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Executive Summary

The key aim of this toolkit is to review and consolidate existing fragmented knowledge and experiences in people-centred product development and to present them in an understandable and concise way. Based on experience mapping and literature overview, the toolkit presents approaches available for use in partnerships between higher education and industry.

The key idea of people-centred development is that people, as ‘end-users’ or customers, should be included in making or improving products and services. There are a number of tools and techniques available that allow researchers, designers, and engineers to work with people throughout the design and development process. This toolkit presents the four phases – or basic steps – of the people centred development.

1. The first step is identification, where we define whose problems are actually being solved or who are the people in focus.
2. In the second step, we carry out research and analyse their needs, using and combining different approaches, from the social sciences and humanities. In this way, we learn about people’s everyday experiences, practices and habits to find out what they need and want.
3. The third step is interpretation. On the basis of research findings and in cooperation with the developers we prepare recommendations for design and development.
4. The fourth step, design, development and testing, assures optimal user experience. In this phase, when we already have a prototype of the product or service, the central question is why and how - and if at all - the newly created solutions are relevant, important and meaningful to people.

In this toolkit, we present some of the more common methods and techniques used in people-centred design and development: ethnography, interviews, focus groups, participant observation, rapid appraisal, field visit, shadowing, and so on. Readers of the toolkit are able to identify the advantages and disadvantages of existing approaches.. In doing so, readers should consider what kind of data can be collected by a certain method or research technique and how this corresponds to their research questions or aims.

The toolkit also describes how to test new solutions and to involve people in design and development teams by prototyping, card sorting, designing personas and scenarios, thinking aloud, and other approaches that enable people involved in product and service development processes to become active co-creators.

Key words: people-centred development, design, industry, social sciences and humanities, toolkit
FOUR STEPS FOR THE PEOPLE

PEOPLE-CENTRED DEVELOPMENT TOOLKIT

Credit: http://www.andrewkmiller.com/2015/09/four-steps-for-working-smarter-for-your-students/

Prepared by

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INTRODUCTION

The key aim of this toolkit is to review and consolidate existing fragmented knowledge and experiences in people-centred product development and to present them in an accessible and concise way. Based on experience mapping and literature overview, the toolkit presents a range of approaches available for use in partnerships between higher education and industry.

How to use this toolkit

This toolkit is not prepared to be read from beginning to end. You can read its entirety or use selected chapters or sections. The toolkit consists of the main text and chapters, which are divided into thematic sections. We also describe some actual cases about the implementation of people-centred development approaches in industry and other settings. These cases are prepared on the basis of interviews with practitioners and an overview of examples from literature. The third part of the toolkit comprise exercises meant to help you try out various approaches and methods of research, development and testing. The exercises are intended to help prepare your own cases.

A move from the expert mindset

What makes the approach presented in this toolkit special? The people-centred approach in design and development attempts to make a move from the mindset of engineers, designers and researchers to the specific needs and experiences of people. In this approach, people play an important part in the innovation, design, co-creation, and testing of solutions. The approach has been tried by numerous international companies. In the 1970s Xerox relied on a people-centred approach to improve the usability of their first photocopying machine; in the 1990s, Boeing employed ethnography to design the 787 Dreamliner aircraft, and Microsoft used it to improve their operating system. In the new millennium, several other companies, including Intel, Google, General Motors, Motorola, Nissan, and Volvo, started to hire social scientists and use people-centred approaches for the design and development of their products and services.
CASE

Lucy Suchman and the famous photocopier

Lucy Suchman’s case is a pioneering example of an anthropologist’s work in the corporate sector as well as in people-centred design. Already in the 1970s, Xerox’s Palo Alto Research Center (PARC) was interested in human-computer interaction. Lucy Suchman, an anthropology graduate, joined PARC in 1979 and soon established a “formidable reputation” (Baba 2006). Her research on Xerox’s copy machines was influenced by Garfinkle’s ethnomethodology. She videotaped pairs of users attempting to make copies of documents by using an expert help system. She compared the pair’s interactions during this process with the machine’s automated instructions. “Contrasting the two points of view side-by-side (i.e., those of the users and the machine), Suchman portrayed communication breakdowns between them, as humans moved fluidly among several different levels of conversation (e.g., simple requests for action, ‘meta’ inquiries about the appropriateness of a procedure, and embedded requests for clarification of procedures), while the machine was severely limited to producing responses that its designer had programmed into it in anticipation of stereotypical responses that users ‘should’ make.” (Baba 2006) Her work directly contributed to Xerox adapting the design of the copy machines to make them more people-friendly.

Credit: https://www.flickr.com/photos/cgc/1289366227

Four basic steps

How does the people-centred approach function in practice? We divide it into four basic steps (see Figure 1). The first step is identification, where we define whose problems are actually being solved or who are the people in focus. In the second step, we carry out research and analyse their needs, using and combining different approaches, from interviews, focus groups and participant observation to surveys and experiments. In this way, we learn about people’s everyday experiences, practices and habits to find out what they need and want. In this process we do not perceive people as research subjects; instead, we treat them as colleagues and co-creators. We encourage them to creatively participate in decisions towards concrete solutions. The third step is interpretation. On the basis of research findings and in cooperation with the developers we prepare recommendations for improving design. The key idea of people-centred design and development is that people can - and should be - included in this part of the design process as well, not only acting as informants to the researchers, but as partners in the creative process.

There are a number of tools and techniques available that allow researchers, designers, and engineers to work with people throughout the design and development process. The fourth step, design, development and testing, assures optimal user experience. In this phase, when we already have a prototype of the product or service, the central question is why and how - and if at all - the newly created solutions are relevant, important and meaningful to people. We test the prototypes with people and use different techniques to assess their suitability, and overall people-friendliness. Based on the results, we prepare recommendations for improvements.
People-centred development is, as we show in this toolkit, an iterative process, which means that we continuously return to users of products or services to repeatedly ask questions that shed light on how our solution meets their needs and desires. In addition to listening attentively, researchers observe what co-creators do and how they interact with technologies or each other, researchers might even live with research participants for a while to learn about their daily habits and practices. They use techniques that transform research participants into active co-creators or collaborators, they let them take the lead and they learn from them to find out how new solutions, products and services, co-created with the people and for the people, could improve their lives.
CASE

Anna Kirah: Co-creation as a key to success

Anna Kirah, who has lived and worked in the USA and now in Norway, is one of the pioneers of the people-centred development approach. At the beginning of her career at Boeing and Microsoft, she worked primarily as a design anthropologist and studied people's habits, lifestyles and life stages. Now she is focused on the strategic processes of change in organizations and is active as a consultant in management teams. She emphasises co-creation in her work. She believes the key to success in developing products and services lies in taking into account of people who are intended to use them. They should be involved in designing new solutions at all stages of development processes - from conception to implementation.

In the 1990s Anna Kirah began her career linking anthropology, psychology and design at the Boeing company, where she was initially hired to distribute questionnaires on international flights. Boeing wanted to find out how they could improve passengers' satisfaction and use findings from the study for development of their new 787 Dreamliner aircraft. The main problem with the questionnaire-based survey was that the passengers were only presented with questions of interest to the company. The company centred approach meant that issues of concern to passengers were overlooked.

Anna Kirah proposed supplementing the surveys with qualitative and ethnographic methods using interviews and participant observation. She began to observe passengers and converse with them, which enabled her to hear and understand "first-hand" the sort of problems they actually face. She noticed, for example, that many people had trouble opening the overhead luggage bin since the opening levers were mounted quite high. Shorter people had to stretch, stand on seats or ask taller passengers to assist them. Such a study, in which passengers were able to present actual experiences and propose solutions to concrete problems proved to be much more relevant than only using the "measurement of satisfaction" through questionnaires and was continued by Boeing. On the basis of anthropological and people-centred approaches, which combined questionnaires and ethnography, Boeing managed to develop an airplane that is more human-friendly and convenient for passengers. (Photo credit: personal archive).

Mapping the approach

A useful tool and starting point for making sense of the various cross-cutting fields of study and the practices, research approaches and methods of people-centred development is Elizabeth Sanders’ “Map of Design Research” (Sanders 2006; 2008). In her map (see Figure 2), Sanders defines existing design research types/approaches as “zones” (large circles), “clusters” (larger bubbles within zones that signify the existence and support of professional organisations), and “bubbles” (smaller, not yet supported by professional organisations). They are positioned along two dimensions. The vertical dimension is defined by approach (research-led or design-led), whereas “the research-led perspective has the longest history and has been driven by applied psychologists, anthropologists, sociologists, and engineers” (Sanders 2008:13). The horizontal dimension portrays the “mindsets of those who practice and teach design research” (Sanders 2006: 5).
In continuation (see Figure 3), Sanders overlays “People-Centered Innovation” [1] on the map of design research. As is evident from Figure 3, People-centred innovation (development) leans towards the participatory model, where “users” become partners (“active co-creators”) in the design/development process. She identifies three main research types: Applied Ethnography, Participatory Design, and Lead-User Innovation.

