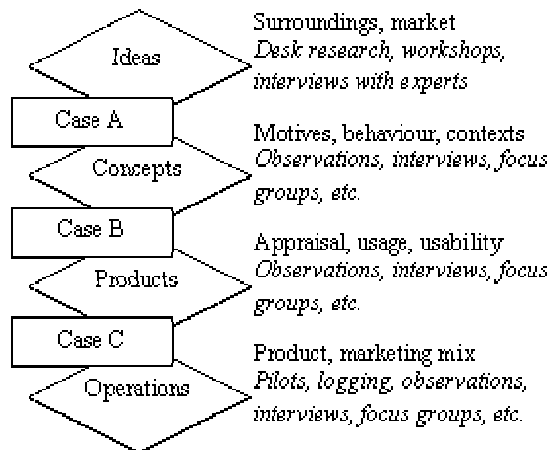


Fig. 2 The innovation process – three case studies in different phases (left), and examples of methods to learn about end-users or customers (right)

Our projects are always embedded in an innovation process in the client's organisation, see Fig 2. Case study A is about ideas and concept development, case study B about concept testing to product development, and case study C about product evaluation and operations. In the case studies we study how our ambitions to work with a *human centred* approach encounter the reality of commercial projects.

Case study A: Developing concepts with end-users

The client for this project was involved in strategy making for future telecom services, and was aware of the risk of *technology push*. She asked us to find out what end-users think and feel about future telecom services and products, as a *second opinion*. She wanted to connect to end-users and test her own ideas. During the briefing we explored the idea that end-users could be encouraged to develop ideas for future telecom service, and whether these would be similar to the client's ideas. We found that interesting, because it is often assumed that end-users cannot articulate their needs, let alone develop new service ideas. So we created a setting in which we can facilitate end-users to develop concepts for future services.

We organised three workshops for three age groups: teenagers, thirty-ers and fifty-ers. We brainstormed with them about how they currently use television, telephone and computers in their everyday lives. We then confronted them with some history: how did the television, computer and telephone evolve, how did people adopt them, and how did these devices converge and become connected. After that, we asked them to fantasise about what may happen with these devices and corresponding services in the future. The groups came up with totally different ideas. During a break we brought them together and asked them to present their ideas to each other – to stimulate discussion. They were able to connect to other people's ideas, were inspired by them, and become critical of their own ideas.

We then asked each participant to make a *top ten* best ideas and formulate these as telecom services or products (combining ideas from all groups), and we gave each 10 Euros of fake money. They could spend these on the telecom ideas, on other things, such as clothing or holidays, or keep the money. This exercise added some realism to the workshop, because people were critical when it came to spending their 'money'. Some said they would not spend it on telecom, because "all that technology makes you lazy". The thirty-ers were more willing to pay. However they mentioned that their bosses would probably pay for telecom. The workshops indicate that people can develop interesting future products and services, provided that they start with daily life contexts and the process is facilitated. We were surprised about the interesting new ideas that some people did come up, e.g. for displays in glasses, or the convergence of PC and TV. The results were valuable input for the client's strategic thinking: she saw some of her own ideas validated and received some new insights.

In this case a relatively comprehensive *view on man* was used – we talked about different contexts and we explored people's fantasies –, and the dialogue was moderately open. However, because this research happened early-on in the innovation process, we cannot be sure about the impact this dialogue will eventually have on the discussed innovations.

Case study B: Research into end-users' wishes

The aim of the client for this project was to assess the market potential of location-based mobile services. Such services are tailored based on the location of the end-user, e.g. finding a nearby restaurant. The client was curious about how end-users would appraise such services, and believed that privacy perception and usability would greatly influence acceptance and adoption. We explored the issue of privacy in several group discussions, for which we invited people with different demographics.

In the group discussions, the daily lives of the participants were the starting point, and we explored whether situations occurred in which location-based mobile services may offer added value. People's daily lives and realistic situations were input for this discussion. We then presented three examples: finding a nearby restaurant, finding a friend, or receiving an advertisement as you pass-by a shop, and discussed the pros and cons of each example. We presented these services purposefully on a *sketchy* level, and revealed these gradually: first as a sentence, then a small story, and then as storyboards and screenshots. We did this in order to initially try to learn as much as possible about people's reactions, and influence them as little as possible, and then gradually focus the discussion. During this discussion, the participants mentioned privacy aspects spontaneously. We then focused on conditions for privacy, which would make such services acceptable or attractive to them. We closed the sessions with a discussion about what kind of organisation the people would trust for handling or controlling privacy matters. Out of these sessions came detailed conditions and recommendations for implementation of privacy matters, which the client can use for product development, marketing and communication.

In this case a moderately broad *view on man* was used – we discussed people's daily lives but focused on location-based services and privacy –, and there was a moderately open dialogue – the client is likely to use our recommendations for product development, marketing and communication, but technology and business will also have influence.

Case study C: Product development and operations

For this project, the client asked us to redesign a Voice Response System (VRS), which is used for customer contact via the phone. Such systems are important customer contact channels [2]. A VRS consists of different menu levels where options are presented via prompts like "For questions about your order, press 1. For questions about the bill, press 2, Etc.". After such interaction, an end-user is put through to a *call center agent*, or to an automated self-service. Many people find VRSs difficult to use and easily end up lost, because they contain many menu levels and many options. When people get lost, they are put through to a *call center agent*, which is more costly for the company than the automated self-service. The client asked us to redesign a VRS, with the goals of improving interaction, raising customer satisfaction, and reducing costs.

