SERVICE DESIGN
by
INDUSTRIAL DESIGNERS

ˉis book is aimed at people who want to learn more about the current dynamics and challenges the wave of service design brings to design practice. We critically reˑect on recent developments related to service design and speciÿcally on the consequences for the education of a new generation designers to deliver value to design practice.

It is the result of a think tank at the Faculty of Industrial Design Engineering, Delft University of Technology with a group of 25 master students, 8 sta˝ involved in service design research and education, and 9 design practitioners. ˉe book might especially be interesting for students, alumni and sta˝ of IDE Delft, as it o˝ers several recommendations for its curriculum.

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IDStudioLab

Froukje Sleeswijk Visser

service design by industrial designers

"It is great that Froukje brings out the IDE skills to the footlight of the emerging stage of service design. This book helps to bridge the capabilities of industrial designers and the needs of service development. Graduates from our faculty turn out to fit in well: they are trained in user centred design and in setting up structured and creative processes to come up with relevant and realistic solutions. In service design, the need is to tackle increasingly complex situations with multiple parties involved.
This book helps our graduates clarify to clients how they can do that; it helps clients to understand why they should engage Industrial Design Engineers in their teams."

Ena Voûte
dean faculty of Industrial Design Engineering

Service DeSign
by
inDuStrial DeSignerS

editor **Froukje Sleeswijk Visser**

**innovation
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Foreword

Writing this book comes from a personal motivation. Since I was a design student, I have been intrigued by the role designers play in society. Nowadays, I am an assistant professor at the Faculty of Industrial Design Engineering at Delft University of Technology and I work as an independent design consultant. So I have one foot in academia and the other one in design practice. Over the last few years, I have noticed things changing in design practice. The applications of design skills, knowledge, activities and processes seem to become wider everyday. More and more designers are tackling complex societal issues, and apply their design skills to projects where product development no longer plays a big role. Many refer to these applications as 'service design'. At the same time, within our design faculty, as well as at other design schools, research programmes are popping up that devote attention to societal isues (e.g., healthcare or personal mobility), in which products are not the main asset, but 'services' or 'product-service systems' are.

Service design is hot! And many people working in service design do not necessarily have design backgrounds. So what does service design comprise exactly? I have started to research service design through the perspective of Industrial Design Engineering (IDE) with the following questions in mind:

1. What is this 'service design' thing?
2. Are the processes, methods, tools and knowledge diﬀerent for designing services in comparison to designing products?
3. Based on the answers to the ﬁrst two questions, what are the implications for the IDE Delft curriculum for the next generation of designers?

In the form of a think tank, these questions were explored by a group of students, staﬀ and design practitioners. The design practitioners were invited as guest speakers in a series of lectures to talk about their mindsets and methods in their service design projects. We critically reﬂected on how these processes, methods, tools and mindsets relate to the profession of designers and speciﬁcally on the consequences for the education of a new generation of designers.

This book presents the lecture summaries and further elaborations on the presented topics. It is not at a comprehensive overview, but rather a selection of topics to deepen out the discourse on (service) design.

I would like to thank all people involved for participating in the think tank.

2013//Froukje Sleeswijk Visser

What is Industrial Design?

introduction

ˉ is book is a compilation of several investigations into diˆerent aspects of designing for products and services. Since I looked at service design through an industrial design lens, I start with a little background about IDE Delft.

ˉ e ÿeld of industrial design is dynamic and constantly changing, as are the roles of designers in professional practice. ˉ e Faculty of Industrial Design Engineering in Delft educates designers. ˉ e faculty trains design students in a wide skill set and brigs together knowledge from diˆerent disciplines. In my view, the core ability of designers with a background in IDE is to deal with complex problems and, through a creative and structured process, frame those in such a way to generate concrete solutions.

Although this ability is the connecting backbone of graduates coming from this faculty, the work they do and the jobs they ÿnd vary greatly. ˉ e faculty provides an extensive general background, after which students have to form their own identity within their ÿeld of interest for their professional practice. Figure 1 provides an example of the diversity in the work some of my fellow IDE graduates do at this moment. Or take a look at 'alumni TV', which shows interviews with alumni about the various aspects of their work (www.ioalumni.nl).

THE Industral Design job does not exist, since we always work in applied settings, using skills and knowledge, such as creativity, visualisation, and process guidance, all the while managing any kind of innovation. Each of the graduates has to ÿnd their own way after graduation in design

practice, and specialise further for that speciÿc job.

constant evolution of design profession

ˉ e Faculty of Industrial Design Engineering constantly adapts its education and research programmes to provide students with relevant knowledge and skills selected from various disciplines. ˉ e continuously changing identity of the faculty is clearly represented in the history of what it has been oˆering its students. ˉ e faculty was founded in 1967 as 'Subdepartment of Technical and Industrial Design (in Dutch: Tussenafdeling der Technische en Industriele Vormgeving). Its objective was to translate technology into design (in Dutch: vormgeving). ˉ is translation was given attention at three levels: (1)designing the product plan, (2) designing the business plan, and (3) designing the actual physical product (Poelman, 2012). In the eighties, the faculty's name was changed to 'Industrial Design Engineering' (IDE) or in Dutch 'Industrieel Ontwerpen' to emphasize the integral aspect of designing.

Co-founder design agency interactive products and services (Wouter van der Hoog)

Expert in permaculture (Ruben Arbib)

Engineer ecological houses (Yannic Dekking)

Co-founder of visual thinking consultancy (Dennis Luijer)

Independent UX designer (Fabrice Koopman)

Documentary maker (Marieke Schellart)

Teacher at elementary school (Bas Oprins)

What jobs do my fellow IDE students have nowadays?

Assistant professor at an engineering university (Geke Ludden)

interior designer at a hospital (Jeske Weerdesteijn)

Co-founder of lighting design studio (Sjoerd van Beers)

Independent change manager (Marlies Bielderman)

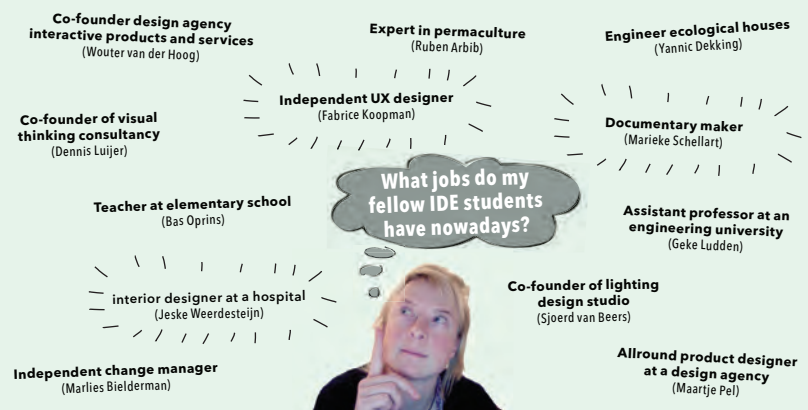Allround product designer at a design agency (Maartje Pel)

Figure 1 A pick of the different roles and professions IDE graduates have at the moment, based on a random selection of former fellow students Froukje knows personally (graduated around 2000).

The mission statement of IDE also changed over the years. Poelman (2012), a former IDE student himself, recently described four transitions the faculty went through since it started:

- from formgiving (design) to integral design
- from production focus to product focus
- from product-centred to user-centred design
- from user-centred to social- and sustainability-centred design

In this book, I'd like to zoom in on this last shift that has been taking place. Many designers no longer design actual physical products but increasingly apply their structural, analytical, as well as their creative processes to societal, health, well-being, and sustainability issues.
Designers often focus on the wider perspective: not only on the physical product, but on the role the product plays in people's everyday lifes. See, for example, the lecture summary of Jonas Piet (the first guest speaker in a series of lecturers for this thinktank). If the applications of 'design' become so wide, what, then, is the core of design and what should our faculty provide students with to be equiped for future design projects?

At IDE, students are trained to design products people 'love to use'. A product does not necessarily mean a physical object in the traditional sense. The result of a graduation project can, for example, be a strategy, a concept, and/or a prototype. This can make it quite difficult for other people to recognise the object of design. Or, in other words, understand what exactly is being designed.

An overarching quality of IDE graduates (as compared to many other design schools) remains the training in analytical and creative processes, and their focus on people. In 2003, in the transition to the Bologna structure, IDE education was split into a broad, traditional industrial design engineering BSc programme (three years), followed by one of three MSc programmes, each with a different emphasis in the design domain (two years):

three Master programmes

Integral Product Design (IPD)
Integrated Product Design is a systematic approach to product development. This master retains the focus on physical products and manufacturing, further developing students' conceptualization and embodiment skills. As such it is closest to the 'classic' IDE master before 2003.

Strategic Product Design (SPD)
This master builds on the earlier Innovation Management direction within IDE and emphasizes the 'fuzzy' strategic stage that precedes actual product development.
The program emphasizes translating corporate strategy in coherence with market developments and market opportunities into a product-development portfolio.

Design for Interaction (DfI)
This master was started in 2003 and assimilates the developments of experience design and interaction design. This master's emphasis is on gaining a profound understanding of the user (experiences) and using that in the development of products and services that optimally fit the motivations, needs and abilities of the users.

Jonas Piet

Jonas Piet is an IDE graduate (2005) and now works as an independent design consultant and social entrepreneur. For a few years after his graduation, he worked as a freelancer helping companies to understand their users and to design products and services, ranging from furniture to infrastructure. His clients included The Dutch Road Authority, Vodafone R&D and Vilnius Municipality. In 2008 he moved to London to work in the field of public service design at Participle (2008-2009), and at Engine Service Design (2010-2011). Since 2012, he is back in the Netherlands and spends half of his time on a social startup, and the other half on design consultancy.

**c itySampling: a service design project through an industrial design lens**

Jonas began his lecture by showing his graduation project CitySampling (2005), which was about designing a tourist information system; a new service for tourists in the city of Vilnius. The project consisted for a large part of user research; he gave tourists cultural probes, and met with them for interviews. He also talked with possible stakeholders other than the tourists to get insight into the dynamics and players involved in the tourism industry (e.g., economic department of the city, tourism board, tourist information centre). His final concept was a new tourist interaction with the town based on other tourists' input and current events going on. It consisted of an associative map and a cardset, with randomly selected cards. No tourist would have exactly the same cardset, supporting the individual explorative feeling when you are discovering a new town.

> *With every design project you should think about what should it do, before what should it be.*
> **Jonas piet**
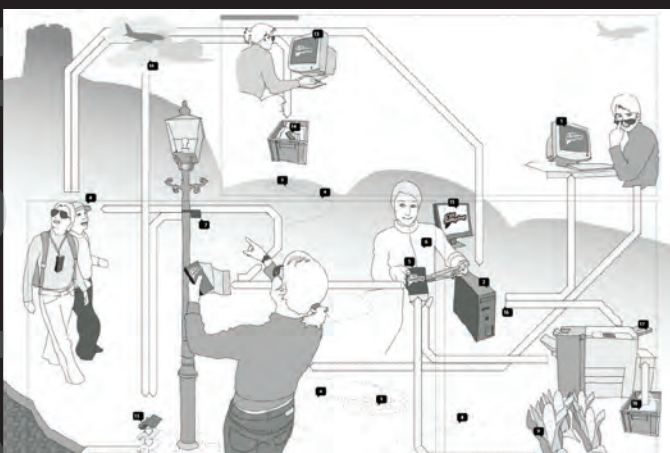
Part of the concept was the system

The cardset accompanied a digital database in which the cards are constantly updated by the tourist information centre and through the input of tourists who used it. He prototyped the cardset and associative map and tested how it was used with three tourists. Besides evaluating the concept by prototyping, Jonas created an overview of how the service could be produced. He made a map of the parties to be involved, a network representation and an early costs/ revenue model. These outcomes are very close to commonly used tools in service design, such as a stakeholder map, a service blueprint and business models. During his studies Jonas had never heard of something like 'service design', even though he was actually designing a service and intuitively took into account the possible stakeholders, back-end infrastructure, and early forms of a business model. Looking back with the knowledge he has gained through his service design experiences, he would do a few things differently: (1) involve stakeholders as well as end-users at a much earlier stage, (2) could have prototyped earlier by means of scenarios, (3) could have taken it further himself by an initial investment to realise the project.

> *At that time, I never heard of service design, but I designed a service system.*
> **Jonas Piet**

get-together: a social network for older people by telephone

At Participle Jonas worked on Get-Together: a project to support older people who suffer from social isolation. Participle is a London-based organisation, whose mission is 'addressing the big social issues of our time' (www.particple.net). Working with and for the public, they create new types of public services that make a real difference in everyday lives. Participle initiates projects themselves and finds partners and investors to further develop them. These projects often result in new social enterprises to deliver the radically new services that were designed.
Participle folks have very different backgrounds and additional specific expertise is brought in whenever necessary. At the start of a project, the team often consists of designers and a social researcher or a policy expert. At a later stage a business developer is likely to join in. Eventually, an entrepreneur and social workers may be bruoght in to start delivering the new service. The Get-Together core team consisted of four people: a project lead, two designers (a lead designer and Jonas) and a project administrator. As the project lead kept close contact with stakeholders at partner organisations, and the administrator managed the internal project, the designers did most of the 'back-end' work. Meanwhile, the designers would design and develop the actual service, including field work, concept development, prototyping and the design of the deliverables.
In the research stage, the team did home interviews with older people, met with front-line staff and visited existing older people's services to map the landscape of service provision and find out what worked, and what did not. In this stage the team was supported by two ethnographers.

As many older people find it difficult to leave their house, one of the developed service concepts was a social telephone club, where participants could meet up with like-minded people by phone with the aim to eventually develop relationships. This service was prototyped for 2 months with 30 older people and several organisations working with these people. To deliver the prototype, the team created service materials, required to make the experience look and feel realistic. One of these materials was the brochure to display alternative service offers, and to explain to users what they'd sign up for. On the back end, existing conference calling technology was used, while the designers hosted several phone groups including Sunday Music Club, a quiz and the Arabic Women's group. Some groups were hosted by older Get-Together members themselves, such as the Current Affairs group. These roles for end-users were deliberately built into the service prototype. According to Jonas, this illustrates a key difference between product design and service design; users act as co-producers of the service. One of the results of the prototype was that two older people, who had met each other by phone, went out in Hyde Park on rented scooters.

> *I took the role of an entrepreneur, as well as a researcher and designer - and perhaps a bit of an activist.*
> **Jonas Piet**

Jonas' view on how industrial design and service design differ, based on his working experiences of the last 6 years

Having an industrial design background and having worked in public service design he can reflect on the professions and how they differ. During his studies, he already had a great interest in topics such as user research, prototyping and visualisations. These skills helped him find interesting design projects after his graduation. Jonas presented this table to exemplify a few differences between a typical industrial design project and a typical service design project. The main difference is that service design projects are much more complex compared to typical industrial design projects. To illustrate the differences, he suggested to look at the clothes they wear; the industrial designer usually wears black clothes, black glasses and funky colorful shoes, whereas the service designer changes his uniform several times each week according to the people he is working with.