Sanders first presented the map in 2006 as a “cognitive collage” of design research that was still taking shape (Sanders 2006: 4). She subsequently altered some details (2008) and invited others to work on the map from their perspectives. From our standpoint - and
taking into account the literature published in the 10 years after the first publication of Sanders’ map - we might also add to this overview the more recent and expanding field of Design Anthropology, placing it at the intersection of the People-Centred Innovation and User-Centred Design zones between Expert and Participatory Mindsets, leaning towards Research-Led approaches.

**EXERCISE**

**How to use this map**

Thinking about people-centred research and practice in terms of a map can facilitate our orientation within the vast and entangled field of people- (human) centred design and development. When you read an article, a book chapter, or a monograph on people-centred design, approaches, methods, and tools, analyse the text along the two dimensions. Is the approach more research- or design-led? Are users actively participating in product or service development, or are they informants providing information? There is no “wrong” or “right” here - as design and development researchers, we will inevitably use a number of methods within a single project. Some of these methods might require less creative involvement from the people we are working with, while other techniques will transform some of the research participants into research partners. It is true, however, that different methods or techniques yield different results and insights. In continuation, you may consider what kind of knowledge was made available by opting for a particular approach in a particular example (e.g. a text you were reading) and how that could change if the author chose a different perspective or method?

Another way of mapping design research is provided by Hanington’s (2010: 21) “Model of Design Research”, as taught at the Carnegie Mellon University (see Figure 4). Instead of aligning them along the specific models of research- or design led dimensions, this model integrates “methods and creative development through specific phases of exploratory, generative, and evaluative research and design”, whereby each phase is characterised “by approaches, while not limited by specific methods” (ibid.).

**Figure 4: Model of Design Research (Hanington 2010: 21).**

This model gives us a simple but efficient visual representation of a people-centred design and development process. We can see that a people-centred design project will develop through three interconnected phases, the exploratory, generative, and evaluative phase. In each phase, the design team chooses different approaches and methods to achieve set goals. In the following chapters, we dive into these phases in detail and our chapters
broadly reflect these three major phases. However, as this toolkit is specifically intended to support the university-student-industry triangle in their joint people-centred development endeavours and to promote the value of qualitative research in industry, our key focus is on the exploratory phase, which we divide into identification (Step 1), research (Step 2), and interpretation (Step 3). Generative, creative, and evaluative people-centred approaches that are most often the focus of existing design literature, toolkits, and handbooks, are merged under our Step 4 (design, development, and testing). Now, roll up your sleeves and let’s get to work!
STEP 1: IDENTIFICATION

In the first step we have to answer the question, whose problem are we actually solving? Who are the people we are focusing on? Our solution will not usually satisfy all parties; therefore, we have to identify our group(s) of people and find out as much as possible about them. We can pick a smaller sample of people who represent the users or clients, or we can try and talk with everyone in focus - it all depends on our individual project, as well as capabilities, budget, skills, staff, etc.

Establishing a partnership between higher education, research, and industry

While the benefits of qualitative research and practical value of anthropology, sociology, or related disciplines may seem fairly straightforward to graduates, researchers and academics, the decision-makers, managers, engineers or economists might not be giddy with excitement when an aspiring graduate of social sciences suggests messing with their innovation or development processes. They might question the validity and effectiveness of the research methods and findings or bring up the dreaded question of “what’s my ROI?” Likewise, social scientists, accustomed to sitting in or delivering lectures and drafting independent research plans, might find themselves disoriented in the world of business, technology, and hard-core finance. If we want this partnership between qualitative research and industry to work to the benefit of all stakeholders, we have to address some of the most common issues, concerns, and questions arising on both sides.

First, read how Anna Kirah uses storytelling and failed design projects to show decision makers who are not familiar with people-centred development approaches or qualitative research in general. She uses these techniques to demonstrate why research with people is crucial if companies want to see their ideas (products, services) to succeed. We explain how applied research differs from traditional kinds of research and how partnership between our very different stakeholders can be maintained throughout the project lifespan (and beyond, hopefully).

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1 Return on Investment (ROI) is used in business as a performance measure (a percentage or a ratio) that evaluates the efficiency of an investment, measuring the amount of return on an investment relative to the investment’s cost.
CASE

The best way to change mindsets among managers is to show them failed products

Anna Kirah, design anthropologist, explains that it often proves difficult to persuade the decision-makers, managers, or CEOs that people-centred research and development approaches are crucial in product or service development. While she has a number of successful projects already up her sleeve that she can use as best practice examples when negotiating her role in a new project, this might not be the case for aspiring applied social scientists and humanities graduates. Kirah explains that one of the most effective ways to argue for the value and relevance of qualitative research is to “show them the failed products” REF

“As an example, I use my train station, which is a disaster,” Anna Kirah explains. “The old wooden train station had a heated room, it was warm and passengers talked with each other while waiting for their train. Now we have a beautiful architecture on top of the hill: two ‘aquariums’, glass boxes. Nobody stands in them because it is colder in there then it is outside. When it is -25 degrees Celsius, people are standing outside. When it is pouring rain, they are still standing outside. In addition, they didn’t think about the fact where they placed it. Now everybody has to drive to it, while before people could walk to it. And the parking place is too small. So, how is that helping the world? They wasted our tax-payer’s money because they didn’t ask us what we wanted and need: they built it for us, not with us.”

EXERCISE

Failed designs

Think of products or services in your surroundings (neighbourhood, village, town, city, country) that are somehow “failed”. These could be for instance household products that you or your family and friends own and are failing to serve their stated purpose or are extremely difficult to use, buildings or public spaces that are user unfriendly (e.g. a ridiculously steep wheelchair ramp), poorly planned or executed services (e.g. number dispensers at the supermarket’s deli department), etc. Describe in one or two paragraphs how this product or service fails to serve the people (its users or customers) - write it as a short (funny or sad) story, using characters based on real-life people that have to deal with this failed design. What happened to them? In the next paragraph, explain how a people-centred research and development approach could improve your chosen example. (Sometimes, admittedly, the research could show that the idea itself was failed and that it is not worth developing that particular product or service - that’s OK, too!)
Traditional vs. people-centred research

How does the people-centred development research differ from “traditional” research? In the case of traditional “theoretical” research, researchers themselves often identify and define the questions that they wish to examine. This however does not take place in a vacuum, as a researcher often takes into account current circumstances, existing research concerning the proposed object of analysis as well as the feasibility of funding.

People-centred development research by definition involves studies that are commissioned and financed by a client that wishes to shed light on a specific problem or issue - be they from the private or public sector. This means that while the study is rooted in the same theoretical and methodological traditions as theoretical research, it is framed by the issues of the client. As Sarah Pink and Jennifer Morgan (2013) explain, conducting research in such situations is not so much about the use of new techniques and technologies but about using them in different ways.

In addition, as Brigitte Jordan and Monique Lambert argue (2009), it is important to keep in mind that the relationship between researchers and funders in the case of theoretical or people-centred development research differs in a fundamental way. In the case of conventional research, the relationship between the researcher and the funding body virtually ceases upon disbursement of funds. The researcher is required to submit interim and final reports to the funding organization, but from the moment of funding, the researcher has a great deal of latitude to conduct the study as she or he sees fit.

People-centred development research, initiates communication and negotiation between the client and researcher the sorts of questions to pursue. Sometimes these needs are not necessarily clearly articulated by the client, Morgan and Lambert explain how their client requested that they study “the people stuff”. Communications and negotiations between clients and researchers can continue intermittently through the course of the study or project.

CASE

Managing expectations

While researchers might feel their wings are being clipped when starting research for a client in an industry or business setting, managers and company staff may feel that a people-centred approach is wasting their time and money. We get to the specifics of adjusting the research methods in Step 2, but first we look at how ethnographers working in industry can address scepticism from their clients and co-workers? In their article, Brigitte Jordan and Brinda Dalal (2006) tackle some of the major concerns in doing ethnography in corporate settings and propose strategies for dealing with them. We summarise some of them.