We made a complete redesign of the VRS: we redesigned the interaction flow as well as the prompts. For this purpose we used among other things logging data about the current usage of the VRS, and we built a prototype and evaluated it during a usability test. The new VRS was implemented and is now being used daily by thousands of customers, and the satisfaction rose, more people are put through and put through faster, and fewer people chose for the menu option "other", which reduces costs. The client was satisfied and asked us to analyse usage data regularly (especially when products, services or offers are added) and to update the redesign accordingly. He also asked us to develop a prototype VRS with speech recognition in order to further improve ease-of-use – with such services people can just mention a topic, instead of go through menus.

Since we were called in when the service was almost operational, many issues had already been specified. E.g. the client did not ask us to evaluate whether a VRS is appropriate compared to other customer interaction channels. However, he did give *carte blanche* to redesign the VRS, so we could maximally use the freedom, given the phase of 'operations' in the innovation process. Something similar can be said about the way we looked at the end-users of the VRS. We looked at our users as consumers who are trying to get an answer to their problem or who are searching for information via a phone channel. In this phase of the innovation process (operations), this is appropriate – the needs for a telephone channel were already clear, so there was no need anymore for us to step back and study how consumers look for information via other channels.

In this case a relatively reduced *view on man* was used – people were viewed only as customers using a VRS –, but the dialogue was relatively much open, and the results were actually used and did impact the client's business.

ANALYSIS AND DISCUSSION

The projects were to some extent *human centred*, and improved the quality of the products or the adoption of the product: they delivered results which had value for the client: input from end-users about future products or services (case study A); recommendations for product development and marketing (case study B); a product which raises customer satisfaction and lowers costs (case study C).

This value creation can be attributed to the *openness of dialogue* between client, people doing the research and development, and end-users or customers: openness to experiments with methods (A), openness to end-users' perspectives in early phases of innovation (A, B), and giving *carte blanche* for a redesign (C). This dialogue is closely connected to trust. In only one case (A) a method was used in which people from R&D participate with end-users or customers – we consider this to be most *open dialogue* [cf. 4]. The *view on man* which was used is more problematic: in two projects a moderate or comprehensive *view on man* was used (A and B) – however, no methods were used to study people while they *actually* use products

or services in their everyday contexts. We consider such research as the most comprehensive *view on man* [cf. 1, 5].

Based on these case studies and on the working hypotheses, we conceptualise *human centred-ness* as an attempt to 1) use a comprehensive *view on man*, what one sees, hears and understands about people using a product or service; and 2) engage in *open dialogue*, including a willingness and ability to influence product development based on what you hear and see. So there is no *one human centred* approach, but rather a continuum of more or less *human centred* approaches, much depending on the phase of the innovation, where the degree of *human centred-ness* is related to the comprehensiveness of the *view on man* and to the openness of dialogue, see Fig. 3.

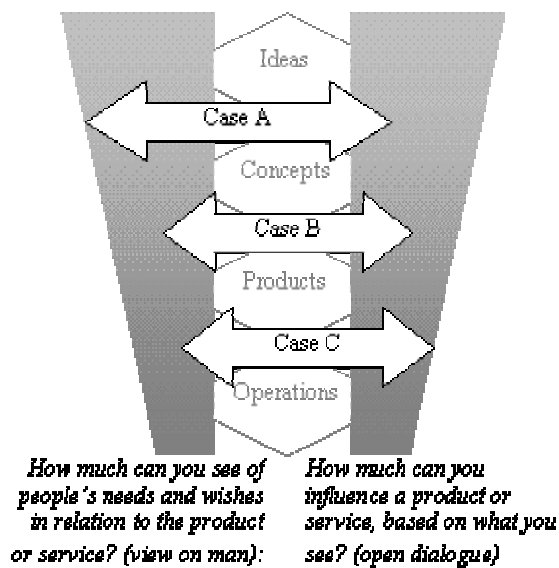


Fig. 3 Human centred approaches – conceptualised as different degrees of ‘comprehensive view on man’ and ‘openness of dialogue’, as and indicated with arrows

In case study A, a comprehensive *view on man* was used (talking about daily life, various devices, history and future, and creative participants – the arrow stretches relatively far to the left), but our findings may have limited impact on product development (the client is free to use the results – the arrow does not stretch far to the right). In case study B we talked about daily life contexts, and our findings will probably be used for product development (the arrow stretches moderately both to the left and to the right). In case study C a relatively small *view on man* is used (a person using a VRS – the arrow does not stretch far to the left), but our findings about end-users had great impact on product development (the client adopted our redesign – the arrow stretches far into the right). Please note that the space for *view on man* or for *open dialogue* becomes smaller

during this process, because the product becomes more defined during the process.

In our future projects, we want to further explore and use *human centred* approaches – especially methods for participation with end-users or customers during the innovation process, and methods to study people while they *actually* use products or services in everyday contexts.

There is one speculation that we would like to make, based on these case studies. We feel that projects are interesting when we dive deep into people’s lives, and that projects are satisfying when our results impact the client’s business. *Human centred-ness* may then also relate *us* as the people doing R&D, and is the case when our expertise, skills and creativity are used to the full. Further research is needed to study this, e.g. into motivations and experiences of people doing R&D and the role of R&D in the innovation process.

CONCLUSIONS

Human centred approaches in market research and product development improve the innovation process. In order to contribute optimally, a comprehensive *view on man* should be used, and people’s experience, behaviour, needs, wishes and emotions should be studied while they actually use the products or services in different everyday contexts. In addition to that, there should be an *open dialogue* between the client who commissions the project, people in R&D, and end-users or customers, and a will and ability to change the service or product based upon end-users’ or customers’ input. Sessions in which people from R&D and end-users or customers cooperate are an example of such dialogue.

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