> *I always frame service design from the perspective of the person I talk to.*
> **Jonas Piet**

	Industrial Designer	Service Designer
Your brief:	"Design product X"	"We have a problem"
What you design:	Product X (in a portfolio)	Service components (in a system /organisation)
Your toolbox:	Sketch, scenario, scale-model, rendering	Value proposition, scenario, service evidence, journey map
Deliverables:	CAD drawing, roadmap	Marketing strategy, handbook, blueprint, specs for system, business model
Who 'uses' it:	Users	Users, front-line staff, back of house
Who co-designs it:	Users (for research or co-design)	Users, different departments, partners (for research + co-design)
How to dress:	(Smart) casual	From hoodie to business suit

The buzz of 'service design'

Poelman's observation of the faculty's latest transition 'from user-centred' to 'social- and sustainable-centred design' resonates with the term that has recently become very popular: service design.

˝ere is a lot to do about 'service design' within and outside the design ÿeld. Many of our graduates do projects in and ÿnd jobs in this area, and established design consultancies are trying to come to grips with it. So is IDE at the Delft University of Technology in ˝e Netherlands, with such research projects as FES-CRISP about product-service systems (2010-2014) and Innovation in Services (2010-2013).

Is service design doing what IDE was already doing, or are there di°erences? To be honest, when I heard of the term service design for the ÿrst time it confused me a lot. On the one hand because I didn't really see much novelty in the applications of design methods. To me, many of the activities, processes, skills and tools are inherent parts of designing (either for products or services), so what is di°erent about them, if you compare them with those of product design, user-centred design, interaction design, social design, contextual design, empathic design or experience design, to name just a few? On the other hand, is there something radically new in the design process of services compared to the design process of products? If so, I would love to learn about new methods, tools and processes and bring these into our curriculum as well.

In 2008, I began to explore what this service design is all about. Based on a literature review and interviews with practitioners and academics, I found that service design is an umbrella term used for a variety of design activities, as well as for mindsets. Depending on the context and discipline it refers to many di°erent things (see ÿgure 2 and ÿgure 3 for an overview). In January 2011, I wrote the Service Design Memo (ÿgure 3) and spread it around within our faculty with the aim to promote discussion about and share ideas on how to relate and position ourselves with regard to service design. ˝e resulting discussions were interesting. Some said there was nothing new to service design: *'I've been teaching service design at this faculty for more than 20 years.'* (Sacha Sylvester, assistant professor sustainable mobility). His research focuses on system innovations and product-service systems related to design for sustainability.

Others thought it was quite a new thing and important to pay attention to: *'With the rise of digital interactive technologies, we cannot afford to keep focussing on physical products alone, but, in designing, we should take into account the entire ecosystem of products, users and related stakeholders'* (Frido Smulders, associate professor product innovation management and entrepreneurship and director of SPD master). Some others already retain a cautious attitude towards the increasingly intangible nature of IDE graduation projects and expressed their reservations towards integrating service design, with the fear of IDE projects becoming even more intangible.

In short, at the beginning of 2011, the views on service design varied greatly.

˝e faculty supported me to set up this think tank in the form of an elective course to investigate this topic in further detail.

what: SD = design thinking
why: the ability to work visually, being able to deal
with uncertainties and stimulating creativity is useful
for innovation in business as well.
who says this: business people, business and
design consultants

what: SD = user centred design
why: the 'service' means 'serving' people
in the broadest sense
who says this: consultants from social sciences/
communication backgrounds

what: SD = experience design/designing for use
why: the use of an object never takes place in a
vacuum. Using a toaster occurs in the context of a
kitchen surrounded by other kitchen appliances and
people using it as part of their routines.
who says this: designers in experience- and in
interaction design (e.g., Kimbell, 2010, Engine)

what: SD = design
why: because nowadays we live in a service
economy, so everything we deal with and
design for is (related to) a service.
who says this: business people, business and
design consultants

?

what: SD = designing services
why:the designing of services (e.g.,
subscriptions) instead of products.
who says this: product designers

what: SD = integral view on demand,
supply and delivery of a service
why: holistic look at people (touchpoints
instead of an interaction) and holistic look at
the supply and delivery (system thinking)
who says this: designers (e.g., Jonas Piet,
Jamin Hegeman, www.jamin.org)

what: SD = delivering value
why: the exchange of value, which is a
transaction or only takes place 'in use'
who says this: economists (e.g.,
Vargo & Lush, 2004)

Figure 2 Since people refer to different definitions of service design (SD), it does not make sense to try to come up with one definition. Here is a sampler of different explanations by different people what they might mean with 'service design' during my search about what service design is.

˜ e widely used term can be quite confusing, since two people talking about service design can mean totally di° erent things. But…altogether, what all these di° erent perspectives still have in common is that in general service design has to do with

(1) a holistic perspective on the user, and (2) an approach that takes into account the complexity of multiple actors, providers, users, stakeholders over time. As far as I understand, these two aspects are the key aspects of service design.

What service design refers to...

Service Design is hot! Both in the commercial and academic world the term service design is gaining much attention. Here are some signs of the times;

- **In traditional product industries**, many companies such as e.g., Xerox and IBM have shifted their business models, and gain their income more from services (supply of toner for printers, supply of education, training, support for software).
- **In software design**, products are more and more released in a limited form and continuously upgraded after that (e.g., apps on the iphone). It becomes less and less clear to speak of a 'finished product', and in some circles, models of 'infinite beta state' are becoming common.
- **In business and management**, the term service design is often mentioned together with 'design thinking'. The innovative tools and processes of designing are opening up new ways for innovating business.
- **In the media**, the 10-page media supplement of the Guardian of 15 March 2010 was entirely dedicated to service design. Such a publication by a large national newspaper is an indication of serious interest in the UK.
- **In design practice** in the Netherlands and abroad, various studios and consultancies are offering 'service design' as one of their competences (see link for an overview of service design consultancies in NL and UK).
- **In research**, several universities and applied sciences are starting to offer courses on service design. Our faculty has received a national FES funding focusing on Product-Service combinations for the next four years. (see link for an overview of service design academic groups).
- **Of our alumni**, several of our DfI, and SPD students are now working in companies developing services (insurer Achmea, service consultancy Engine, Schiphol, etc). They report that what they learned at our school have been valuable and provided them with useful skills and knowledge, but also mention that they miss some skills and knowledge such as designing the back-end of a system, and change management.

Despite the widespread attention, a clear definition of service design is lacking. 'design' has already many meanings, let alone the various meanings of a 'service' in different disciplines:

- In business it is all about **creating value**. Customers do not buy an airplane ticket, but buy the holiday experience.
- In IT and software design, the term service refers to software that goes beyond the standalone computer system, but, e.g., manages and delivers information, **realizes communication between units**. Examples are telephone communication: without a provider, a mobile phone will not allow you to make calls or synchronize your mobile agenda with the one at the office.
- In the product or goods industry, the service is seen as **the longer-term component that accompanies the sale of a product.** Here the emphasis lies on coffee with a senseo, toner with your printer, etc.

So what is service design? The current 'service design' wave refers to service as a holistic unity of everything that needs to be considered for satisfying people's needs in a certain area over a longer period. Service design is seen as a comprehensive design activity, spanning and directing several activities of product design, software design, architectural design, transformation design etc. that is needed for its components. Oliver King, founder and director of one of the larger service design studios in UK, describes service design as: *'A process of researching, envisioning and then orchestrating for experiences that happen over time and multiple touchpoints.'*

In many respects, it seems to involve many similar aspects of product design that were in the preceding waves of 'user-centred design' , 'experience design' and 'interaction design'. But this is not always acknowledged by everyone in the service design community, feeding the confusion of terms: *'I would love to see designers thinking about what design really is and the added value it can bring to society. Wouldn't it be great if the focus was no longer on the shininess of a vase, but the value the designer van bring to the lives of everyday people?....Forget the uncomfy chairs. Think people!'* (Zwiers, Touchpoint issue 1). This quote sets service design off to product design, in which product designers would not think about the people they are designing for(?). Also many service designers talk about tools and methods to visualise the intangible aspects of a service or an experience, such as customer journeys, touchpoints, and use methods, such a role playing, storyboarding, while such tools and methods often originate from the product-, software-, interaction-, and experience design field.

So to conclude, depending on the discipline talking about service design, it might refer to different meanings of a service. But in general it is an umbrella term to take **a holistic look at the demand, supply, and strategy of a service.** If you would call it a discipline, King refers to it as *'a discipline occuping a new space between design and marketing agencies, management consultancies and research agencies, exemplifying the virtues of people-centredness and co-creation as fundamental processes.'* (King, 2008). Although firm, agreed-on, clear definitions are missing, a few aspects are often mentioned when 'service design' is described:
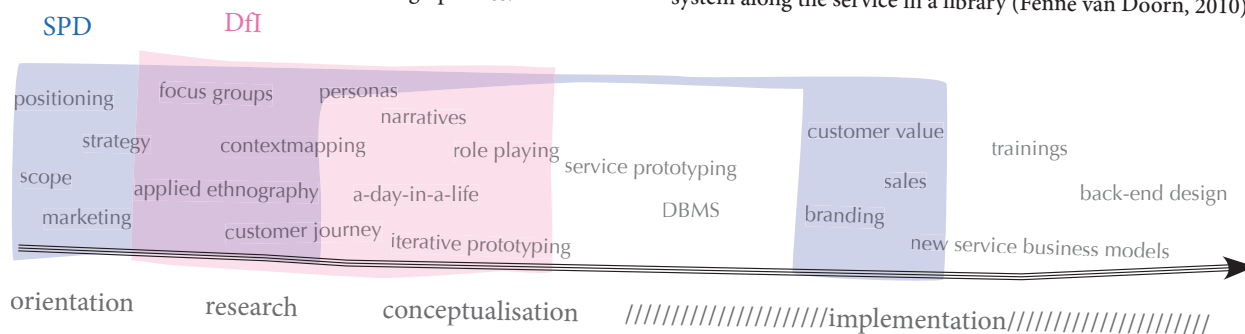
1. A focus on user experience;
2. Active participation of users and stakeholders;
3. IT, logistics, human resources of organizations are ingredients.
4. The relation between producer/consumer (provider/client) is long-term. In the economy of services, there is not a single moment of transfer of ownership.
5. Brand, seen as the promise of what provider and client offer each other, is an important element for giving structure to the above relationship, whose elements may change over time.
6. A blurring distinction between design, prototypes, production, and consumption.
7. Infinite beta status of services. *You cannot separate in any challenge or project, the look and feel of the service and the operational systems, processes, and resources that deliver it. These two inseparable aspects of the same challenge must be resolved together.* (King, 2008)
8. Compared with products, the business models of services are more complex.

How our faculty relates to service design...

Industrial design engineers from Delft are taught many aspects which are claimed to be important for service design. In graduation projects, for many years the end results have included products, services, concepts, strategies, prototypes etc.; it has not been restricted to a physical product. Often, the outcome is not fixed at the start of the project. At our faculty, there is a large overlap of the two disciplines, service and product design, when it concerns the mindset and toolset of user-centred design. Many user research methods used in product design such as ethnographies, observations, a day in a life, contextmapping, diaries, co-design sessions fit under the umbrella service design as well. Here are the aspects which make our students meet what is claimed needed to become service designers:

- **Our students become T-shaped designers,** engineers or managers. These are professionals who are equipped with a core in-depth skill (the vertical bar), together with general skills connecting them in multiple domains (the horizontal bar), and are therefore better equipped to function in multidisciplinary teams than either 'overall superficial generalists' or 'narrow specialists'.
- **Holistic approach of the user.** Especially in the early phases of the design process, DfI and SPD students are equipped with skills and knowledge to explore the users in their context.
- **Visualisations of the intangible.** Visualising and prototyping are necessary skills for our students. Whether it is a service or a product, students are trained to visualise and make their earliest concepts experiential, by using storyboarding, prototyping, storytelling, roleplaying etc.
- **Finding integral solutions.** When detailing a concept many aspects are addressed in parallel. Figure 1 shows an overview of how the product concept, an interactive cupboard supporting kids to search for books in the library, could operate (from graduation report of Fenne van Doorn, 2010). This student presented this overview to map out all aspects that need to be thought of to realize her product concept. She had never heard of service design, but has intuitively drawn this scheme to think about roles of people who need to be activated along the service, including the back end of the system.

To conclude, there is a great overlap in mindset, methods and tools. Our education lays a good basis for service design, but there are differences as well. The differences lie especially in the phases after explorative user research, such as conceptualisation and implementation. Building a service *is* indeed very different than building a physical product. In product design a designer has to materialize, construct and make it ready for mass production, besides marketing, branding and sales. In a service design project the result might often be a new business model. Service design is starting to develop their own methods and tools, which are again valuable and contributing our toolset, such as blueprints, front-end, back-end etc. In service design, other skills and knowledge disciplines are needed to create or implement a service, such as software coding (DBMS), training people using the service, making the organization of a company change etc.

Our recommendations regarding service design and our faculty are:

- Clarify the service design perspective. Explain the students what is going on in real practice by inviting guest lectureres (as initated in e.g., the C&C Master course 2010);
- Offer more education on the implementation part of service design, since that part is not much covered in our faculty (see figure 2) by collaborating with other (Delft) faculties and learn from experts in the fields of IT, change managers, economics and business. (see link for related research groups beyond Delft.)
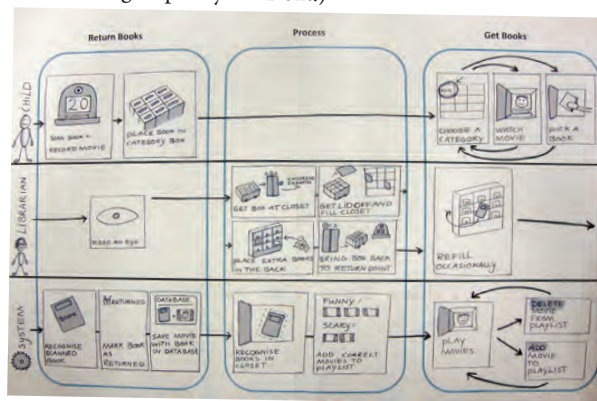

Figure 1. A scheme, including roles of people and the back-end system along the service in a library (Fenne van Doorn, 2010).

Figure 2. Rough sketch of how, in our view, our Masters SPD & DfI cover parts of the service design process.

Set up of the think tank

Figure 4 Each chapter consists of: an introduction, a bio of the guest speaker and a lecture summary (all three written by the editor) and a 'deepening the topic'-section (written by the team).

˜e graph at the bottom of the previous page has been the starting point for the think tank. In the form of an elective course 25 Master students were selected to join the think tank. At ÿrst, enrollment was restricted to Master students who had already completed the course Context & Conceptualization (required for SPD and DfI students) to ensure that the participants already had a shared basis of fuzzy front end user-centred methodology, including attention to 'typical' service design tools such as customer journeys and service blueprints.