1. “This takes too long!” Well, it can, but not necessarily. Jordan and Dalal (2006: 2-3) describe how their short research provided useful (and relatively inexpensive) advice for moving a call centre with a few hundred employees to a new, rural location. However, they note that it is realistic to expect that a longer-lasting field research will produce deeper insights. A longer time-frame allows research to tackle systemic problems.

2. “Don’t bother. We can do this faster and cheaper with market research and focus groups.” Jordan and Dalal (2006: 6) argue that market research and ethnography are complementary. While market research is primarily concerned with making business decisions and forecasting the size of the market, ethnography is concerned with design decisions that are based on a true understanding of users’ needs (ibid.). Focus groups, brainstorming and surveys are most common when it comes to gathering opinions and attitudes, and are attractive to managers as recognised, relatively inexpensive, methods with a predictable and short timetable. Market researchers themselves have recognised the
limited potential of focus groups: there is a big difference between what people say and what people do, what they think and what they feel. (And it is “not that people are deliberately deceptive but rather that memory is notoriously unreliable”, ibid.: 7.) A focus group is unlikely to give managers the data they are looking for. (ibid.: 8)

3. “Couldn’t I just go myself and watch for a while?” As qualitative researchers would know, ethnographic research “requires years of theoretically grounded training and practical experience and involves systematic data collection and rigorous analysis”. These things tend to be “invisible to the person casually observing an ethnographer at work” (ibid.: 10). Jordan and Dalal use the following steps to show and explain the value of their expertise: choose projects where customers are in focus, ask people who understand their work or have seen its results to vouch for their quality in writing, and they try to involve managers in field visits before, during and after.

4. “You can’t generalize from this!” The fear that the results from an ethnographic field study cannot be generalised is one of the most deep-reaching objections you will encounter from managers, explain Jordan and Dalal (2006: 12). The basic strategy the authors use is to provide evidence that the findings apply beyond the field site e.g. their own prior experience of the phenomena of interest, doing literature triangulation, finding similar cases in the ethnographic community, or carrying out “ethnographic probes”—brief additional research (ibid.)

EXERCISE

Win an argument with your sceptical boss

You can do this exercise in pairs, where one person takes the role of the manager who is not convinced that ethnography might do their company any good and the other person is the anthropologist commissioned to carry out a people-centred design and development project. Alternatively, you can do the exercise individually by writing down your responses to the eight questions/statements. If you are already starting your work on a PEOPLE project case-study, build your arguments on that particular case. Otherwise, think of an imaginary project you might be working on.

Read the “Persuasive Encounters: Ethnography in the Corporation” (Jordan and Dalal 2006) article (NOTE: reading this text will equally benefit industry representatives and the students engaged in PEOPLE project case-studies.) While reading, think about how the individual management-concerns relate to your own case-study or project (real or imaginary). Try to find you own examples and lean on your own experience, rather than repeating the cases presented in Jordan and Dalal’s article. Use the literature you have already read to provide you with similar cases that you can use to support your arguments.

Now, respond to the statements your manager makes or questions they ask:

1. This takes too long.
2. This costs too much.
3. Don’t bother. We can do this faster and cheaper with market research and focus groups.
4. Couldn’t I just go myself and watch for a while?
5. You can’t generalise from this.
6. You can’t quantify this.
7. This isn’t scientific.
8. What kind of results can you give me?

We can see that preparing for a people-centred design or development study involves analysing existing research - theoretical or applied - that has dealt in some way with the issues raised by the prospective client. This will aid the researcher to become more knowledgeable of how analogous issues and problems have been discussed. This is the first step towards reconfiguring the questions and needs of the client into ethnographic, people-centred research problems (see next section).
STEP 2: RESEARCH

Defining the research problem is a process that builds upon dialogue with client stakeholders concerning their interests and needs. There is no one method to defining a research problem that would be appropriate in every case. However, the following list of tasks can guide a researcher in her/his definition of the research problem.

Identify stakeholders and their interests

As we have mentioned before, the defining feature of people-centred development research is that it is commissioned and financed by a client. The client – usually a corporation or organization of some kind – is the key stakeholder that commissions research with a particular need in mind: to improve a particular product or service. The main interest of the client understandably centres on the benefit/profit of the organization and the extent to which people-centred research aids them to realize that goal.

Françoise Brun-Cottan defines stakeholders as being all the different groups of people who in different ways will deal with the effects of the research findings (2009). This includes, for example, those persons involved in the creation, design, or promotion of the product or service that is at the heart of the research, including managers, engineers, designers, salespersons, marketers and even policy-makers.

The role and interests of the stakeholder groups in the research process depends in large part on the nature of the research question and proposed research. Is a stakeholder group an in-house expert group that has developed a product, or are they a group with whom the researcher will collaborate to help design a product? Is a stakeholder group the subject of research? Posing such questions helps the researcher define the relevant stakeholder groups, their relationship to the research and their interests. It is important to keep in mind that the client can be both a stakeholder and a participant in the research process.

Introduce people into the research problem

The added value of people-centred development research is that it provides the means for incorporating people's needs and experiences in the process of designing products and services - such as in marketing research, where people are consulted for their feedback through surveys and questionnaires. This does not imply simply including or consulting people as potential users/consumers, though these are also important. Instead, it implies shifting one's perspective and posing questions not from the point of view of the client but from that of other people. As anthropologist Tim Ingold argues, these sorts of analyses involve doing research with rather than about people (Ingold 2008). This is often termed conducting research from an emic perspective, which involves identifying and analysing how certain groups behave in their own terms, from their own point of view. The etic
perspective, on the other hand, is the view of the person outside the group - for example, the researcher or even the client.

(Re)define the research problem

For the purposes of the commissioned study, a people-centred development researcher must then recast the needs of the client in terms of a research problem defined from an emic perspective. This implies a significant shift in thinking that informs researchers’ decisions about how a research problem is defined, what methods are employed to analyse the problem, and how data is to be gathered and interpreted. A research problem’s point of departure include people, their needs and their problems in relation to the client's product or service as opposed to the client’s concrete needs and interests. In this manner, the research may provide crucial information and insights that may aid in guiding product and service design and development in new and surprising ways that the client otherwise may have not anticipated.

Maintain dialogue with clients and stakeholders and define research partners.

The researcher is responsible is also responsible for effectively communicating the distinctiveness of the people-centred development approach to the client and the sort of results the client can expect - as well as the sorts of results not to expect. Attention to these two tasks can prevent misunderstandings during the course of research as well as help define research deliverables. In addition, it is also a precondition for effective collaboration between researcher and client during the course of research.

The relationship and interaction between researcher and client during the course of the study depends on the status of the researcher (is he/she an in-house researcher or contracted to work as a consultant?) as well as the needs of the client, for example, whether the client needs the researcher to conduct their study during the entire course of product/service design or solely during one phase. In addition, defining the scope and needs of the client helps define the researcher's partners within a client organization during different phases of research, be they project managers, product designers or engineers. With whom will the researcher communicate during the different stages of a study? With whom will her or she consult or collaborate? To whom does she or her report research findings?

Choose appropriate methods

With their innate unpredictability, people often influence the course of the research considerably - on the other hand, the researcher is open to making detours that might lead to interesting data or reveal important insights. When doing ethnographic fieldwork, it is likely that research questions get reshaped as the ethnographer aligns herself with the actual experiences, desires, or ideas of the people she is researching. However, it is always wise to prepare a research plan before you dive into the field, especially when doing applied research for a client who hired us to work on a specific task or a project. As researchers, you should remain flexible enough to adjust the course of the research and methodology as the research unfolds, but you should always discuss any major detours with your employer (or with university and industry mentors, in the case of PEOPLE case-studies).
**EXERCISE**

**Prepare your research plan**

Think of this as your first draft research plan that will help you carry out your project by the deadline and yield good results in terms of your research goals. You can begin drafting your plan at this stage and work on it as you progress through this toolkit (for instance, the chapter on Design and Development will provide some guidelines on prototyping and user experience research). You can prepare your own individual research plan, but make sure it is aligned with the plans of other members of your research team. It is best if the roles of team members are well defined in advance and that everyone agrees and understands the work they will be doing as part of the team. You should be able to explain and argue for the soundness of your research plan to your client (or your university and industry mentors). Consider including the following information into your research plan:

- **Overall timeline.** How much time do you have to do research? Do we have to divide this time between exploratory (identification, research, interpretation), generative and evaluative (design and development) research phases?