˜is, however, ruled out participation of IPD students who had not taken the C&C course as an elective. In response, four enthusiastic IPD students were additionally enrolled to incorporate the IPD perspective (which also did not feature in the Service Design Memo, because the IPD program was undergoing a substantial recalibration at the time). ˜e graph at the bottom of the SD Memo shows a cloud of terms which feature prominently in the service design discourse. I took these terms as focal points: candidates to help me ÿnd blind spots in the design curricula.

˜e selection of guest speakers was based on learning about how known methods are applied in new or in familiar ways in service design projects. Moreover, this selection is also based on my professional and academic network and on availability of the speakers. As a result, it is not a comprehensive list with topics, but rather a ÿrst attempt to address some important topics. About half of the guest speakers have a design background themselves, so they were explicitly asked to re˝ect on their current practices and their views on what design students should be able to do after graduation.

˜e chapters represent the topics addressed:
1. involving users
2. prototyping
3. social media
4. commitment stakeholders
5. back end design
6. business models

During each lecture, a guest speaker would present, followed by a presentation of the student team who dug deeper into the topic of the previous lecture, in order to promote discussion and re˝ection. Altogether, it was quite an interesting way to bring in so many guest speakers from outside into the faculty. ˜eir stories served as inspirational starting points to further explore the topic in detail.

Each chapter consists of an introduction, a bio of the guest speaker, a lecture summary and a 'deepening the topic'-section (see ÿgure 4). ˜e 'deepening the topic' sections vary in set-up, writing style, depth and quality. Some teams researched literature, others interviewed the guest speaker and/or other professionals or experts, and some brought in their own design projects to re˝ect on the methods and tools discussed. I have intentionally chosen a newspaper-style layout for the 'deepening the topic' sections to invite the reader to choose either to browse through or to read in more detail those parts which are of interest to each reader.

Since the 'deepening the topics' sections were written by the teams, the views expressed are not necessarily those of the editor, nor is she responsible for errors in the texts of these sections.

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15

INVOLVING USERS

INVoLVING useRs

This chapter introduces several ways to involve users in various stages of the design process. Although, there are many ways to involve users, as well as roles you can give them, it remains quite a challenge to involve them in such a way that they can contribute in a fruitful way to the final design. The starting point for exploring this topic was the involvement of users for a new part of a hospital building.

Designing a hospital building is a complex design project; there are multiple users with many different needs and routines and many of them (e.g., doctors) have no space in their agendas to participate in design research activities. Moreover, architects of hospitals are specialized in the construction process but are often not used to deal with end users during the early stages of the design. As such, this is a very interesting example to study more in depth and learn about (1) managing stakeholder involvement, (2) using prototypes to explore the use of the new operating rooms and formulating requirements, (3) using role-playing as a way to help users express how they use and would like to use the operating rooms.

The student team dug deeper into the topic, by interviewing Ina Roubos and Quiel Beekman about using prototypes in this setting. The exploration opened up the students' eyes about the power prototyping has to involve different people and to elicit the users' needs for a new design. The most interesting lesson learned was that it is crucial for a succesful involvement to include someone in the design team who knows the users and stakeholders, who knows how to speak their languages and has social intelligence skills. It is much more difficult for an external party to convince stakeholders to become involved and commit.

I believe that the world is in need of dematerialization. As industrial design students, it is our task to help make the shift towards creating value and meaning through a more service centered approach to design.
Dorine Poelhekke

Because of my bachelor in architecture, I am interested in the fact that the UMC uses design techniques for designing better rooms and experiences for doctors and nurses.
Winbin Chew

My internship, at Muzus, made me curious about service design, therefore I hope to learn how I can implement service design techniques more in the rest of my study and career.
Kim Kaars

I have used role-playing once before for another course and it worked quite well.
Merel Lieverse

I heard of the term role-playing but never used it, I am curious about how and when to make use of roleplaying and how this is relevant for the UMC!
Wendy Kieboom

INTRo sTuDeNT TeAM

INA
Roubos

Ina is a construction advisor at the Universitair Medisch Centrum (UMC), a large hospital in Utrecht, The Neherlands. She has a backgound in medical biology, and after a scrub nurse training, she worked as a scrub nurse for many years. At the UMC she became more and more involved in the management and organisation of the Operating Rooms (ORs) as a team leader and location manager . Since 2010, she is a construction advisor for the 23 new to be build ORs. She considers herself 'the bridge between construction organisation and the users of the ORs'. She talks with the users, translates their processes in the rooms and visualises these to promote discussion with users and with architects, construction planners, etc. Her mission is to involve all possible users - from cleaner to surgeon - in the design process of the new rooms.

QuieL
beeKMAN

Quiel is a project leader and a user participation designer at 4building. She advises healthcare organisations and other organisations from an end-user's perspective. She recently set up her own department called '4BuildingUsers' at 4building. Quiel has a background in Industrial Design Engineering (Delft University of Technology). She graduated on a method to actively involve end users in the early phases of the design process (2008). She was the first to apply generative tools in healthcare housing in The Netherlands. Quiel and Ina met when Bas van Eijndhoven, Quiel's boss, became a project leader in the renovation project of UMC. Although Ina was not trained as a designer, her approach in solving the challenges left Quiel impressed. Together they prepared a guest lecture and an excursion on March 5th 2012 to the actual DummyOR: a 1:1 room with prototyped elements allowing users to act out how they use and would like to use the room with equipment.

www.umcutrecht.nl
www.4building.nl
(a report link about this guest lecture:
www.4building.nl/nieuws/123/quiel-beekman-en-
ina-roubos-geven-gastcollege-tudelft/)

Problem

At the Utrecht Medical Centre (UMC) plans were made for the rebuilding of the operation rooms (ORs). These ORs have to fit all the different user needs and the way of working in the room has to be translated into its design. For each operation, at least 7 medical staff members need to work in the same OR, e.g. surgeons, nurses, assistants, anaesthesiologists.

These users all have different backgrounds and use different equipment. They don't always know each other and have different needs for the same room. Besides, the way of working in this room differs for each operation type, so all ORs have to be unique. The rooms needed to be designed in such a way that they can be used for all types of operations and fit all user needs.

Project start

Ina Roubos works as a construction advisor and is a translator between the builders of the ORs, the users of the rooms and the hospital managers. She has a scrub-nurse background at the UMC for 25 years and therefore knows most users personally and is familiar with the operating experience.
As the users and the builders don't speak the same 'language', Ina had to translate the needs and possibilities both ways.

The hardest part of the project was to convince the hospital management to start the project. They were used to seeing things on paper and for this project that was not the case. So Ina set up her own research project, also as a method to convince management. Because of her driven motivation and enthusiasm about the project, she managed to convince the managers to start the project and listen to the users' needs.

> *I ask and ask and ask, it's not just one question. I keep asking them things.*
> **Ina Roubos**

Process

In the project, three stages with role-playing and prototyping can be distinguished. These stages were based on trial and error and followed each other without a complete pre-set project plan.

1. At first there was scale prototyping on paper with a floor plan of the different rooms. Ina realised, however, that using a technical drawing in discussions with users was not the right way.

2. In response, Ina came up with a 3D 1:10 scale model of the operating room. In defining the exact size of the room, she realized that it was important to create 3D models of the devices as well. The devices require a lot of volume, which is difficult to read from a 2D drawing. The users were given wooden blocks and Duplo puppets and asked to show how they wanted to work. The blocks (devices) and puppets (users) were used to play around with the room dimensions and to make a 3D floor plan. A CAD-drawer was assigned to make a drawing of these setups, which both users and builders understood.

3. The third stage was to build a 1:1 dummy OR. In this dummy room, old devices (from the '70s) and paper prototypes were used so the focus was on the room and not on the devices. This dummy OR was used to visualise daily OR situations, to finalize the dimensions and to communicate with the users, builders and the managers.
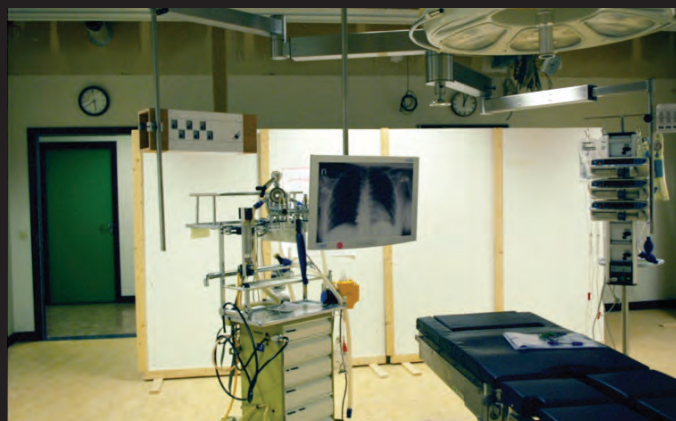

Methods and tools

The project focussed not only on the dimensions of the room, but also took into account the placement of the devices. Steel prototypes were used to indicate the right measurements and location for the arms of the devices, allowing Ina to adjust the length and angle of the arm. She determined the final measurements by asking how the users would act in a real situation. One of the outcomes was that the ceiling should be flexible in order to readjust the devices and arms that are connected to it for each operation type. During the sessions there was no role playing following a scenario. Instead users acted out daily situations. During her study Ina would ask; *"How do you want to work? Can you show me what you mean?"* She asked the participants to show her what they wanted, to act out the situation. And while they were doing this, Ina would ask them, *"Are you doing this because this is the current situation, or do you really want it to be like this?"*

Tangible

The dummy OR allowed users to show how they work. For that to work, the room had to look real, with regard to the logistics, devices and workspace, but had to be sketchy enough to let users explain and think about optimal solutions. Because of this, Ina first asked the assistants to do their organizational work in the room before the doctors came in. This way the situation was close to a real one. The most surprising part of this project according to Ina is the fact that you do not have to explain anything inside the room. That was also the reason for choosing this technique, *"I used this technique to prove things and make them tangible!"*.

> *By demonstrating things in the room everybody can see it, and it is clear for all parties. No further explanation is required.*
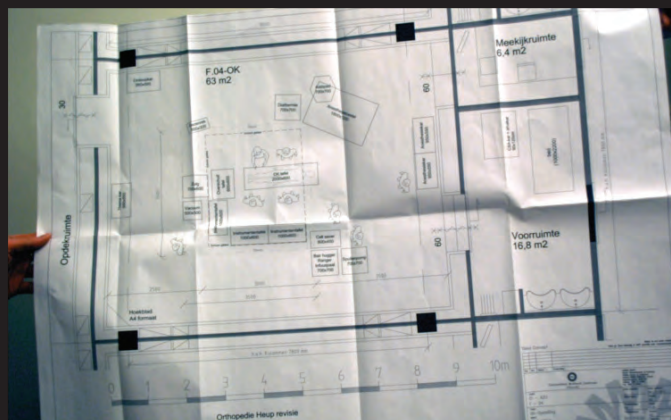> **Ina Roubos**

Next steps

The next step for the dummy OR was to make it more realistic. In this step, old devices from the '70s and flip-over papers were used so the users wouldn't be distracted by the devices used and could focus completely on the room and its dimensions. In this next step, the monitors for operating will be built into the room. This way the users can see the progress of the process and maintain their enthusiasm.

Keys to success 1

Without the advantage Ina had with her background, this project would be a lot harder and maybe even impossible. **The hospital is like a city with its own hierarchy; you have to know the culture, users and situations to find your way through it**. Ina was trusted by the participants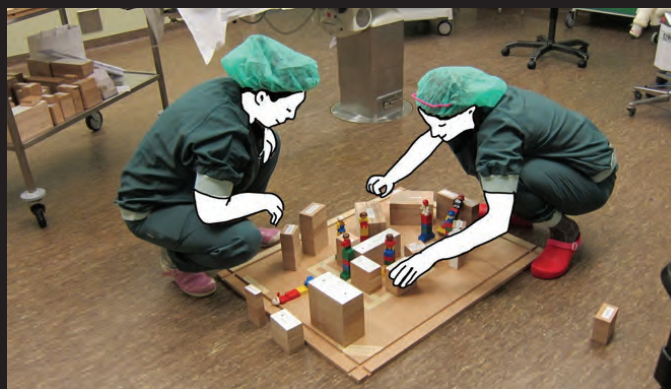 and managers and knew them, which made it easier to set up and work out the sessions. So the involvement of an insider was extremely important for the success of the project.

Another point of success concerning the stakeholders was the way Ina worked with them and involved them in the process; she used the right approach by involving them in the project.

> *Find an Ina when you're starting a project like this, or at least find someone who knows the right people. You need a person within the organization to make it work.*
> **Quiel Beekman**

Keys to success 2

During the testing phase Ina knew it would be difficult to schedule appointments for the users. She decided to take two weeks and schedule several timeslots, ranging from mornings, afternoons and evenings and users could come whenever they wanted. Because of the enthusiasm of the users and the open invitation 60 users came to the dummy OR instead of the 40 people she invited. This enthusiasm can also be found in the reactions on the project outcomes; *"The users trust the final design, because they made it themselves"*. The next time they would do a project they would do it in the exact same way. What Ina did was intuitive, but was also exactly by the book. All the questions were right, Ina told the participants, and encouraged that *"to act out what you mean!"*.

> *Working with stakeholders requires asking the right questions, listening carefully and giving them feedback after their involvement.*
> **Ina Roubos**

Deepening the topic

Our Exploration

˜ e topic we elaborate on in this chapter is involving users and stakeholders by prototyping and roleplaying (see ÿgure 1). To learn more about this topic we went to the hospital UMC in Utrecht, were we could see the use of role-playing with stakeholders in practise. It was very interesting to see this and learn about this real case.

After our visit to the UMC we explored this topic further, by studying literature about prototyping, the role of stakeholders and how they can be motivated, role-playing and similar processes and we also interviewed Ina and Quiel of the UMC after the vist to the hospital. We had the following questions in mind:

- How to involve stakeholders to participate in a design project?
- When to make use of role-playing instead of other techniques?
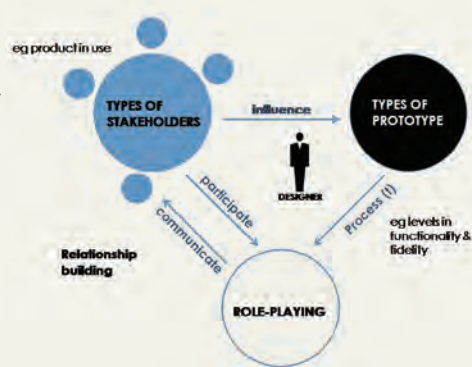- What are the keys to success in the UMC case?

Figure 1 An overview of the topics addressed in our exploration of involving users.