- **Research team.** Who is in your research team? What skills do they bring to the team? How will they contribute to the case study or project? Do the team members need defined roles?

- **Preparation.** In this phase, you have to consider the amount of time you will need to prepare for your research. Have you identified your research participants and are they willing to participate in your study? If not, do you need to take in account some additional time to make the necessary arrangements?

- **Choice of research methods.** Provide an overview of methods you plan to use in your research and explain what results you expect these methods to provide. Use the overview of research methods below to support your choice.

- **Research.** Describe the research process in steps – whenever possible, specify and quantify (e.g. number of open-ended interviews, length and location of participant observation, number of focus groups, who do you plan to shadow and for what period of time, where do you intend to use video ethnography etc.).

- **Interpretation of research results.** State when you plan to submit your analysis and in what shape or form (bullet points etc.).

- **Co-creation and design.** Although it is easier to envisage a co-creation process once you have your research results, it is nevertheless helpful to think about design and development process in advance. Provide some ideas on how you plan to involve people in the creative (generative) part of the development process (this will of course depend on your particular case).

- **Evaluation.** Consider the methods and techniques you can use to involve potential users or customers in evaluating your solution. In your particular case, when would be the best time to do that? Is it possible to work with a prototype? Will you need to do additional participant observation with the customers?

Which people-centred method should you use in a certain case? There is no straightforward answer to this question. In several cases, the methods and techniques overlap or borrow from each other. Furthermore, a number of individual methods, techniques, or tools are often combined in individual development or design approaches and processes. In this toolkit, we are presenting some of the more common methods and techniques used in people-centred design and development. You will be able to identify the advantages and disadvantages of existing approaches and consider which of them suit you and your participants. You should consider what kind of data can be collected by a certain method.
or research technique and how this corresponds to your research questions or how will it contribute to your specific research aims.

**Ethnography**

Ethnography is the “trademark” methodology of anthropology. Its conventional primary method is “participant observation”, in which “the researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture” (DeWalt and DeWalt 2002: 1). In its traditional form, ethnographic research (fieldwork) lasts from 12-18 months. Transferred to corporate/business/industry settings, ethnography has proved to be highly valuable, but has often been perceived as time- and resource-consuming, or non-generalizable due to its focus on individuals and small group (see Jordan and Dalal 2006). Gluesing (2013: 27) describes ethnographic research techniques in the “corporate encounter” in the following manner:

1. The researcher uses all five senses, the ethnographer serves as the primary tool of data collection, living or staying in a context for an extended period of time;
2. participates in a wide range of activities that are both routine and extraordinary, along with the people who are the full participants in that context;
3. learns and uses more than one language to communicate with people in their own native language or dialect;
4. carries out informal observation during leisure activities is an important part of data collection (often called “deep hanging out”), in addition to formal observation of work;
5. uses everyday informal conversation as a form of interviewing;
6. records observations and thoughts, usually chronologically, in fieldnotes in a variety of settings.
7. learns from and builds on the perspectives of the people in the research setting inductively, using both explicit and tacit information in analysis and writing, to develop local theories for testing and then adapting these theories for general use.

**Interviews**

Interviews are conversations or debates on a certain topic, which usually take place face to face and in person, even though contemporary communication technologies, such as Skype, enable conversations to happen by video-conferencing system. Interviews are often taped and later transcribed or at least interpreted, allowing the interview to proceed unimpaired of note-taking, but with all information available later for full analysis. There are different kinds of interviews, ranging from structured to open interviews. A common type is the semi-structured interview, where the interviewer develops and uses a certain protocol, i.e. a list of questions and topics that need to be covered during the conversation, usually in a particular order. The interviewer and the interviewee then follow the protocol, but are also able to stray from the original structure of questions. When carrying out interviews, it is advisable to be ready for improvisation and permitting a detour from the interviewing protocol, since an interview can be understood as a journey of discovery, which constantly produces its own new questions. Serendipity and happenstance (cf. Hertzog and
Hazan 2012; Rivoal and Salazar 2013) should therefore be taken into account in each interview, even (or especially) if the debate leads to uncharted territory.

EXERCISE

Open your mind with the open interview

One of the established ways of opening up the interview process to serendipity and free association is to conduct semi-structured or even unstructured interviews, in which the interviewer poses only one or two questions and encourages the interviewee to speak freely. Eliciting narratives and refraining from interrupting them is a skill acquired with practice and the aid of certain techniques. The following exercise is based loosely on the first stage of the BNIM (Biographic-Narrative Interpretative Method) and centres on having the interviewer pose one, open-ended question. This exercise can be done among students, with them taking turns in different roles, or they may choose an interlocutor outside the class.

1. Setting the stage. First, the interviewer explains in simple terms that the interview is a narrative interview: that they will have only one question, which the interviewee can take as long as they wish to answer; that they can include anything they consider important to the question and can go into as much detail as they wish. The interviewee should assure that the interviewer will not interrupt. This preamble is important because people often go into an interview with certain expectations, the biggest of them being that the interviewer is in charge of the conversation and will be posing all the questions. The unstructured interview shifts the control of the interview to the interviewee.

2. Pose an open question. The interviewer must pose questions that will not elicit one- or two-word answers (such as “What is your favourite colour” or “Where do you keep your computer at home?”) but that encourage the interviewer to speak freely about a given topic. The BNIM method is employed most often to elicit life stories (“Please tell me your life story”). However, one can pose different sorts of questions to elicit narratives (“How is it that you became a doctor?” or “Please tell me what a typical day in the office is like for you”).

3. Encourage your interlocutor to keep talking - verbal and non-verbal cues. During an interview, the interviewer should listen attentively and take brief notes - even if the interview is being recorded. While the interviewer is not encouraging her or his interlocutor to speak by posing more questions, whenever a lull occurs, she can prompt the interviewee nodding, maintaining eye contact and offering affirmative verbal cues (yes, uh-huh) or repeating the last words a person said. Most importantly, the interviewer should not fill in silences, even though they seem awkward or the interviewee appears to seek guidance. If the interviewee looks to the interviewer for assurance, then the latter can offer words of encouragement such as “please do go on”.

4. Ask for final thoughts. The interviewee will offer some sort of verbal or non-verbal sign that they have concluded their narrative. At this point the interviewer may ask their interlocutor if they have any final thoughts on the question.

5. Write up the interview experience. After completing the interview, write up your experience from your point own perspective (interviewer/interviewee). Note how you felt during your role, where you felt that you had problems in maintaining your role, how you felt about the role of your counterpart. This is a moment of self-reflection that will help you assess how you did and how to improve your technique.

6. Switch roles. In a practice exercise between learners on conclusion of the first interview, interviewer and interviewee should switch roles.
Focus groups

Although it is a favoured qualitative research method, focus groups can have a number of limitations as a tool for the development and design of new products or services. As Mehus (2015), a user experience researcher, explains, a focus group investigates what people think, believe, perceive or feel instead of what they do or why they do it. There is an important difference between saying and doing, as well as doing research with one person or many. Focus groups may be relevant to product design research very early on in the design process, when researchers want to learn about people's initial thoughts and perceptions in order to generate ideas and encourage debate or the exchange of views (ibid.). Focus groups may not provide relevant insights at a later stage. For a detailed analysis of focus groups, when and how to use them, see Goodman et al. (2013: 141-178) (see also Krueger 2002).

Participant observation

Participant observation is a central anthropological research technique that consists of recording and interpreting information acquired through participation and observation (DeWalt and DeWalt 2000: 259). Participant observation is not only relevant because it helps the researcher recognize what is happening in an investigated group; in addition, it relies on something more fundamental. The researchers who cooperate with others engage in symbolic transactions with them leading to insights derived from actively co-operating. (Atkinson, Coffey and Delamont 2003: 115). This cooperation helps researchers to partially assume the role of others and thus share something of perspectives that are intrinsic to their social worlds.

EXERCISE

Practicing participant observation

Participant observation can be an effective complement to interviewing and talking to people, as it enables a researcher to compare and contrast what people say with what people do. This comparison can help the researcher identify unspoken beliefs and practices that are not articulated but enacted - the taken for granted.

This exercise provides a glimpse into how to conduct participant observation. Select an activity or event to observe, ideally something with which you are not overly familiar, such as: sports practice, school meeting, an afternoon's work in a café, or tour in a museum.

It can be something everyday and small (this also makes it easier to observe). You must make sure that you are allowed to be there, and if possible, be able to participate in some way. It is helpful if the person who helped you attain access can also serve as your key informant, the person who provides you with information and possibly a means to participate. .

1. Always give yourself enough time before an event/activity to settle in, so that the participants become relatively accustomed to your presence.

2. Observe the event or activity, and take notes about your observations - what you see, hear, smell and feel - in a small pad or notebook.

3. Request to participate in some small way - distributing papers at a meeting, help gather equipment at a sports practice, etc.

4. After the event/activity is concluded, write up your experience in more detail, filling out your notes. This will include what happened at the activity (including your participation), how you felt during the
activity, how people responded to you/your role at the activity, and any insights provided by your key informant.

5. Write up your comments on what you observed, what you did, and how you assessed your presence might have influenced what took place.

**Rapid appraisal, ethnography, or observation**

This is a type of ethnographic research adapted to business/corporate/industry settings’ time constraints. The method employs a number of research techniques, including fieldwork (participant-observation), video ethnography, and shadowing (following and observing individuals throughout a certain short period of time). This form of ethnography is often scorned by academic anthropology as “jet-plane ethnography” (e.g. Bate 1997: 1150), i.e., as less valuable than traditional-style long-term immersion ethnography. Based on their own research studies in systems design, Hughes et al. (1994: 5) even labelled this research method “where brief ethnographic studies are undertaken to provide a general but informed sense of the setting for designers” as “quick and dirty ethnography”. Isaacs (2013) argues for the value of rapid ethnography by presenting three of her own research cases, depicting which technique was used in each case, from “informing the design of a specific product to identifying an opportunity for a new product concept” (Isaacs 2013: 93). She states that in her experience, rapid ethnography can have the following positive outcomes: steer the project away from an unproductive direction; refocus the project toward solving a clear, demonstrated problem; open management’s eyes to problems or patterns that had been hidden to them, sometimes with simple solutions; inspire technology ideas that could solve an observed problem in a new way. (Isaacs 2013: 93).

**Video ethnography**

The objective of this method is to capture activities, practices, behaviours, and habits. The approach is similar to photo ethnography, but has the ability to capture entire periods of time as well as audio recording. The approach is good for recording processes or dynamic situations; however, it is more time consuming to analyse videos than photographs. (Kumar 2013: 109). In addition, the video camera can often be perceived as an intrusive tool for recording people in private, or even public settings, as it can influence their habits and behaviour. Video ethnography usually involves the following steps: 1. determining the location and people engaged (they can record their own lifestyle), 2. obtaining permissions, 3. shooting videos and making a log, 4. analysis and interpretation. (ibid.) It is often used in combination with other research techniques. For an example of video ethnography in the context of rapid observation, see PARC’s ‘The Camera Doesn't Lie: Rapid Observation to Create Better Customer Experiences.’

**Field visit**

The field visit is the most direct means of building empathy, which helps researchers to engage in ‘real-world’ activities and helps them understand relevant habits and behaviours. Unlike surveys or focus groups, where researchers’ questions dictate the conversation, a field visit emphasizes observation and inquiry about what is being observed. This approach is a way to get acquainted with users in an unbiased fashion and frequently provides glimpses or implicit or surprising behaviours and insights. (Kumar 2013: 107) It includes the following steps: 1. protocol planning (time frame, participants, themes, etc.), 2.
preparing tools and materials (notebooks, cameras, audio recorders, documents, permission agreements, etc.), 3. conducting field study (establishing rapport, paperwork, observations, etc.), 4. capturing observations, 5. debriefing with team (ibid.) The approach is similar to participant observation and/or engaged learning. However, it focuses more on observation and less on participation.

**Shadowing**

Shadowing is a qualitative research technique that allows the researcher to follow research participants as they perform their daily tasks for a chosen period of time, ranging from a few hours to a few days or weeks. The researcher acts as an observer and does not interfere with the research participants as they go about their daily lives. In user research and design, shadowing is often combined with other methods (focus groups before shadowing, interviews after shadowing etc.) for a more informed analysis of the data gathered. The method involves gaining a great deal of trust to create meaningful rapport. The research process starts with locating the venue and research participants, securing access, and developing trust; continues with shadowing and recording; and ends with an analysis of the set of data (for a detailed description of the method see Czarniawska 2007).

**CASE**

**Prof Sandra Bell, Durham University: How to overcome shyness**

It does not matter how outgoing your personality might be, it is always possible to be overtaken by an attack of interview shyness. This surprising condition can be something mild – either occasional or persistent – that the researcher deals with without much trouble. It often appears as a vague sense of reluctance to finalise arrangements for an appointment and can stretch into a dimly felt hope that the interviewee will fail to respond to your ring on their doorbell. “Maybe” you find yourself thinking wishfully, “the person has forgotten, been called away suddenly to deal with a crisis and couldn’t call me.” It is a feeling that thankfully almost always evaporates when your interviewee opens the door to greet you with a smile.

Later, happy with your lively and informative interview in the bag, those troubled feelings are tucked away; at least until they arise again. By which time you are getting used to them and they become ever easier to ignore – though perhaps they continue to nag away, just a bit, just sometimes.

Not every researcher admits to having these feelings, but some when asked will do so, no matter how much of a veteran they might be. Some people have a bad case of these phantom jitters, while others just get an occasional twinge. It might well be compared to stage fright. But despite its relatively common occurrence interview shyness (or even aversion) is rarely discussed and never written about in the how to do it guides.

As with many such nervous feelings, once mutually acknowledged and talked about openly we find we can laugh at ourselves and once we have finished chuckling maybe try to fathom the deeper meanings and causes of the matter. In unusual cases interview shyness grows into a real handicap and obstacle to working as a researcher. I have encountered this only once in a long career and another incidence was reported to me by a colleague. One of my students had to withdraw from her PhD because of her inability to conduct research beyond the library and her desk. I give this example not to scare you but to assert the reality of these feelings, which in almost all instances are overcome without too much difficulty.
In my view the possibility of experiencing interview shyness and the strange reluctance it breeds should be acknowledged at the outset, so that it can be anticipated and the novice is ready and prepared. In that spirit I hope you will ask yourself a few questions about how it might feel? What might cause it? What sort of similar experiences are familiar to you? What do you do then? In other words, do a bit of group research right now by having a conversation about this little gremlin. The thing about gremlins is that they are more readily pushed aside when they are nudged out of the shadows and into the light of day.

**Ethical issues**

People-centred research hinges on studies with people and on the relationships that researchers build with the people they study. Regardless of whether their studies are conventional or applied, researchers are bound in their interactions with informants and in their writing up and interpretation of these interactions by certain ethical principles. The American Anthropological Association, for example, cites three basic ethical principles for ethnographic research:

1. do no harm  
2. be open and honest  
3. gain informed consent.

While these three principles may seem self-evident and unproblematic, they serve as important guidelines when it comes to conducting qualitative research that often implies accessing, observing and talking about everyday and sometimes even intimate aspects of people’s lives.

Another important ethical principle is linked to the question of anonymity – and being open with one’s interlocutors/informants concerning one’s ability to maintain anonymity before embarking on research as a precondition of informed consent.

Researchers that work for a client deal with a different set of issues than conventional researchers. Most importantly, the fact that research is commissioned by a client means that the researcher does not have the ability to ensure that the ethical principles listed above will be respected. For example, the researcher cannot guarantee how research will ultimately be used by the client, no matter how transparent she or he is with the persons that are the subject of research concerning the research agenda.

In addition, researchers also face the fact that in the case of research in the private sector, the studies they carry out are intended primarily to increase the profitability of the client. Laura Hammershey and Thomas Madsen (2012) argue that one way to deal with both these concerns is to expand these ethical principles to guide project choices. They argue that one should not only strive to do no harm but also help to do good: to choose “good” projects, whose benefits to the client do not come at the expense of the people with whom the research is conducted.