Process

A design process can be described in many ways. Lots of methods are available to conduct research and start the design process. We believe that there is no right method, but a method is a starting point. ˜ is contradicts from the approach that is used in the UMC case. In Ina's design process she didn't know about the available methods, but acted intuitively. Ina's starting point was 'seeing a problem', and try to solve it.

Figure 2 Different levels of knowledge about experience are accessed by different techniques. The technique that is useful depends on the kind of knowledge you want as output. (Sleeswijk Visser et al, 2005).

Techniques and different levels of knowledge

In the process of the UMC case real users of the OR were involved. Involving the actual users gives the researchers valuable information about the situation and the usage of the situation to be designed. In ÿgure 2 di˛erent levels of knowledge about user experiences are accessed by di˛erent techniques. Although Ina's process was intuitive, several methods and steps in the process can be discovered (ÿgure 3). For example, in the 1:1 dummy OR the measurements of an arm for the monitor had to be deter-
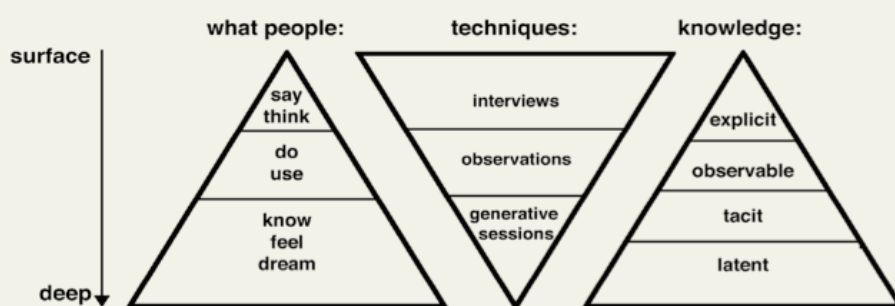
mined. By talking with the users, observing them acting out the situation and playing together with the prototyped arm, Ina addressed all levels of knowledge of the users. ˜ is way she was able to ÿnd out what the preferences of the users were.

Key strategies for co-creation

To be able to know the users' dreams and what they feel users have to be comfortable enough to share this kind of information. Kristensson et al (2008) describe seven key strategies for succesful involvement of customers in the co-creation of new technology-based services. Figure 4 visualised these strategies. ˜ e strategies will be

shortly described clockwise, to start with the house on top left.

- Users identifying needs in their own setting of use. As users are experiencing various situations in which they encounter di˝culties certain emotions and cognitions are triggered.
- Users identifying needs in their various roles. By encouraging users to adopt (and consider) the various roles they play, a product development team is likely to obtain a wider array of original and value-creating ideas for future services.
- Providing users with analytical tools. An "analytical tool" can be information about the opportunities and limitations of present and future technology, or it can be expertise regarding the platform (and/or its components) on which existing services are constructed.
- Motivating users via the apparent beneÿt to be gained from their involvement. ˜ is form of personal motivation is in accordance with psychological research. ˜ is has shown that motivated users outperform unmotivated users during innovative tasks, which has a negative e˛ect on creative problem solving.
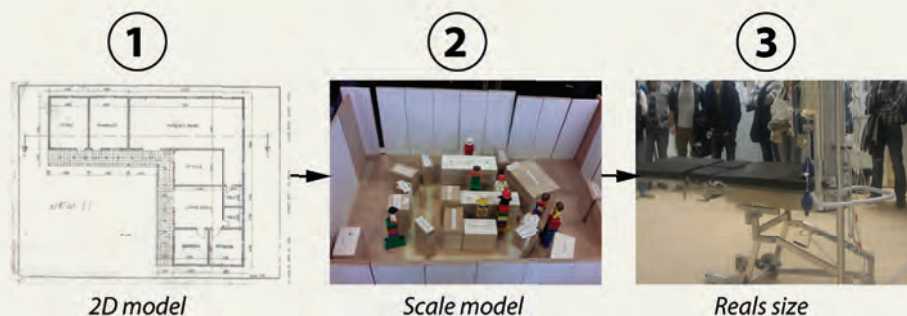- Non-reliance on brainstorming when generating ideas; user involvement in

Figure 3 Three steps in prototyping in the UMC case. The first step is 2D by using lay-outs of the space on paper and sketch and write on these. The second step is a scale model of the room where doctors and assistants could rearrange the space. The third step is a real size OR with old hospital equipment and wooden blocks with a paper print on them.

new product design is more likely to be successful if users are not involved in brainstorming exercises isolated from their everyday contexts.

- Users not having too much knowledge of technology; expertise can have its drawbacks in the form of predictable thinking that follows well-established patterns. In the UMC case every user was regarded as the expert of his/her own routines, habits and ideas about the use of the OR, so the focus was not on technology.
- ˘ e involvement of a heterogeneous group of users to ensure that a diversity of ideas is provided for future services.

It is di˝ cult for a set of homogeneous product developers to foresee the multiplicity of problems that might be encountered by a group of varied people.

Checking these key points with the UMC case shows that Ina's approach looks quite similar. Ina knew the users already, so they were already motivated. Besides, the environment was familiar because they all have worked there for several years. ˘ e group was very heterogeneous, in the UMC case there were 14 di˛ erent surgeons with their teams. ˘ is allowed Ina to perceive a broad perspective of users' needs and dreams. ∎

Figure 4 Key strategies for succesful innovation of users in co-creation (based on Kristensson et al, 2008). The strategies are about identifying user needs, providing analytical tools, and how to motivate users.

Managing stakeholder involvement

In the OR design project at the UMC, Ina managed to involve the stakeholders in such a way that it lead to the result she aimed for, namely a user-friendly, safe and one-size-ÿts-all design for the new OR rooms of the UMC. How did she manage to get the surgeons, the nurses, the anaesthetists, the assistants, the architects, the managers and the executives to participate in the project?

˘ ere are many factors that have an impact on stakeholder motivation. One of them is building strong relationships with the stakeholders. Watt et al (2000) suggest this because *"most design clients operate in highly complex and political organizations in which risk taking, unorthodox thinking, and long-term experimentation are not tolerated (in combination with a lack of understanding), clients (tend to) view design as an unknown and dangerous quantity that has few tangible benefits. It is only through long-term relationship building and development that this paradigm can be changed and clients shown the value that creative design can bring to their organization's competitive strategy. Strong, long-term client-designer relationships are no longer just a preference, they are critical to the survival of both parties. It is only through the development of mutually beneficial and cooperative relationships that designers and clients will achieve creative and commercial success."* ˘ is view is applicable to the way Ina involved the stakeholders of the UMC project. Hospitals have a reputation for having a strong hierarchical structure which is not easy – if not impossible – for an 'outsider' to become part of. A hired designer or architect (i.e. the 'outsider')

who needs to convince the stakeholders in such a hierarchy that they should invest in a risky, break-through innovation, may be lost without having a long-term strong client-designer relationship. Ina had a major head start in this; as a former scrub-in nurse, she knows every surgeon, nurse, anaesthetist and assistant by name.

She has worked with all of them before – though not in a client-designer relationship but in a surgeon-nurse relationship. Ina thereby gained immediate respect and trust, which allowed for honesty and open communication. ˘ is is how she got commitment on all sides – from the bottom of the hierarchy to the top.

> *"Being 'one of them' made Ina a user, an expert and a stakeholder. But another factor that played a major role in stakeholder motivation is the fact that Ina was also a charismatic leader and facilitator."*
>
> 𐀀𐀀𐀀𐀀𐀀 **Student team**

Alternating these two roles made it possible for her to handle di˛ erent stakeholders accordingly. Moreover, she was familiar with the do's and don'ts within the hospital hierarchy and therefore she knew exactly when it was appropriate to be a leader and when to be a facilitator and when to converse in a formal or informal way. According to Qin Han (2009) such approaches are common in service design projects, as "service designers, intuitively or purposefully, select leading or facilitating approaches to manage multiple stakeholder involvement in the project environ-

ment". Apart from ÿnding a good balance between leadership and facilitation, Qin Han also mentions that "the complex interactions among di˛ erent stakeholder groups suggested that there was the need for a consistent knowledge transformation process that supported these interactions. Producing visual narratives helped to stimulate and record the knowledge transformation". Ina understood this from the moment she started talking to the stakeholders. Until she transformed the 2D technical drawings from the architect into 3D miniature models, the knowledge transformation process went in one direction. From this point on, transfer of knowledge went in multiple directions, crisscross from one stakeholder to another and back. Qin Han observed and evaluated several service design team processes and came to the conclusion:

> *"The designers' skills in visualisation and using experiental means had a positive influence in motivating stakeholder participation and stimulating creativity among people from non-design backgrounds."*
>
> **Qin Han**

As in Ina's process, an experimental means such as 3D prototyping revealed one another's culture, stake and motivation, which caused mutual understanding and eventually to a design that is made by the stakeholders themselves. Still, the question remains, however, how we can learn from Ina's role and adapt her way of working without having the advantage of being one of them for already many years... ∎

Prototypes

In the UMC case, role-playing took place in the 3D model with little puppets, but mainly in the 1:1 dummy OR. We see this type of role playing as part of "experience prototyping" (Buchenau and Fulton Suri, 2000).

> *"Experience prototyping emphasizes the experiential aspect of whatever representations are needed to successfully (re)live or convey an experience with a product, space or system."*
> **Buchenau and Fulton Suri**

The purpose of prototypes is to explore and test in the different design stages. In the early design stage prototypes can be used to elicit requirements. It can also be used as an experimental technique to try out technical solutions and as an evolutionary tool to adapt to a changing environment of a design development (Holmlid and Evenson, 2007). Holmlid and Evenson define three stages for prototyping; early stage, modelling stage and defining stage. The UMC project used different prototypes that are appropriate to

the three stages. Therefore, the type and aim of using a prototype should be selected according to the particular stage. In the explorative stage, for example, a prototype should spark inspiration for designers and designers should not be limited in their ideation. When something looks like an end product it is less likely to easily see room for improvement.

However, prototyping is not only used for the development of an idea, but even more in supporting users to experience, explore or explain its function in use. For example, Buchenau and Fulton Suri (2000) mention that a prototype can support people to experience its use. By enabling prototypes to improve communication, uncertainty involving the design can be reduced.

Dimensions of prototypes

Fidelity has been primarily used to distinguish between prototypes. Prototypes can be characterised along the following dimensions (McCurdy et al, 2006):

- Levels of visual refinement: a printed monitor screen onto a cardboard box was used in the UMC rather than a real monitor from a visual standpoint.
- Breadth of functionality: the mock-up room was reiterated with more design by gradually adding visuals onto the wall; enhancing the stimulation as real as possible.
- Depth of functionality: the level of details in the mock-up room with the surgical props such as a bed to enable role-playing, in here users are evaluated with "think-aloud studies and cognitive walkthrough"
- Richness of interactivity: the interaction between Ina and the doctors where the amount of feedback and needs are discovered.
- Richness of data model: the data in here refers to amount of equipment, their measurements and the conditions for them to operate in and for the safety

of the patients.

In general, the level of fidelity becomes higher towards the later stage since a higher level of information need to be given to users in order to reciprocate conclusive findings. Other functionalities could be seen in terms of front and back stage activities. In the UMC case, the division was clear in this aspect as the doctor would normally be in the front stage and the nurse in setting up the back stage. In this case, back-stage is mostly about the positioning and physicality of medical supporting equipments and front stage is the performance such as an operation. This function was reflected in the early generative stage in the 1:10 prototype, where the nurses were simply organizing the "blocks" as a representation for the equipment. This forming

stage was rather fuzzy and time consuming. The participation of large number of nurses helped to construct a "stage" for role-playing in a 1:1 scale setting.

In our Master programmes we also learn to use prototyping activities in several stages of the design process. Here are two examples.

The first example shows a high-fidelity prototype which was created to convince management of the concept. The other example is a series of iterative prototypes to develop the concept in collaboration with the users.

The project of Winbin Chew was about designing a service for businessman at Schiphol Airport (course Design Strategy Project, spring 2012). The students had to design a service to increase the users' satisfaction. The project was done in collaboration with the Schiphol Group as a client. The students first conducted interviews with departing business passengers at the airport and did observations at Schiphol Airport to learn about the users' needs and motivations when being at Schiphol for departure. As a result of this fieldwork the students created a customer journey map indicating all possible touchpoints (see figure 5) and created a persona 'Mr Nicholas' (see figure 6) to be able to engage with the target group and portray their needs in a story telling way.

An application for a mobile device was designed to help the passengers plan their stay during departure at the airport (figure 7). The ideas was based on the need for more clarity and being able to plan in your waiting time. At the same time, Schiphol Airport would like to prolongue the passengers' stay than just necessary in order to provide more services to them. The planning app should give the passengers more peace and reasons in prolonging their time in there. With a very simple
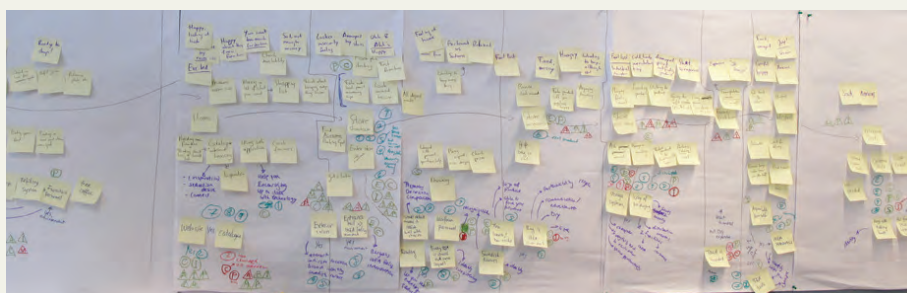

Figure 5 Customer journey map based on interviews and observations with passengers about the departing process at Schiphol Airport. (Design Strategy Project, Winbin Chew, 2012).

Mr. Nicholas
Mr. Nicholas is a 32 year old successful businessman working for a Dutch pharmaceutical company. He travels 2 to 3 times a week for business meetings with business class; visiting Schiphol Airport at least once a week.
After the first security check he usually goes to the business lounge, where he treats himself to some food and prepares for work. Normally Mr. Nicholas only spends about 1.5 hours at Schiphol and he prefers to use that time well. He knows the services at the business lounge and therefore goes back there every single visit.
However, Mr. Nicholas is unaware and hesitant of other services at Schiphol; even though he would very much enjoy the spa e.g.
Over time, Mr. Nicholas got used to the everyday routine. It occurs more and more often that Mr. Nicholas is embarassed by showing up late at the gate, delaying the flight...

This is the story of around 2000 business class travelers flying through Schiphol daily. How can their journey be improved? And how can this improvement be profitable to Schiphol and its stakeholders as well?

Figure 6 The persona MR Nicholas; a businessman who frequently passes by Schiphol Airport (Design Strategy Project, Winbin Chew, 2012).

software application Mockabilly (www. mockabilly.com) the students created a working prototype to demonstrate how this application could look like and be used. ˘ is is a high ÿdelity prototype. ˘ e choice to make this high ÿdelity prototype

was based on the purpose of convincing the client. ˘ ere were more concepts to be presented by other student teams so the aim was to impress the client with their working and detailed concept. Together with the high ÿdelity prototype the

students delivered a business model (ÿgure 8) and a detailed revenue model to show the client the feasibility of the concept.