A final ethical principle implies remaining true to the information imparted by the persons that participated in the research, particularly in its interpretation and representation in the face of clients’ expectations, both at the level of form as well as content.
CASE

Fieldwork with engineers

When Microsoft, a multinational technology company, found out that Boeing hired an anthropologist for the development of its new aircraft (see above), they contacted Anna Kirah to ask if she could improve user experience when installing the newly developed Windows XP operating system. During the initial contact call Anna Kirah said she may be able to help, but they should first tell her what an operating system actually is. Somewhat surprised, the people at Microsoft encouraged her to come to the company’s headquarters. After explaining the technical details of their core product, they handed her an installation disc and asked her to test it among people, explaining that a "normal" user should be able to install Windows in up to four hours. Anna Kirah visited several households in the US and then called Microsoft. Her message was: "Guys, you're in trouble!" Virtually no one in the households she visited was able to install Windows in the scheduled time, and some people even struggled installing it for a whole day. When the engineers discovered this, they asked Anna Kirah where she found such incompetent people. Slightly enraged, the anthropologist replied that it would be best if the engineers saw firsthand how people-unfriendly the solution they developed actually was. Engineers then visited households with her and saw how users tried to install the system on their computers and the unpredicted problems they faced. This was a “moment of clarity” for the engineers and a small-scale shift from an expert mindset to a people-centred one. Microsoft took into account the evidence from the users to thoroughly rework and improve the operating system installation procedure.
**STEP 3: INTERPRETATION**

When looking at the people around us, we often interpret the words and actions of others through our own view of the world, which is largely characterized by our cultural background. Common patterns that we share with other members of the community give importance to what we see and hear. Members of the same cultural setting also form different sets of informal rules, discursive practices and patterns of behaviour that are obvious to them or expected by others. Therefore, our actions are adapted to others’ expectations, even though we are often not even aware of it. People interpret the words and actions of other people in different contexts and situations. As a rule, we do not have problems with the interpretation of the words and actions of other people in our own cultural environment because we share the same or similar practices. Problems may arise, however, when we come into contact with people from different socio-cultural backgrounds and with different or divergent practices. In this case, our interpretation of the words or actions of others can be significantly different from the intentions of the person who made a statement or committed an act. All this information should be considered in the analysis and interpretation process, which makes sense of data we have collected in the previous step, i.e. during the research. Our goal is to adapt products and services to different cultural contexts. In addition, we should take into account diversity within each cultural framework. In this way we will be able to make solutions, which will be relevant and meaningful for people we identified in Step 1.

**CASE**

**IT industry can change the world for the better**

Genevieve Bell is now a professor at Australian National University; previously she worked at Intel for almost two decades. She joined the international IT company after working at Stanford University as a researcher and lecturer. When she assumed her position at Intel, it was apparent that the company hired her to provide a fresh approach that would help establish a link between technologies and users; however, it was not entirely clear what the role of a highly educated anthropologist among IT experts should look like. “I remember that they did not initially know best what to do with me,” she recalls. “We had in fact a completely different way of working and presenting our findings. We [anthropologists] didn’t use diagrams and equations in presentations. Instead, we used a lot of photos, speeches and reports that summarized the narrative of the people that communicated with us in the field.” Over time, the company got used to more “colourful” presentations and realised that the ethnographic research in which a researcher encounters people, talks to them and participate in their everyday routines can be extremely important for Intel. These sorts of studies can provide “first hand” experience into how people use certain products and what do people think about their services. Bell remembers that the important “click” in minds of electrical and computer engineers occurred at one of
Intel’s annual conferences attended by 6,000 employees. At the time, the CEO delivered the keynote speech and emphasized how important anthropological approaches are to understand the future technologies being developed at Intel.

Once the ice was broken, several changes occurred in the company. "Working at Intel is now a real pleasure," explained Genevieve Bell when she was still in Intel. There are many social scientists working in the team - from anthropologists and sociologists to psychologists. These scientists use a wide variety of approaches to determine how people live and interact. In her department, which is focused on user experience and interaction, there are now people who have studied the interactions and negotiations between indigenous populations and Indonesian mining companies and researchers who were engaged in studying female drivers of Harley Davidson motorcycles. Interestingly, Bell, as the director of the division, hardly hires anyone who previously worked in information technologies. "If we want to gain a new perspective on technologies," she explains “we need a diverse team of professionals." They have to have a good insight into human practices and solid theoretical knowledge, which helps them understand how people work and how societies change - together with technologies used by the people.

When designing technologies that will shape the future, Genevieve Bell keeps in mind a quote of the famous anthropologist Ruth Benedict, who said that the purpose of anthropology was to make the world safe for human differences. Therefore, she is also not particularly bothered about the fact that her academic knowledge was "sold" to the corporate world and industry, since she believes that corporations such as Intel can participate in changing and improving the world as much - if not more - than academia.

Preparing reports: academic vs. industry

There are a number of codes and conventions to producing knowledge and preparing reports. This holds true both in the case of conventional and applied research, although the criteria and guidelines for producing knowledge are configured differently. In the case of conventional academic research, the production and dissemination of knowledge is addressed primarily to the community of practitioners of which a researcher is part, and thus must meet certain criteria. These include the use of particular scientific vocabulary or jargon, the contextualizing of research in terms of existing literature, and the presentation of the research process and data and its analysis in a particular manner. Producing and disseminating knowledge in the form of academic monographs and articles represent the main ways that researchers practice/perform their expertise.

As in the case of conventional research, one of the most important criteria defining how research findings are to be presented in people-centred development research lies in identifying the primary audience: the client and (potentially) other significant stakeholders. This means that the reports are not meant to be a performance of expertise aimed at one's peers but a forum for communicating research process and interpretations to your client. According to Sam Ladner (2014), one of the biggest challenges to doing ethnography in the private sector is writing up your research in a way that will make it accessible and engaging enough to inspire improvement or change. In such a context, writing up a report in similar fashion to an academic article is ineffective - and may end up simply filed away. This does not imply that you should adapt the content of your findings. Furthermore, clients can have certain prejudices against people-centred studies, especially if they equate scientific methods with quantified, positivist analyses - which colour their expectations, as have we discussed earlier (see case Managing Expectations).

How to deal with this issue? One method, we already suggested includes the client in the research process (going on field visits, observing interviews), thus involving them in the research process. Another effective strategy is to begin the report by providing a brief overview of the methods employed and the range and breadth of data collected. This will
provide a useful frame for research findings and people’s contribution to them as well as the researcher’s interpretations of the findings and recommendations for the client.

While the writing of a conventional academic text signals that dissemination of the results of a research project, the report in a people-centred project does not necessarily provide a definitive set of findings. It may operate as a springboard for a subsequent phase of research or cooperation with stakeholders regarding product service or development.
STEP 4: DESIGN, DEVELOPMENT, AND TESTING

The research is now finished, you have analysed and interpreted the results. What now? Unfortunately, you cannot just submit the findings from your studies to designers, developers, and engineers. Instead, you have to tailor them according to their needs and expectations, especially since they should also be considered as people, involved in the co-development processes.

In this part of the process, you might encounter some challenges, as the writing and reporting styles of those educated in social sciences and humanities and those who are skilled and trained in design and engineering, differ significantly. Anthropologists, sociologists, psychologists and other students of human habits and behaviours often describe in detail what they discover in the field and during experiments. They know how to interpret their findings for the scientific and general audiences. However, they should now distil their interpretation and prepare the development plan, to be understood by those who make the product or service.

This process resembles translation from one language to another. However, the task is a bit more complex, since one “language” is interpretive or descriptive, and the other is normative or prescriptive. You have to explain how a new solution will function and sketch what it should look like. To make this “translation” process effective, it is advisable to use fewer words and more graphical explanations of the design and development process. You have to visualise what people need and expect and how you imagine a solution that is adapted to their lifestyles, habits and practices should look like.

EXERCISE

Design your own smartphone app

Smartphone apps have become an indispensable part of our daily lives. We use them to communicate with friends, check the news, plan our weekend, support our health related habits, and motivate us to follow a home fitness programme. In this exercise, your task is to imagine a new app which will support a health- and/or energy-related habit and motivate people to live a more sustainable life. Take no more than 15 minutes to think about such an app. Afterwards, describe on approximately one page what the app will do (purpose), how it will function (functionalities), who is it designed for (focus audience), and how it should appear (design). Now take another paper and upgrade the development plan. Sketch wireframes of the app, i.e. a schematic blueprint of the phone screen that represents the skeletal framework of the app. (You can use a black pencil or colours.) Furthermore, explain in bullet points the purpose of the app, its functionalities, and who the people are who will use it. If possible, give this development plan to engineers or designers and discuss with them if they understand how the app should appear and what it should do.
CASE

Ethnography-based smartphone app

“Why not create something different?” This annoying but important question was asked by a researcher of an interdisciplinary project DriveGreen after the research team conducted a focus group about the influence that smartphone apps have on the habits of car drivers. The main goal of the project was to produce a smartphone app that would show how good – or bad – a driver the user is. It should influence driving habits, and help reduce CO\textsubscript{2} emissions on a global scale as well as local levels of harmful microparticles PM\textsubscript{10} and PM\textsubscript{2.5}. The original idea was to prepare a smartphone app to display how environmentally responsible a driver of a passenger car was. What role could anthropology have in the development? The project team intended to use ethnographic research methods in different locations – Ljubljana, Belgrade, Budapest, Newcastle, and Durham – mainly to identify how to customize the user interface to various locations, people’s needs, culture-specific uses of passenger vehicles, etc.