Figure 7 An interactive prototype of the application to demonstrate the service and how it could be used (Design Strategy Project, Winbin Chew).
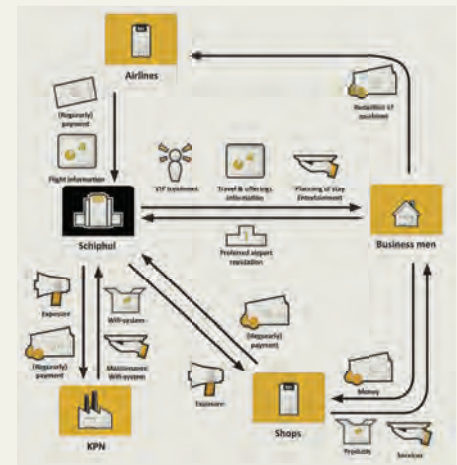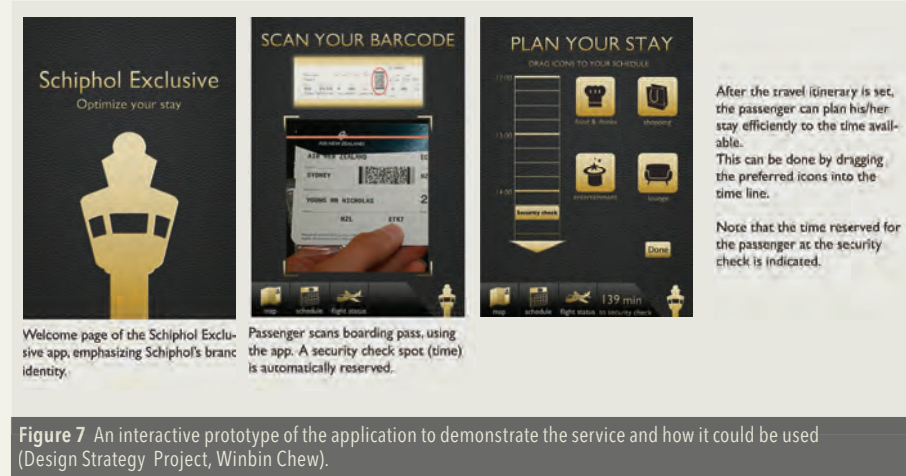

Figure 8 With the business model canvas game from the Board of Innovation the students explored and defined an initial business model including various stakeholders (Design Strategy Project, Winbin Chew).

˘ e other example of prototypes in our education is the iterative prototyping process of Kim Kaars for the course Exploring Interactions: She worked on a product, Totem, which stimulates young children in the age of 4 to 6 years old to work and play with each other instead of next to each other. ˘ e product is in the form a totem, all children have their own personal color and they earn positive or negative beads after a certain interaction. Totem can be used as a visualization and re˙ection tool to discuss a speciÿc situation in the classroom.

˘ e ÿnal prototype was the outcome of an explorative and iterative design project. Di˛erent versions of the model were tested with young children at a primary school. ˘ is testing was done with help of simple prototypes, which were used in a normal classroom situation. After each test, the prototype was adjusted based on the reactions and outcomes of the user testing. ˘ e ÿnal prototype was also tested in the natural environment.

During the iterative process, the form of the prototype changed; it became more and more realistic during the process. ˘ is is similar to the three stages of the UMC

project; in this project, the prototype of the operation room was adjusted and became more realistic while the project continued. ˘ e power of an iterative process is the possibility to adjust the prototype to the users' needs instantly and the fact that designers get direct user feedback on the ideas they come up with. During the Exploring Interactions course this resulted in the

shift from an individual chain with beads to a collective totem with individual colored beads. Because of this shift the teacher was able to re˙ect with the children on the complete group interaction and relate the earned beads to speciÿc interactions in the working period, a nice coincidence of the product which is basically meant to stimulate working and playing together.   ∎

Figure 9 Series of simple iteration prototypes in the Exploring Interactions course; the first prototype is an individual chain, the second an individual totem and the third one an group totem with individual colored beads. (Exploring Interaction project by Kim Kaars, January 2011).

The power of role playing in design settings

"Role playing is the practice of group physical and spatial pretend where individuals deliberately assume a character role in a constructed scene with, or

without, props. The key differentiating aspects of role playing are: 1) Being 'in the moment'- an individual and group state that enables vivid and focused exploration

of the situations and 2) Physicalization - using the entire body to explore generation of ideas that takes 'brainstorming' to 'bodystorming'."   **Simsarian (2000)**

̃ is is one of the deÿnitions of role playing, but role-playing can be interpreted in diˌerent ways. In this part of the deepening the topic we will explain, with examples, how role playing can contribute in the design process.

Act Like Yourself

In ÿgure 18 you see the 1:1 dummy OR which is used in the UMC hospital in Utrecht. Ina gave the doctors and nurses the role to play out how they would act and react when they were doing a surgery. In this case, it was important to ask a lot of questions; "How would you like to work in this situation?", "Where are the devices placed to make eﬃcient use of the space?". We as industrial designers can use this method as well. By letting users acting like themselves in an environment we created, we can see and explore how they would interact with the space and ask questions to ÿnd out what can be improved.
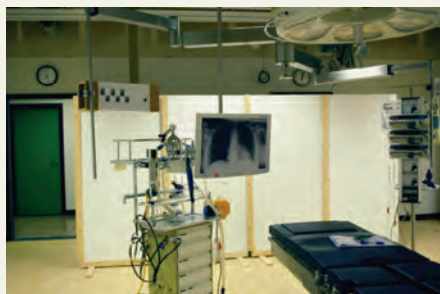

Figure 18 The stage for acting out how they people in this space work: the dummy OR in the UMC.

Role-playing can also be used to explore the other way around; in a natural setting, the environment of the users, a prototype can be proposed. Using prototypes can have three purposes in this setting:

- Letting people create their own ideal products, to explore their underlying needs and motivations. Usually low-ÿdelity materials are used such as paper and tinkering material;
- Exploring the possible interactions with a prototype and role playing. For this low and high ÿdelity prototypes can be used;
- Evaluating the entire proposed concept by letting users play with it and see how they use it.

Examples of the ÿrst type of use of prototypes are presented by Geke van Dijk in her lecture (see page 32/33). And also Svanæs & Seland (2004) describe a process with prototypes in a hospital setting. ̃ ey used role playing and simple prototyping

to create new devices for the hospital together with the hospital personnel. First they draw a screen which will be used during the rest of the scenario. With this simple prototype, a blank foam model, they asked the staˌ what happened next?

> *"She started tapping on the model with a pen and said that she was getting access to the blood test results for the patient in the bed."*
> **Ina Roubos**

̃ e participant in this case was acting as if she was doing her job with the new devices, which exactly worked the way she wanted. Later on she was asked to draw what she would have seen on the screen, so that it can be used for future scenarios. ̃ is kind of role playing can be used in the earlier stage of the design process, to ÿnd out what people really needed and wanted from their products.

̃ e second use of prototypes and role playing is also ÿtting the fuzzy front end of the design process. Here ÿrst ideas, parts of (preliminary insights leading to) concepts , are explored by focussing on its use and its context by acting out with users parts of the possible experience.

For this kind of prototyping an example can be found in the article of Lacucci et al, 2000) . ̃ ey used role playing to test a mock-up of a device in the actual environment of the user. ̃ e participants were asked to bring the prototype with them and use it during their normal activities. During this experiment the participants were shadowed by the designers to see how they acted when they were using the prod-

Figure 19 An image from a storyboard about stimulating conversation between dentist and child by means of a booklet; the booklet act as a tool for making the experience of brushing teeth fun and as a tool that stimulates memory (design project Exploring Interactions, Merel Lieverse, drawing by Dorine Poelhekke (January 2012).

uct. ̃ e beneÿts of this method is that the use of the product is very realistic, but on the other hand it is a less dynamic activity compared to the way of role playing Ina used for the UMC.

̃ e third one, concept prototyping, is a way of prototyping which can be used by product designers towards the end phase of a design process. But for services, we think prototyping in this stage might look diˌerent from prototyping a single product. In services role playing could play a larger role here, since services exist between people.

Storytelling

Merel Lieverse used role playing to act out the story of a product she designed; how her product should be used, in the course Exploring Interactions. She created a story which describes the product and interaction in the context (see ÿgure 19).

While she was telling the story in front of the audience (caregivers of the children, teachers, students), fellow students were acting it out. ̃ e product was for children with autism. Together with their mentor the children have to brush their teeth and after that they will get a mark at their kind of calendar. At the end of the month the children will send this calendar to the dentist and they will receive a postcard in return which is a part of a puzzle, after four months they completed the puzzle. ̃ e product stimulates the interaction between the dentist and the children, but also helps the children to remember to brush their teeth every day. An example of the script (scene 2):

"̃ e dentist and Dorien are walking towards the display of the booklets. ̃ e dentist explains that a booklet will help to brush her teeth better in a fun way. Dorien chooses the picture with the horses."

̃ is way of role playing was used at the end of the process. But you can also use it half way through your project to explain your ideas in a visual way.

We experienced that a great beneÿt of alive storytelling is directly getting attention. If people can look at something they are more willing to listen and they will remember it longer, because of the surprising part. Only sometimes it is really diﬃcult to play a certain role, in this case for example the role of an autistic child.

Storyboarding

According to the article of Boess et al (2007), storytelling can also be visualissed in a storyboard in which you can explore and explain the use of your product or service to others, as Wendy Kieboom used in the course Design Visualisation during her bachelor Industrial Design Engineering (March 2011). In this project the students had to act out a desired interaction about watching TV in a group.

After having explored the concept by role playing, they had to visualise their concept by making 5-8 shots with a photo camera, print these and draw with pens over them to create a storyboard, to be able to present their concept to the other students and teachers.

Role-playing can be used in all stages of the design process. According to Boess these are the ÿve rationales for role playing in the design process:
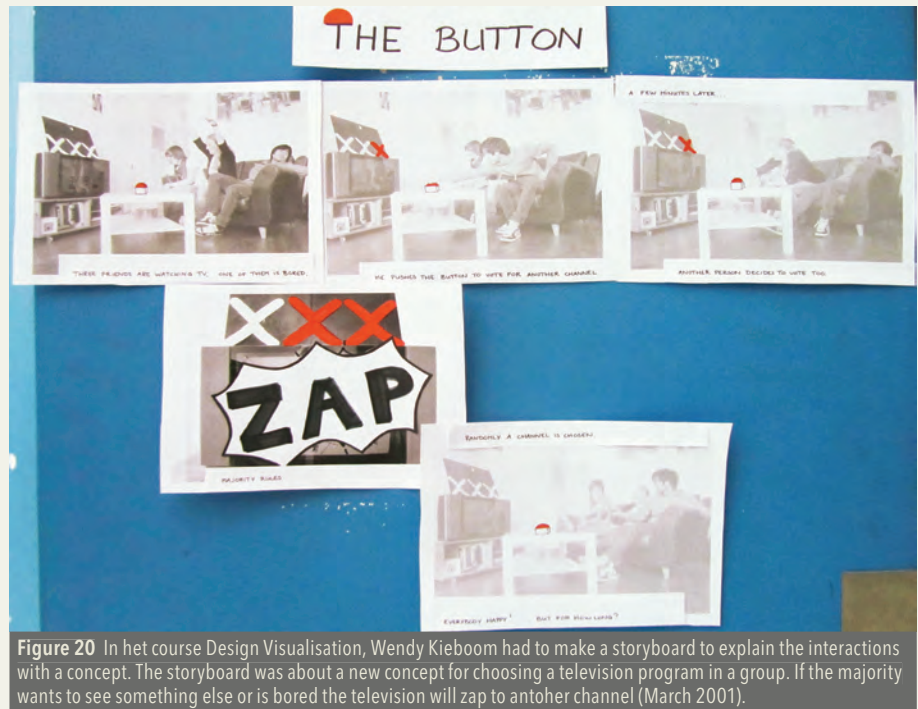

Figure 20 In het course Design Visualisation, Wendy Kieboom had to make a storyboard to explain the interactions with a concept. The storyboard was about a new concept for choosing a television program in a group. If the majority wants to see something else or is bored the television will zap to antoher channel (March 2001).

- Communication within the design process;
- ˉ e experience and empathy of designers;
- ˉ e increase of technological complexity;
- A shift towards tangible and embodied interaction;
- Attentiveness to social change. ∎

Conclusion

As can be concluded for this chapter, for involving users and learn about their needs, role-playing and prototyping are interesting methods. It helps to involve stakeholders and do co-creation. It is important to keep in mind that the involved users should be motivated to bring out the best results by keeping the project interesting to all involved people. Allowing the users to participate in di˛erent design phases helps the designer to point out different details to discuss.

ˉ e main reason why the participants in the UMC case were really motivated to participate, was because they knew that Ina would listen to them. ˉ ey knew her personally and they could see she acted upon their input and provided feedback to all involved people. ˉ is is an important aspect of involving users. ˉ e participants have to feel comfortable enough to share their thoughts and ideas (as also presented in ÿgure 12). ˉ e strategies in bullet 1 and 5 both address the importance of using familiar environments to support participants to feel more comfortable.

Role-playing, from our own experiences during courses at IDE, helped in communicating the idea of the design. ˉ is was a great advantage, because the concept was complicated. When people see it in "real life", they are more committed to under-

stand than reading it from text. ˉ is was also Ina's problem when convincing the management that the OR's needed to be changed. ˉ erefore she used prototyping as a tool.

Di˛erent types of prototypes can be used in di˛erent phases of the design process. A 1:1 dummy OR helped Ina in gaining knowledge about measurements of a monitor arm. With the 3D scale model it was not possible to explore these details. Whereas with the 1:1 dummy OR this was discussed on a much more detailed level, because the lifesize prototype helped in seeing it for yourself.

ˉ is chapter gained more knowledge for us and will help us in further design projects. It was nice to see it in practice as well.

> *"This was really an eye-opener, knowing what great potential these methods have and how important it is to involve the users that are confronted with the designed project on daily basis."*
>
> 👥 **Student team**

What we've learnt

- ˉ e way you communicate and listen
- Do not pinpoint on what they said, there is no wrong or right
- Involvement of an insider (like Ina with her scrub nurse background)

- You can always reach Ina, even on Sundays!
- Ina is really motivated and enthusiastic! And also a really nice person to work with.

Implications for our curriculum

Education about service design is strongly present in the IDE master courses such as Context & Conceptualisation, Brand & Product Stratgey and Customer Research. ˉ ese courses cover topics mentioned in service design such as: Contextmapping, Design for Experience, Early Prototyping and Design ˉ inking. After this course and the lectures of the design practitioners, we think that more education on these topics and some new topics will beneÿt new IDE graduates to be also service designers. IDE alumni who work professionally as service designers noted that they are missing expertise in the ÿeld of service business modelling and prototyping the back-end of a service.

An example of the latter is shown by Ina and Quiel in the OR design project in the UMC. Role-playing and prototyping in combination with e˛ective stakeholder motivation resulted in a succesful 'service design' project – or is it? Ina did not have a clue about the existence of 'service design', nor was she educated as an (industrial)

designer. So, the question arises whether education about service design is necessary to be able to apply prototyping and role-playing methods for example.

One argues that the answer is....No, because Ina applied these methods intuitively. But, she subconsciously took on the role of an explorative designer as she was able to play many different, essential roles. Ina is a user, an expert, a stakeholder, a charismatic leader, and a facilitator. The only roles Ina needed to add to her own capabilities was to be a decision maker and an investor as well.

IDE students can learn from this by always involving insiders (i.e. users, experts, decision makers and other internal stakeholders) to create mutually beneÿcial and co-operative relationships in order to achieve a successful design project. A crash-course on stakeholder motivation and involvement would therefore be very valuable, although the best lessons may be learned from practice – of which Ina is a great proof. The course Creative Facilitation offers workshops in which students are stimulated to lead and facilitate a creative session. The next step would be to expand the facilitation practices onto prototyping and role-playing sessions. ∎

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IDE courses:

Design Visualisation (Bachelor course)

Creative Facilitation (Masters elective course)

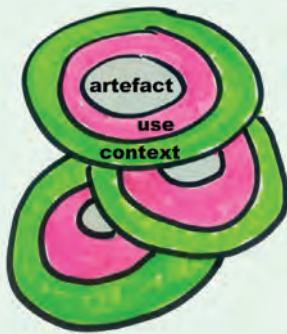Design Strategy Project (Master SPD course)

Exploring Interactions (Master DfI course)

www.studiegids.tudelft.nl

PROTOTYPING

PROTOTYPING

Traditionally, a prototype in design engineering refers to the ÿrst physical instantiation of a product before it is copied by mass production. At IDE, the term prototyping is also used in this way, but more often refers to a technique to explore and evaluate (parts of) manifestations between concept and product: such as concepts, uses, interactions and contexts for a new product. In service design, services are prototyped at various stages as well. But what can prototypes for services look like if a service in general is intangible and only exists when 'in use'? A service in that sense never reaches a ÿnal state like products do. Acting out situations between people is one possibility (see previous chapter). ° is chapter focuses on di˛erent types of prototyping along the di˛erent phases of the design process. Johan

Blomkvist, a PhD candidate on service prototyping at Linköping University, argued that prototyping for services often encompasses multiple elements of a service; there are more than one artefact, one use and one context. Geke van Dijk from STBY, a service innovation agency, showed us several ways of how they use prototyping in service innovation.

° e student team dug deeper into the topic through a literature review and by re˝ecting on their own experiences with prototyping. ° eir main lessons learned were (1) the importance of formulating what you want to explore or test and (2) that prototyping is not a ready made tool, but a technique; each time you use prototypes, they have to be tailored to your goal in the design process.

Graph about prototyping for services emphasizing the multiple elements in a services compared to a product (based on personal conversation with Johan Blomkvist before this lecture).
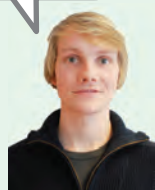
Designing is about envisioning a new solution to a problem. So there are a lot of unanswered questions. As a designer, I have always used prototypes to reach for insights, but in an empirical way. Therefore I am interested in discovering how to make the best out of this powerful tool.
Maria Isabel Reis Oschery

As a product designer I of course recognize the great value of prototyping and its contribution to successful products. I am interested in how service design uses prototyping within a rather intangible field of services.
Niels Corsten

Often understood as something intangible, service design involves certain corporeity hard to materialize...thus a prototype is that crazy first attempt in the metamorphosis from bodiless into concrete... challenging!
Manuel Torres

Prototyping is interesting for me, because I created a prototype of a service website scovre.com during the course Ready to Startup@ Yes Delft.
Jaap Gerritsen

A project based on real user insights will lead, in my opinion, to a succesful product or service. Prototyping is a way to reveal those valuable insights.
Arjen Oenema

Prototyping helps designers to be more accurate and at the same time to be more experimental. Prototyping is a great tool to share, inspire and construct ideas within a design team.
Sergio Luis Gomez Serrano

INTRO STUDENT TEAM

GEKE VAN DIJK

Geke is the strategy director of STBY, a company specialised in consumer research during the early stages of innovative service design projects. STBY is based in London and Amsterdam.

She studied communication sciences (1989), followed by an MA in marketing communication sciences (2003) and holds a PhD in Computer Sciences with the Open University in the UK (in close collaboration with their Business School) in 2007.

Since 1993 Geke has worked in the internet industry as independent consultant and manager. In 2002 Geke co-founded STBY, together with her partner Bas Raijmakers. Geke is fascinated by how technology constantly shapes our society and culture, and how society constantly shapes our technology.

MARIE DE VOS

Marie de Vos is a design researcher at STBY. She has a BA in psychology and a MSc in MediaTechnology (2010). During her studies she did an internship at STBY, returning full-time upon her graduation. She is mostly involved in the research projects STBY run out of Amsterdam, for which she deals with both operational management and the actual research itself, taking responsibility for fieldwork, analysis and delivery. Marie is interested in exploring new ways of doing creative research, dealing with questions such as: How can you best research a specific question? How to design your research to keep participants motivated? And how can you visualize your results in such a way people want to use them?
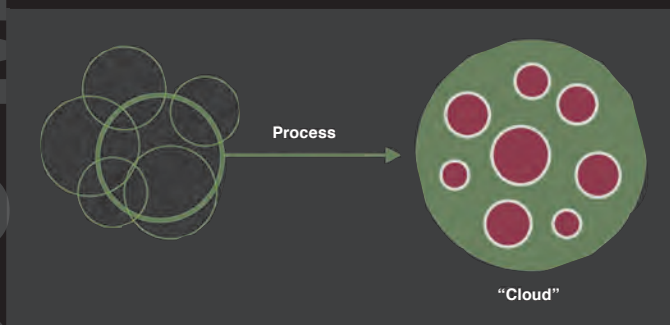
www.stby.eu

STBY

STBY's creative research projects connect service providers with the lives and experiences of their customers. This helps STBY's clients to innovate their service offering, making it more valuable for both their customers and business. STBY's clients come from a wide range of public and private sectors. Their projects generate rich and visually illustrated research materials that bring real people into the heart of design and innovation processes. STBY is strongly linked to skilled and experienced design researchers all over the world through the Reach Network, a global design research network (www.globaldesignresearch.com), also founded by STBY. Working closely together, they can offer clients local insights on a global scale.

..STBY... London / Amsterdam

Design Research for Service Innovation

Process

"Cloud"

The users will decide how, when and in what combination they will make use of service elements.
Geke van Dijk

Networks of service elements

A service usually consists of more than one provider and user and can be seen as a network of service elements (what Geke calls 'cloud'). STBY helps clients to develop new services through design and field research, aiming primarily to inform and inspire. Their activities include facilitating empathic conversations, ethnography, observations, interviews, and engaging the user into the process (co-creation).

Different expertise disciplines are also engaged to join STBY's creative sessions, such as designers, architects, artists, sociologists, and urban planners.

Inspiration	Ideation	Implementation
Explore needs & opportunities	Explore ideas & experiments	Develop prototypes & improve
Define challenge	Define insights	Define concepts / Define end result
Divergence	Convergence	

We mainly prototype in the 'use' and 'context' circle.
Geke van Dijk

artefact
use
context

Service design process

The process in service design is not so different from other design processes. As in many other design domains, the service design process comprises three stages: inspiration, ideation and implementation. Each phase involves a subsequent divergent and convergent procedure. In each of these phases prototyping can be useful. A service in use is always 'co-produced' by at least one of the providers and at least one of the users. Designers cannot predict exactly what a user journey will be and what choices somebody will make. As such, it is essential in the development of a service to explore how users will eventually use (and co-produce) the service; a great tool for such explorations is prototyping.
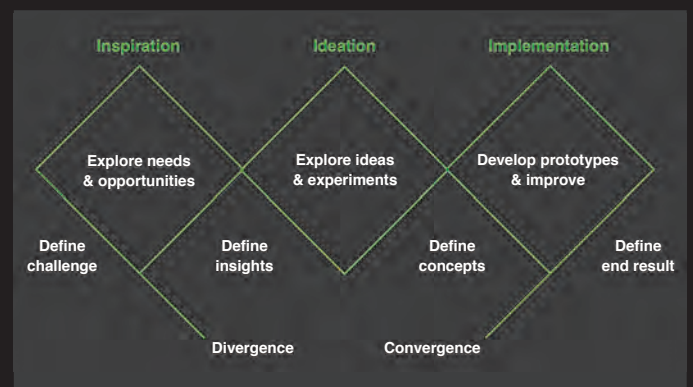
Prototyping for use

At the introduction of this lecture Froukje Sleeswijk Visser drew a graph (based on Johan Blomkvist's work) on the blackboard to explain the many elements and connections in prototyping for a service compared to prototyping for a product. Geke pointed out that prototyping is traditionally most often associated with the physical prototyping of products. She was delighted to hear that prototyping at IDE Delft addresses use and context as it does artefacts. STBY's prototyping activities mainly focus on the use and context levels.

Examples of prototypes
Four examples were presented of current projects with different companies

T-Mobile
Question: How can we better support community interaction through mobile services?
Aim of prototypes: Explore opportunities and ideas for new services by generating scenarios, storyboards and models.
Prototypes: Client workshops for initial idea generations with designers and innovation managers. Workshop with customers and client team to create scenarios and 3D paper based models of imagined use of service concepts.
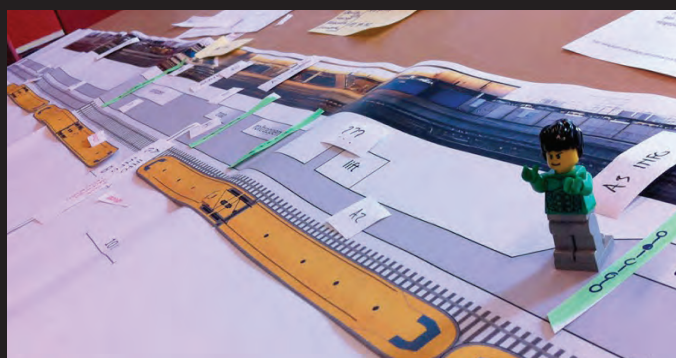

Prorail
Question: How can we better facilitate smooth journey experiences for train travellers?
Aim of prototypes: Clearly communicate the most urgent issues and discuss ideas for potential improvement with both client team and customers.
Prototypes: Posters and videos that show key behaviors and motivations of train travellers . Future scenarios based on new service concepts with participants, designers and Prorail team.
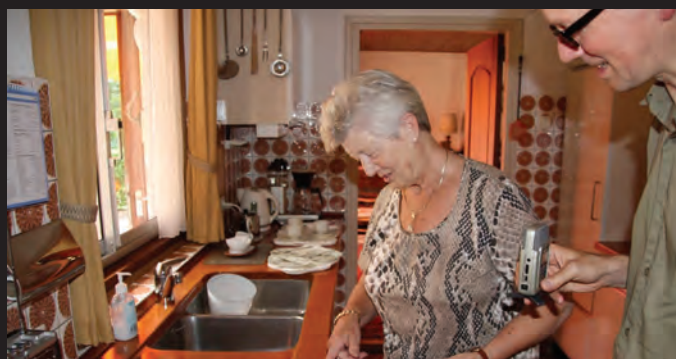
Zuidzorg
Question: How can we better support people over 75 years old to live independently at home?
Aim of prototypes: Include target group in discovery journey by client team to better understand a new scope for service development.
Prototypes: Storyboards to express and further discuss ideas for new services. Service blueprints to explore a wide range of aspects in front and back office in relation to the execution of new services. Business Model Canvas to explore strategic decisions and consequences of implementation of new services.

Cornwall County
Question: How to include the local community in the large scale redevelopment of a derelict area with a range of new facilities for public and social services (school, community centre, museum, artist studios, shops, park, market, etc)?
Aim of prototypes: Co-creating and jointly discussing scenarios and models for current and future situations of use with both local stakeholders, design team and client team.
Prototypes: Paper-based models, tangible conversation pieces (e.g., fruit and nuts to express paths to places), joint service enacting in situ. These prototypes were used in the different stages of the design process with various groups of stakeholders, relevant to the topic.

> *We see users as contributing participants, not as expert designers.*
> **Geke van Dijk**

Tips for designers
Geke provided some useful tips to employ when designing a service:

1. The involvement of multi-disciplinary teams is essential for achieving valuable results: in other words, an intensive participatory modus operandi.

2. There should be an intense collaboration from both parties: users and client (co-production), both endorsing the user centred design approach. The challenge should focus on benefits for both the users and the organizations involved.

3. Be conscious about who to involve and when to involve them in creative research sessions. It is, for instance, common for users to become too attached to their ideas if they join multiple sessions. To avoid this effect, we tend to invite different users for each session.

Outcomes of service design processes are a flexible mix of tangible and intangible elements. All in all, STBY introduced a broad perspective on how service design can be applied along the three stages of the process, addressing specific methods on how to prototype according to the phase of the process.

Deepening the topic

Our Exploration

To get a clear grip on service design prototypes and when or how to use them, we related the perspectives and insights from STBY to our perspectives, personal experiences and theories about service prototyping. We ÿrst discuss the jargon confusion between generative tools in product design and service design. Secondly, we will discuss the nature of prototypes; how is prototyping used for exploring and for evaluating and how are high-ÿdelity or low-ÿdelity prototypes useful for which phases in the design process? We illustrate our ÿndings with three cases in which we used prototypes during the courses Interactive Technology Design & Design Strategy Project, in respectively the DfI and SPD master programmes.

∎

Generative tools or prototypes?

So what exactly is a prototype? ° e word derives from the Greek word prototypos, 'original, primitive', which consists of protos, "ÿrst" and typos, "impression" (www.etymonline.com). ° is connects to its use in (interaction) design, where it is seen as a 'forerunner' of the ÿnished product. But in service design, it seems that it is sometimes also used to just mean 'an artefact expressing something of interest to the design process'.

In practice STBY also applies the term prototypes to actions, which Industrial Design students from TU Delft know as being 'generative tools' and 'sensitizing tools'. According to Geke, a prototype can be used as a generative tool. However, this does not mean a generative tool is always a prototype.

> *"A service blueprint for me is a prototype: it gives me a first impression about what the service will look like and what aspects are important to involve. At the same time, it is a generative tool because you are able to gain user insights by showing (parts) of the prototype."*
> **Geke van Dijk**

We conclude that as long as something gives you a ÿrst impression about what the ÿnal concept could look like, it is a prototype. In that sense a service blueprint could also be seen as a prototype. On the other hand, Geke mentions that sometimes your purpose is to keep the exploration as broad as possible, and then there is no need to introduce your service to the potential end-users yet.