The first year of the project showed that ethnography could be potentially much more important in the preparation of the development plan and in the design of people-friendly and environmentally responsible technology solutions than we initially anticipated. During the research, the team cast more and more doubt on the original idea, which they had presented in detail in the project application. The people they spoke to in the five cities constantly reminded us of the following:

1. The use of mobile phones in vehicles is extremely dangerous.
   The research team knew this but they continued to use the phone to measure driving style and modified the user interface so that the driver would be made aware of their driving style using sounds instead of on-screen animations. Using the application in this way might be somewhat safer, but the phone would still disturb the driver with its beeping, jingling, and buzzing.

2. The data on greenhouse gas emissions is not the best way to motivate people.
   It turns out that the people in the cities where we carried out our surveys are worried about CO\textsubscript{2} emissions. However, information about the amount of emissions produced while driving is too abstract for drivers to significantly change their driving style.

3. The cost of fuel is not important to drivers of passenger cars.
   The fact that we can significantly reduce fuel consumption and annually save a few hundred euros or dollars by driving calmly, without braking or accelerating sharply, does not make us drive differently. The daily financial savings are relatively low, and the driver is often in too much of a hurry to keep track of these minimal savings by properly accelerating, turning, and braking. Drivers are racing against time to finish work, get the kids to and from school as well as dropping them off at their afternoon activity.

In short, the DriveGreen project’s development plan collapsed almost entirely less than a year after the start of the three-year project. The team had to start again and this time target people instead of technology. They had to figure out what motivates people to change their driving habits.

However, every cloud has a silver lining. New horizons started to open up to the team soon after they started conducting the first field research in Ljubljana. The people they spoke to about their daily errands and routes they take with their vehicles described their cars as private-public spaces where it is hard to relax, especially during the morning congestion. But drivers still get into them every day, and then swear, gesture, honk, or express their anger and rage in some other way. What if the IT solution could convince people not to get in their cars at all in the mornings? That would save fuel and reduce emissions, not only by 10 percent but by as much as 100 percent. Furthermore, the users of our application would get angry less often and would move more, which would also affect their health and well-being. With this starting point in mind, the project team prepared a new concept for a smartphone app that shows us how mobile we are on a daily, weekly, monthly, and annual basis. Driving a car has thus become of secondary importance, and is as such marked with the colour
red, while other, more environmentally responsible ways of movement have more positive connotations.

The app, named 1, 2, 3, uses sensors in the phone to automatically detect whether we are walking, running, cycling, using public transport, or driving a car, with the proportions of the completed activities appearing on the screen. In addition, users can see their personal result and can compare it with the average of all the users in the city – so they can determine whether their day was above or below average. They can also view the total distance and the savings in CO₂ emissions achieved by using environmentally friendly journeys – the project team decided to hide this calculation into the background based on the realization that greenhouse gases are quite an abstract motivational factor.

The main innovation of the app is the function that connects users to work together towards a common goal. Since this goal needs to be clear, accessible and concrete, the project team has designed various campaigns – which are the most successful when they are also supported by the media – so that users can compete against a concrete person: for example, against the Mayor of Belgrade, a movie star from Budapest, or the Slovenian President. The chosen celebrity must walk, run, cycle, or use public transport more than the city’s average. If the challenge is not completed, they have to donate a certain amount of their own funds - for example, three thousand euros for the reconstruction of infrastructure or the renewal of bike trails in a city park. These initiatives based on the cooperative-competitive principle can be understood as ‘indirect microdonations’ because every walked or cycled kilometre counts, however, the app users don’t have to contribute any funds for the improvement of transport infrastructure. Rather, this falls to someone else, preferably a celebrity or a representative of the city authorities.

When combining data with ethnography, the project team also got answers to questions such as why many people prefer to sit in the car in the mornings than go on foot or by public transport, why we cycle the most on Friday afternoons, and why city buses are empty on Saturday mornings. The combination of quantitative data (big data), obtained by technology, and qualitative data (thick data), which we collect using ethnographic fieldwork, can therefore be important in the transformation of a mobile application into a tool for monitoring and improving the functioning of urban traffic and the promotion of a healthy and environmentally responsible lifestyle.

Ethnography also proved to be important for the development of the mobile application ‘1, 2, 3’ because each city where we carried out the research was quite a tough nut to crack in terms of promoting sustainable mobility due to the deeply rooted habits and practices associated with specific socio-cultural and political-economic factors as well as geographical characteristics, climate conditions, existing infrastructure, state of the rolling stock, etc. Team researchers would not have been able to get to know and understand all of these factors without carrying out research in different locations, talking to people, observing their habits, using public transport, taking the car to the mall, or putting on a helmet and heading to the main square by bike.

An additional important achievement of the DriveGreen project is the realization that engineers and anthropologists can work together efficiently and on equal terms, and that ethnography is not simply a decorative addition to interdisciplinary research and development projects. When presenting the project, however, it has repeatedly turned out that anthropologists have a lot of reservations about updating our own anthropological approaches and that we spasmodically cling to ‘classical ethnography’, which has not changed in any significant way in the past 100 years. This is quite unusual since engineering solutions and new technologies offer a great opportunity for us to polish our rusty ‘tools’ while helping to humanize emerging technologies using our own approaches.
Co-creation, design and development

One of the key principles of people-centred design and development is to involve people (users, customers) in all phases of the product, service, or system development process. This means that as researchers, we not only work with our research participants in the pre-design research phase, observing their everyday lives and mapping their individual experiences to provide insights and data on the basis of which experts can design products and services. We will also use different methods and techniques to involve them in the design and development teams, enabling the shift in their role from informants into active co-creators. Creative teams therefore ideally involve designers, engineers, IT developers, and researchers, as well potential users or customers. People-centred research and design means keeping users engaged in the development process, by working on prototypes and by testing “user experiences”. Although from a manager’s point of view it may seem wiser to work on the user experience angle when there is an actual product (or service) already available to test and improve a lot of time and money is saved if we involve users in the design and development process from scratch. In this way, even though the design and development phase takes longer costly mistakes can be avoided.

Co-creation is similar to the basic premises of participatory design, which is “an approach to design that attempts to actively involve the people who are being served through design in the process to help ensure that the designed product/service meets their needs.” (Sanders 2006: 7). It has its roots in 1970s Scandinavia and was initiated by academics who cooperated with trade unions. In participatory design, “users are treated as experts. Attempts are made to to bring their (tacit) knowledge and skills into the research and design process. The goal is to let users, researchers, designers and other stakeholders cooperate and engage in ‘mutual learning” (Steen 2011: 49). Hanington (2010: 23) notes that “participatory methods may include toolkits such as card sorting with images or text, collages, cognitive mapping or other diagramming exercises, experience drawing, and flexible modeling or ‘Velcro’ modeling.” The terms co-design and co-creation are also used to describe an attempt to facilitate users, researchers, designers and others “to cooperate creatively, so that they can jointly explore and envision ideas, make and discuss sketches, and tinker with mock-ups or prototypes” (Steen 2011: 52).

The role of the researchers in these processes is therefore crucial: it includes facilitation and translation. The researcher identifies participants and is familiar with them through pre-design research. The researcher identifies methods and techniques that fit best with the individual project to bring all key individuals or groups of people into the creative process, facilitating their cooperation by “translating” between the worlds of business (industry, corporations, technology) and everyday experience (the people). Anthropologists, sociologists, and psychologists are uniquely equipped for such roles and will therefore bring an added-value to any design and development team.