To make a clear distinction between generative tools and prototypes, we begin with a little description of the two methods explaining their overlaps and di˛erences.

Generative tools

Generative tools are used in order to gain tacit knowledge and latent needs from a user group. Generative tools facilitate a conversation on the level of use and experience concerning a certain topic. Rich user insights are often hidden in the many stories and other generated content participants reveal about themselves by created artefacts. In contextmapping studies, for examples, users are invited to explore their everyday experiences in their existing situation or even past situations by e.g. diaries or probes, followed by generative sessions in which the users explore the future situation based on their underlying needs.

Figure 1 Velcro modelling toolkit: a generative toolkit to explore the users' latent needs. With this Velcro set users create their ideal products in just a few minutes. It is not about the 'thing' they made but about the story they tell about their created artefact. Their stories can reveal their latent needs (from Sanders and William, 2001).

As far as we can see, generative tools are not di˛erently used in service design compared to the way they are used within the process of product design, but there is a di˛erence in jargon about these type of tools, which is confusing.

Prototypes

In our understanding, the main goals of prototyping are to explore and/or evaluate how a user uses, understands and experiences (part of) a concept. ° e starting point is a new situation; either the product, service, interaction or use is new. With prototypes a reaction is evoked on the new proposition.

Differences between the two

° e di˛erence in jargon is about exploring the existing situation and context. At IDE we use the term generative tools for exploring context by making things, starting with the existing, moving to the future during generative sessions. Generative tools such as pictures and words sets or a velcro toolkit (see ÿgure 1) are not called prototypes. Whereas in Geke's view the created artefacts in generative sessions are 'prototypes to explore contexts.'
Generative tools can be used when nothing is designed yet, to ÿnd out what people need in the currently existing situation.
When participants create their own artefacts as their desired situation in so called make assignments in a generative session, we could assume generative tools also being prototypes. So we both use these generative tools for similar goals, but we just call these tools di˛erently. At IDE, we call them generative tools. At STBY they are called facilitating prototypes. Figure 2 illustrates the distinction and overlap between generative tools and prototypes ∎
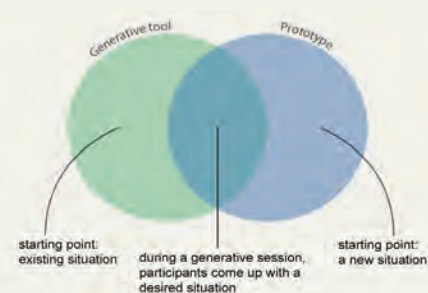

Figure 2 Different starting points in generative tools and prototypes in fuzzy front end of designing.

Exploring and evaluating along the design process

Service prototyping has been a widely addressed topic in recent research. One of the progressive researchers on service prototyping is Johan Blomkvist, whom amongst others has done research in order to expand the knowledge and understanding on service prototyping (e.g., Blomkvist, 2011).

Blomkvist makes a clear distinction between prototyping for exploring and prototyping for evaluation (see ÿgure 3). Exploring prototypes are mentioned in terms of *'to generate insights, develop your thinking about a situation and gather insights'.* Evaluating prototypes are mentioned in terms of *'testing, receiving feedback and finding fail-points.'*

Traditionally, prototyping for evaluation is used in the later stages of the product design process. However, the prototyping for exploring is an interfacial phenomenon with generative tools that are used to stimulate empathy with users and ÿnd out about latent needs within the design research phase of product design. ° erefore we believe that prototypes are used throughout the entire design process, for both product design as service design. Blomkvist has also shown in his research that service design agencies do not have a speciÿc phase dedicated to prototyping.

We can conclude that both in product design and service design exploring with protoypes takes mainly places in the ÿrst phases of the design process. Prototyping for evaluating will only later become of value and will have a high occurrence within the later stages of the process (ÿgure 4). And after market introductions, ÿrst series or beta versions already available are often improved based on consumer feedback and use over time.

° e role of a prototype within the design process depends highly on the stage of development in which it will be used. Prototypes for exploring are intended to be part of the beginning stages of the process; testing prototypes are more intended to be used at the ÿnal stages of the design process (Blomkvist, 2011). But in some cases prototypes will take both roles. Even more, their role would shift not because of which technique is being used, but because during the process these prototypes must be intended to get closer to the ÿnal concept of design.

Figure 3 Types of prototyping in the service design process (based on Blomkvist, 2011)
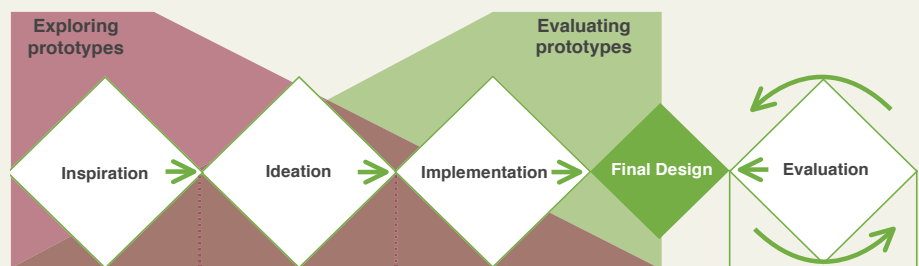

Figure 4 In the early phases of product- and service design processes prototypes are used for exploration, whereas in the later phases prototypes are more used for evaluation. After introduction into the market, first series of products and beta-versions of software are often improved.

If designers make this distinction, the role of di˛erent prototype techniques in the service design process will be easier to select and will determine in what way this can help the process.

All techniques should always be conducted in di˛erent ways depending on the project, the goal and the stage.

We therefore think most prototype techniques can be used in several stages of the process, for example roleplaying and cultural probes. We acknowledge that this can be a little confusing, thus there

> *"There is not one formula for when to use what tool in your design work."*
> 👥👥👥 **Student team**

is not one formula for when to use what tool in your future work. As an exercise we mapped several prototyping and design research techniques we use at IDE on the di˛erent phases of the design process. ° is map (see ÿgure 5) made us realise the many possibilities for choosing techniques at di˛erent stages, and that many techniques can be useful in di˛erent phases. ■

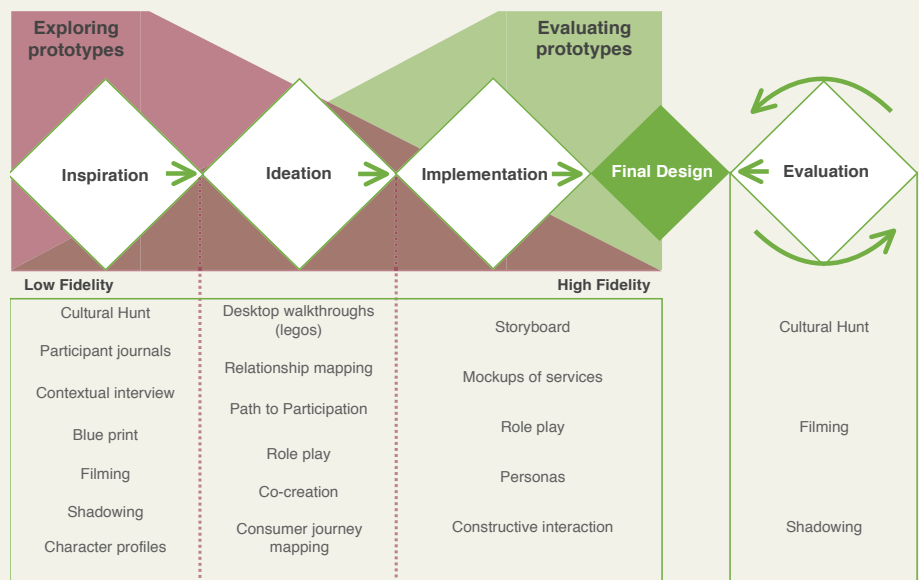| Low Fidelity		High Fidelity	
Cultural Hunt	Desktop walkthroughs (legos)	Storyboard	Cultural Hunt
Participant journals	Relationship mapping	Mockups of services	
Contextual interview	Path to Participation	Role play	Filming
Blue print	Role play	Personas	
Filming	Co-creation	Constructive interaction	Shadowing
Shadowing	Consumer journey mapping		
Character profiles			

Figure 5 A first (uncomplete) mapping of prototyping and design research techniques during the design process to see where we already use these techniques and where we don't use techniques much yet.

Service prototyping versus product prototyping

As mentioned in the introduction of this chapter, prototyping can take place in the layers of artefact, use and context (based on the work of Blomkvist). In the classical view on prototyping in design, prototyping takes mainly place in the artefact layer, where the product and its physical characteristics such as construction and material are the main focus. But most product designers, especially at IDE, focus as much on the use of products in people's lives and their experiences. So prototyping for product designers takes place on all three levels. Service prototyping is also positioned in the use and context levels and less on the artefact layer. The use and context layers have more intangible characteristics, and it is a bigger challenge to know exaclty what to explore or evaluate with a prototype.

> "The use and context layers have more intangible characteristics."
> 👥 **Student team**

But the structural differentation between prototyping for products of services is clearly the multiple elements of a service. A service consists of a network of service elements. The 'intangible' layers of those service elements have a wider boundary and might therefore overlap with the artefact, use or context layer of other service elements. Prototyping a part of the service or even the entire service might therefore include several service elements, which makes the approach of service prototyping of a more holistic character.

Challenges in service prototyping

Blomkvist also tries to answer this question and has identified five challenges for specifically service prototyping (Blomkvist, 2011).

- First, the nature of services is inconsistent. Many services, as opposed to products, are human-delivered and are therefore different every single time. Since humans are inconsistent in their actions, the value of prototyping a service becomes lower, since the next prototyping iteration gives total different results.
- Second, service prototyping lacks authenticity. Many ways of prototyping service elements involve the use of people. Through using people as service elements, the authenticity of this specific element is gone, since prototyping is never the real deal. Role-playing a network of service elements, for example, still includes acting and pretending of humans that act as service elements.
- Third, the complexity of services makes prototyping large parts of the service difficult. As mentioned before, services are multi-faceted, have multiple service elements and consider all three layers of object, use and context. Any facet or element within the service is interconnected with other elements, which forces the designer to choose in prototyping. Choosing to evaluate fewer service elements with a prototype will make prototyping easier, but will not show full coherency towards the entire service.
- Fourth, the intangibility of services makes it hard to make 'real' prototypes. As with product prototyping is mainly focused on physical prototyping, the prototyping for services, and thus intangible, unphysical things is hard.
- Fifth, many clients are new to service design and cannot properly assess the strength and value of service prototyping in the service design process. Therefore they tend to have no time and money to put into service prototyping.

■

Prototypes and fidelity

> "Designers use prototypes to simulate an existing experience."
> **Buchenau & Fulton Suri (2000)**

Buchenau & Fulton Suri (2000) state that this simulation aims as being as close as possible to what the real experience would look and feel like, in other words, as being of high fidelity. However what they also argue is that a prototype in itself doesn't need to be of high fidelity in order to create a high fidelity experience, result or answer to a question. Moreover, often low fidelity prototypes are created on purpose to avoid the focus on the product design aspects such as materials, form or fonts for example and focus on the interaction and

> "The medium you prototype in doesn't matter...it's the quality of the ideas behind it that count."
> **Burrough (2011)**

use of the prototypes. Take for example the OR prototyped space in Chapter 1. They used wooden blocks (low-fidelity) and real tubes and connections (high fidelity) to let the users, the doctors and nurses, act out how they use these devices. They would hold the tubes towards the patient and are therefore realistic as possible, They didnt want discussion about the machine, so that was represented by a wooden block. Low fidelity prototypes are also more quick and cheap to make and are daily created by many designers.

> "The role of a prototype is to answer the design question posed."
> 👥 **Student team**

The important role of the prototype is to answer the design question posed. In this matter, another point of view is that every prototype can be of both low-fidelity and high-fidelity. So a prototype may be partly crude and rudimentary when it comes to

> "If you use an analogy from the product world, a prototype can just be a foam block to gauge the size of a product with no buttons on it or anything else....An early prototype for a service may be a group of people roleplaying a new service without any technological infrastructure. Or it might be something in the middle, where you're designing touch points for how a new service might look....You may not have a real protocol but you can set up a simulated environment in a pilot situation."
> **Mark Jones (2007)**

interactivity, and partly refined to direct certain kinds of feedback to the different parts of the design (Wong, 1992). Nevertheless, it is generally accepted that fidelity increases over time in the design process. Hence it seems necessary to make a clear comparison between low fidelity and high fidelity prototypes regarding when either one is more appropriate than the other.

Just as the quotes of Jones interviewed by Hinman (2007) suggest that in service design we can learn a lot from product design where iterative prototyping with low-ÿdelity prototypes early in the process is everyday business. ° e exercise of crafting high-ÿdelity prototypes also has its advantages (Cagan, 2008). To conclude low-ÿdelity prototypes serve well early in the process, since they are cheap and quick

to make. Later in the process a good balance between low-ÿdelity and high-ÿdelity prototyped elements will help the design team to focus on the right questions, either for explorative or for evaluative purposes. ∎

An example of product prototyping at IDE

Figure 6 When playing the guitar flowing balls in the air visualise the music (Interactive Technology Design course, Jaap Gerritsen, 2011).

worked on a small scale; not large enough to have a visual impact for the guitar player. ° is made us decide to look for a more simple approach to materialise our idea. Our ÿnal attempt to realise a visualisation of the music was a setup of balls ″oating in the air by blowing fans (see ÿgure 6). By using Arduino programming and electronics (part of the course) we have build a working prototype (ÿgure 7). ° e technology proved to work, but now the experience had to be further explored to improve our product. We invited several guitar players to use the prototype (see ÿgure 6 and 8) and share their experiences with us. By conducting this test with a working prototype we found out that the trick was to choose inspiring patterns and to link the visualization to the music with the fewest lag possible. (For more info a video of the worksing prototype can be found on youtube: http://vimeo.com/32037930.) ∎

How to motivate guitar players to practice their skills? ° at was the design challenge for the course Interactive Technology Design in which me, Jaap, and my team participated in fall 2011. Our idea was to inspire guitar players by physically visualizing their music. We ÿrst explored the technology domain to ÿnd a suitable visualization. Magnetic ink was the ÿrst attempt. After making a quick and rough prototype we found out that the ink only
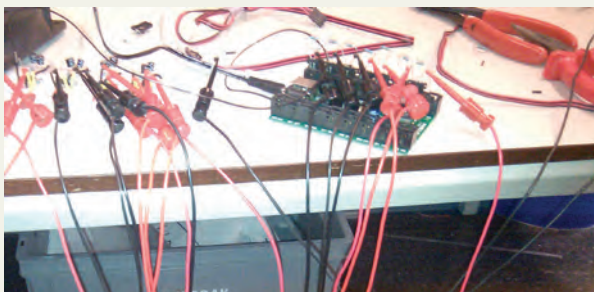

Figure 7 Building the prototype with Arduino programming and electronics (Jaap Gerritsen, 2011).