Easier said than done, you might say. While certainly not an easy task, there are a number of people-centred design methods and techniques already out there that you can employ or use as guidelines when planning for the design and development phase in your project. We describe some of them below. As in our Step 2 (Research), the best strategy is to combine a number or appropriate methods or techniques (provided you have the time and means to do so) that will enhance our creative process and polish the user experience - ultimately creating a great product or a truly people-centred service.
Prototyping

Prototypes are tangible representations of products or solutions that are being designed. As Poggenpohl (2002: 70) explains, prototypes are a “material conversation that the designer has with the User”. By seeing them as “a way to learn from the user what familiarity the object has (or lacks), what patterns of behaviour the object fits into, what intuitive responses the user brings to the object and which aspects of the prototype elicit satisfaction or delight”. She distinguishes prototyping from usability testing, “which seeks to verify the design of a product holistically at a rather late point in the development process” (ibid.) Prototypes can be used at any stage of the development process and can take many forms that “give everyone a real-world representation of ideas that will help engender a response from your team” (Merholz et al. 2008: 76). Poggenpohl (2002) distinguishes between four different kinds of prototypes that often overlap: conceptual (diagram, sketch), behavioural (paper model, computer simulation), procedural (space/time sequence), and appearance (refined model) prototypes (for description and examples, see Poggenpohl 2002).

Lead user

Von Hippel defined lead users as people who are either “at the leading edge of an important market trend(s), and so are currently experiencing needs that will later be experienced by many users in that market” or “anticipate relatively high benefits from obtaining a solution to their needs, and so may innovate” (Von Hippel 2005 in Steen 2011: 51). A company or organisation may then invite such lead users to contribute to the development of improved or new applications, products or services (Steen 2011: 51). Examples of involving lead users are found in the design of outdoor or extreme sports equipment, where people have interests in improving or developing new equipment, as well as in the software industry (e.g., open-source software development, user-generated content or crowd sourcing) (ibid.).

Personas

The persona represents one of the key tools in interaction design introduced by Alan Cooper (1999). Each persona is a fictitious aggregate and a representation of target users (Miaskiewicz and Kozar 2011: 418): “a precise description of a hypothetical user and his or her goals, and it represents the user throughout the whole design process” (Blomquist and Arvola 2002: 197). The basis for creating personas are interviews and observations in the pre-design phase and every persona is carefully described as well as given a name and a face (for a detailed description of a design project, using personas see Blomquist and Arvola 2002). Merholz et al. (2008: 75) explain that the most efficient personas “tell their story in their own words, often using quotes from actual research participants”. Cooper et al. (2007: 82) argue that “although personas are depicted as specific individuals, because they function as archetypes, they represent a class or type of user of a specific interactive product. A persona encapsulates a distinct set of behaviour patterns regarding the use of a particular product (or analogous activities if a product does not yet exist), which are identified through the analysis of interview data, and supported by supplemental quantitative data as appropriate.” For a detailed analysis of personas and their potential benefits to the design process, see Miaskiewicz and Kozar (2011) and Cooper et al. (2007).
Scenarios

Scenarios are based on the idea of a narrative as a creative method (in addition to communicating ideas). Scenarios in design are “concise narrative descriptions of one or more personas using a product to achieve specific goals” (Cooper et al. 2007: 112). Cooper et al. (ibid.) further explain that persona-based scenarios allow the development of designs “from a story describing an ideal experience from the persona’s perspective, focusing on people, and how they think and behave, rather than on technology or business goals.” The content and context are derived from information gathered during the research phase and its analysis.

Generative techniques

Generative techniques are used in people-centred design “to allow participants to externalize emotions and thoughts by creating objects that express them” (Goodman et al. 2012: 188). Researchers discuss objects with participants while the participants are making them and then analyse them later on their own in order to “learn more about desires, sensations, and aspirations that are often hard to explain” (ibid.). Goodman et al. (2012: 188-201) describe two often-used generative techniques and how to use them in design research: collage (where individuals or groups of people make a new composition out of a pre-existing set of elements) and mapping (visual representations of relationships between people, objects, and spaces).

Card sorting

Card sorting is a technique that helps uncover how people organise information by having participants sort cards featuring words or phrases into groups. Card sorting informs the design process by showing how participants relate and categorise concepts, which can help create visual and structural relationships that make sense to users (Goodman et al. 2012: 201-202). These relationships are then “used to understand the sequence of tasks in an activity, structure databases, organize navigational elements, or name features and interface elements” (ibid.: 202). Goodman et al. (2012) describe the different types of card sorting and explain when and how to use them in design research.

Usability testing

Usability is defined by ISO DIS 9241–11 as “the effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments”. As Jordan (2002: 10-11) notes, a usability-based approach to user-centred design is “one which sees the product as a tool with which users try to accomplish particular tasks without wanting to have to expend unnecessary effort or endure any physical or mental discomfort.” The majority of the methodologies for evaluating usability were originally developed in psychology and have been adapted for usability testing in numerous contexts, including focus groups, incident diaries, questionnaires, interviews, think-aloud protocols, feature checklists and experiments (ibid.: 11). We can distinguish between laboratory-based usability testing and field testing in “real-life” settings. The first is used to evaluate the degree to which test participants’ performance, under controlled conditions, meet pre-established usability criteria, while the second is used to better understand users’ responses to, and attitudes about, the prototype or product in the context of their own
natural work environment. (Jordan 2002: 29) For a description of a usability test, when and how to do them, see, e.g., Goodman et al. (2012: 273-326).

**Think aloud**

This is a data elicitation method or protocol borrowed from cognitive psychology that traditionally has applications in psychological and educational research on cognitive processes (Jaspers et al. 2004: 783). It is mainly used in usability research and in user interface design (e.g., usability testing of prototypes). The method consists of collecting think-aloud protocols (instructing subjects to solve a problem while stating directly what they think) and analysis and interpretation of these protocols. This provides a model of the cognitive processes that took place so and an insight into the way research subjects perform tasks (ibid.: 783-784).
CONCLUSION

In this toolkit, we present the four steps of the people-centred development approach. We cover some of the basic approaches and methods of inquiry, product and service development as well as co-creation of new solutions to be adapted in ways that are acceptable to researchers and higher education, while also useful in industry.

And what is the next step? It depends on you. You can, for example, decide to iterate the “four steps approach” in collaboration with the business sector when developing a new IT solution which will be developed in industry. You can decide to use the approach in a local NGO to plan new collaborations with stakeholders and develop new solutions, meaningful for your city or town. You can present benefits of the approach to a governmental institution which wants to hire a social scientist to remodel the existing policies on a national level. You can even use it in your private life: for example, to plan a vacation with friends and family or to redesign your house. In any case, do not rely only on your own skills and knowledge; instead, keep the people around you in your focus!

What matters is establishing the right balance between your own mindset and that of engineers, designers, and developers - and the needs and expectations of other people. To establish this balance, do not rely just on the methods and tools from this toolkit. Instead, observe and listen to what is going on around you; how people interact, what they do in their daily lives. Communicate with people, collaborate with them, and learn from them. Let them help you change and improve your ideas, plans, prototypes, product, and services.
CASE

Overlooking the people can be expensive

Design anthropologists Anna Kirah explains that the expert perspective, which initially prevailed in minds of Microsoft's engineers and managers, can be the worst enemy of the development of people-friendly products. Constructors, designers, architects, electrical and computer engineers and other professionals rely mainly on their knowledge and personal experience and tend to forget that the products, services and solutions that are being developed are primarily designed for people - those they often do not even know or see. Such expert approaches and views are a challenge for Anna Kirah, who has wanted to change these attitudes for decades and has been trying to divert the attention of engineers from their own expertise towards the development of products, services and solutions that are relevant, meaningful, desirable and take into account what do people actually want and need. (Anna does not like to use the word "users" in the debate. She understands it as pejorative, because it puts people in an unequal position vis a vis engineers and managers.)

One of the last major achievements of the design anthropologist was the modernisation of Oslo airport that hosts almost 26 million passengers a year. Since the last decade, passenger numbers have increased rapidly and exceeded the critical threshold of 20 million passengers per year. Therefore, the airport managers prepared a plan for expanding and improving the airport in 2011, and invited Kirah to join their team. As she explained, the first challenge was to make the airport building more people-friendly. On the other, it was necessary also to change the mindset of the airport staff and managers, who had to understand that passengers should be in their focus. A switch in their heads was necessary, and Kirah employed a strategy similar to the one she used in the case of Microsoft (see above): managerial staff members were told to pay attention to people and their actions in the airport. "When they learned to observe people, I was also able to explain to them what the essence of anthropology is," she said, adding that these observation skills should be required of all developers. Managers and engineers often believe that such research requires too much time and money. In addition, they think that the effects of "people-watching" are difficult to measure. However, Anna Kirah argues that an investment in a professional who is skilled in people-centred research and development can prevent many wrong decisions in product development or planning and implementation services. Wrong decisions can be very expensive at the end.

Credit: https://en.wikipedia.org/wiki/Oslo_Airport,_Gardermoen
REFERENCES