Figure 8 Testing the prototype with guitar players (Jaap Gerritsen, 2011).

Two examples of prototyping services at IDE

Two members in our student team used prototyping in the design of services for the Schiphol International Airport, Amsterdam in the course Design Strategy Project (2011).

In-flight Services

Within the course Design Strategy Project, me (Sergio) and my team faced the challenge to provide services to passengers before landing to their airport, during international ″ights. To do this we had to consider not only Schiphol's interest, but also take into account the needs and beneÿts for the biggest airlines in the Netherlands, KLM. During the design process, we used di˛erent prototyping tools in di˛erent phases of the process.

Figure 9   By roleplaying we explored ideas for new services for passengers in the aircraft just before landing at Schiphol airport (Design Strategy Project, Sergio Luis Gommez Serrano, 2011)

In the ÿrst phase we didn't use prototypes. We created personas based on some informal interviews to inspire the team from Schiphol and KLM with speciÿc proÿles of their end users. In the ideation phase, we combined several prototypes in order to evaluate the service we were developing. We used role-playing (a low ÿdelity way of

"The ultimate goal with these prototypes was to explore, inspire and develop the most memorable experience, making passengers feel that they are being taken care by Schiphol even before their arrival to the airport."
⛾⛾⛾⛾⛾⛾ **Student team**

prototyping) to inspire ourselves to create a high ÿdelity testing consumer journey map prototype which goal was to determine the transition of the service provided by KLM to the Schiphol Airport when landing (see ÿgure 9).

In hindsight, I could say that using prototypes in this project taught me:

1. One hard thing about using prototypes is that people are not always familiarized with the design process and the tools, such as prototypes, we use. ˛ ese people tend to see them as useless, and resist on using them, getting in the way of inspiration (role playing can be one example of that).
2. Exploring by means of prototypes helps to detach and evaluate ideas quick ly and be surprised.

3. ˛ ere is not such a thing as a 'bad prototype'. You can always learn from any test/tool/you name it by interacting with potential users or just by acting it out and making things visually.

Sustainability perception guidline

˛ e brief in this project was to design a strategy to make Amsterdam Schiphol Airport be perceived as more sustainable by their passengers than is the case now.

˛ e challenge for me, Maria, and my team, was how to deal with this extremely complex subject in order to make it manageable for all stakeholders involved: we

"In order to fulfill the full potential of prototyping within the design process for both products and services, it is important that a prototype is not necessarily a tangible 'object."
⛾⛾⛾⛾⛾⛾ **Student team**

as a student design team, Schiphol managers, as well as society. Our challenge was not making one single isolated solution, but to create a new way of thinking that could be long lasting. So instead of proposing many posible solutions, we created a game concept for Schiphol's decision makers to have a strategic guideline to base their implementation decisions upon and how to implement them. So we decided to create a tool that had a format of a game (see ÿgure 10).

Prototyping was essential throughout the ideation phase in order to develop the 'gaming', that is, how to design the rules and functions to enable users to reach the desired outcome. ˛ e prototypes were therefore mainly testing prototypes. ˛ is was made through a low ÿdelity prototype in terms of the physical design– we basically just used pieces of papers - but high ÿdelity in terms of rules and functions. – we actually played the game several times to reÿne the rules.

Towards the implementation phase, the prototype focused more on how to design the physical objects of the game in order to promote a good and appealing interface for the users (product prototyping). ˛ e ÿnal result is a high ÿdelity prototype of the game. Finally, in order to present this result we prototyped a complete game cycle and used role-playing to demonstrate it. ∎

Figure 10   A game concept for Schiphol's decision makers. Earlier versions of the game were created from paper sheets, and by playing with these simple versions we were able to adjust the rules and functions of the game. The final prototype is a 3D model, and can be seen as a final product (but not mass produced) to convince the client by demonstrating the concept. (design Strategy Project, Maria Isabel Reis Oschery, 2011)

Conclusions

° is chapter has shown us the potential of prototyping. As students of IDE, we need to realize and fulÿll the great potentials of prototyping in order to not only use prototyping successfully within service design, but to also claim its capabilities amongst the entire ÿeld of design.

Prototyping is more than an evaluation tool and can be used as a continuous reality check during the di˛erent phases of design. Iterative prototyping supports designers in formulating the right questions, staying in touch with the end users, and in reality checks boosting the potentials of the concept. Moreover it is often a great demonstration tool to convince other stakeholders early in the process.

In order to fulÿll the full potential of prototyping within the design process for both products and services, we need to emphasize that a prototype is not necessarily a tangible 'object'. Within service design, this is well understood. A prototype can be either tangible or intangible; many forms of intangible prototyping exist to implement throughout the entire process of service design.

° e complexity of services makes it important to realize the interconnectedness between the form and goal of a prototype. ° erefore it is important to recognize the functions and limitations of certain types of prototyping in order to justify and use the right form of prototyping for the right service elements.

"It is important to recognize the functions and limitations of certain types of prototyping in order to justify and use the right form of prototyping. "
Student team

Another important insight is that people outside our faculty could think we are a technical oriented designers and would only protoype for evaluation of the artefacts. Originally this was the case, but we are people centred designers and should emphasize more that we posses the skills and tools to prototype for evaluation.

Implications for our curriculum

Just some of our team members have had their Bachelor education at IDE. ° e other team members have other Bachelor backgrounds. We realized that this can make quite a di˛erence regarding prototyping skills. In the Bachelor IDE, students have to apply prototyping skills in almost all design courses. ° ey learn machining tool instructions to be able to create a prototype of the physical product. Moreover, they learn electronic prototyping techniques, basics of Adobe Flash animations and Arduino programming and linking these to electronics in the course Interaction& Electronics.

"By recognizing and expanding the use of prototyping towards earlier phases of the design process it will show more functions such as exploration and possibilities for co-creation."
Student team

So in the Bachelor programme at IDE, students are taught techniques to create prototypes, physical and digital, and trained to prototype in the design process. But what they don't learn so much is the theory behind it. ° is rises questions among students about the types of prototypes available, how to e˛ectively build them and when to do this in the design process.

In our opinion, Bachelor students know about the importance of verifying their designs on usability, technology and experience. But right now, they miss the knowledge to be able to make good decisions about whether, when and how to prototype in design projects.

We advise the faculty to not only hand students practical information about prototyping but also address more general theory about the subject in an early stage of the education programme. We think that more theory about prototyping could be embedded in the Bachelor programme.

Furthermore, we shortly evaluate two courses in the Master programme of Design for Interaction; Interactive Technology Design and Exploring Interactions. In the course Interactive Technology Design programming skills (Max5) linked to electronics are taught. Within this course, intangible prototypes and tangible prototypes are created. Students are challenged to prototype quickly and adjust the prototype according to the feedback from users. ° e course is meant to stimulate student to act quickly, which is, in our opinion, a good starting point for learning how to prototype. Within the course Exploring Interactions, students are stimulated to apply their prototyping skills in the earlier phases of the design process. ° is, in contrast to Bachelor courses in which prototyping is more often seen as a tool that is used at the end of the design process to test the designed product, allows more opportunities to explore the possible interactions and experiences a concept can evoke. We think that it might be useful to make a more clear distinction between courses that learn a prototype skill, and courses in which you apply your skills in the master Design for Interaction. ∎

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Chapter

SOCIAL MEDIA

so CiAL MeDiA

Although social media are not necessarily connected with service design, it is interesting to learn about the latest developments of this technology and see how it can be used in designing. Social media can be used to involve users during different phases of the design process and in delivering services. Possible advantages are: (1) allowing people to connect with other people, (2) allowing companies to connect with their users, (3) removing geographical barriers to connect with people and (4) because social media can be a service in itself, supporting the main product or service it belongs to. Different forms of social media each have their particular benefits, with regards to privacy (either complete anonymity or full identification), involvement (lurkers or contributors), platform (whether it is private or public), and topic exploration (broad or specific). Although at first glance, a company's Facebook page might not seem that exciting, Lex Dekkers (from the Internet and Mobile department at ABN AMRO) elaborated on the why and how of the ABN AMRO's Facebook page and made us realise that there is a thoughtful process behind the inclusion of social media at ABN AMRO. The student team dug deeper into the topic through a literature review and an interview with Brian Tidball, a PhD candidate on crowdsourcing at Delft University of Technology. Their main finding is that social media can certainly add value when designing for services and products, but that it is important, before applying such tools, to consider the purpose of connecting with users.

Many companies use social media nowadays because they feel they cannot ignore it; they do not come up with a clear and well-considered strategy. I am interested to find out more about the possibilities and limitations of the application of social media as well as what approaches to involve and engage users through these media work best in the design of product and/or services.
Tim Overkamp

Service design is a multi-disciplinary study that enables me to work with people with different expertise and backgrounds. By working together, problems can be evaluated from different angles and coherent solutions can be generated.
Muryani Kasdani

Products can easily become artefacts, manifesting itself as designed objects, whereas services are typically represented through an orchestration of touchpoints. These touchpoints should form a consistent experience, together tapping into unmet needs of its user. Empathy for the user is therefore even more important when designing for services.
Mahir Alkaya

A lot of the recent successful products on the market are no longer 'products' only, but rather product service combinations. I want to get a better understanding of what is involved in the service element of the design in order to create better all-encompassing products.
Eden Symhony

Today people are not buying products solely for its functions, but rather the whole experience it offers. This involves the design of the intangible: the service. I am curious to see what this means in practice.
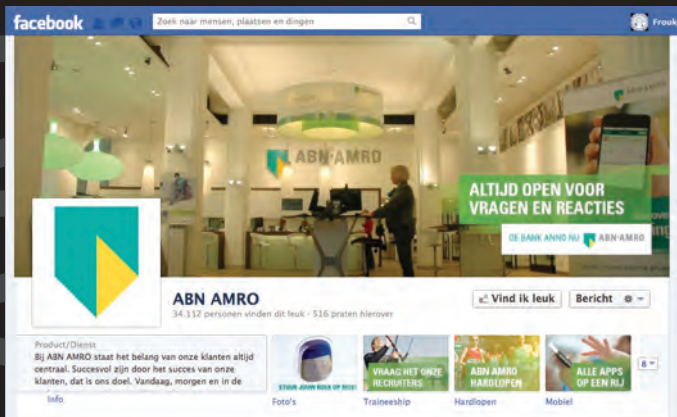**Jonathan Leung**

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TeAM

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Bio Lex Dekkers

Lex is a former IDE student and graduated in 2006 with the project 'Using the user: Improving product development by user involvement.' He developed a tool to involve (end) users during early stages of design projects. After graduating, he began working at Favela Fabric as a co-creation designer. He was involved in creating and facilitating user insight sessions (on- and offline), and translating insights from such sessions into concepts. He became increasingly knowledgable about moderating online communities.

In 2010 he began a new job at ABN AMRO. First as an interaction designer , but since 2011 as a 'business developer internet'. He combines internet technology and customer needs into inspiring projects. Together with customers he created the Facebook page and managed the development and proactive conversations, while the reactive conversations are handled by the webcare department. At this department some 70 employees analyse and moderate social media such as LinkedIn, Twitter or Facebook 24/7 since 2010.

The skills of IDE help me in my daily work to quickly create a project overview, do a thorough analysis and to incorporate user insights. Studying at IDE made me open to new ideas and helped me to easily create connections with end users. I've learned to create products for people. I guess this has become a second nature, since most of my projects are related to gaining user insights and using these within the company. Co-creation, interaction design, usability testing and social media: the user plays an important role in all of them :)
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Volkswagen's start

1000+ reactions

And deafening silence from VW

Volkswagen UK
We hope you had a fantastic New Year. Do you have any resolutions and what would you like to see us do more of this year?

Sue Lindley Stop threatening our planet by lobbying against climate laws. You should be ashamed of yourselves.

Miles JS Gulliford i would like you to listen to mother earth not your bank balances

Neil Jones "La la la la la la la la" – Volkswagen runs around the playground with fingers in ears pretending they can't hear us. No Volkswagen, ignore us and we won't go away.

VW – r u still there??

ABN AMRO Facebook page

As a result of the crisis in the entire financial sector in 2008/2009, this sector is rapidly looking for new ways to innovate. For many banks, a user centred approach became more important. ABN AMRO bank noticed this trend and created a Twitter account to control the damage from angry tweets about among other things themselves. Today, 70 employees are devoted to managing multiple social media channels such as Twitter, Facebook and Google+.

They joined Facebook in early 2010 to "be where our customers are", mainly using it as a service/communication channel. The specific content of the page was co-created with potential users before launch. The users were invited via Twitter; a brainstorm was organised as a starting point and a closed Facebook group was created for the first version. The participants were also given homework which they could hand in on Facebook.

> *We joined Twitter not for fun, but because there were many tweets about ABN AMRO, many of them negative... We had to do something: it was too much and we couldn't ignore it anymore.*
> **Lex Dekkers**

Wrong use

Lex Dekker's lecture started with an example of how social media should NOT be used, and how it can backfire when used incorrectly; Volkswagen asked its fans for advice on Facebook, but failed to plan the follow-up. Follow the QR-code for a video of the "Volkswagen social media fail". The power of social media is the honesty, authenticity and rawness of the input from the users. Social media can be used to bridge the gap between users and companies. In social media, users can speak freely and voice their complaints, opinions, and satisfaction or dissatisfaction, and companies have less and less power to control that information.

Lex emphasizes the pitfalls many companies have faced already when they use social media without understanding its mechanisms. Social media do not always have the desired effect. You have to be prepared for situations where you do not get the response you were hoping for. Furthermore, you have to have the capacity to fulfil the promises you make as a company, also those made on social media.
One thing you should not do, however, is ignore the public's responses. In this case Volkswagen was unprepared, which resulted in a lot of negative publicity and many sceptical users.

A timeline of ABN AMRO's social media

Within ABN AMRO, different social media channels are all used in specific ways. This division is most clear for Twitter, Facebook and LinkedIn. ABN AMRO began using Twitter as a means for damage control. The bank used this channel to quickly respond to customer's questions, comments or complaints. When setting up the Facebook page, ABN AMRO sent out invitations for a co-creation session via Twitter. In a series of generative sessions, the vision for the Facebook page was subsequently developed. These days, ABN AMRO uses its Facebook page mainly to promote the personal side of the bank, including its involvement in running competitions and the

available smartphone applications.Finally, the bank uses its LinkedIn account to promote its professional side. On this page, the bank offers information about ABN AMRO as a company and the job offerings for potential future employees. The development of the Facebook page is an example of how ABN AMRO uses user input to a large extent. It also shows how the bank lets user have a large and conscious say in the development of products.
In addition, ABN AMRO applies user input to improve its products in a more subtle way, for instance, by A-B testing different versions of its website.

> *You have to be careful if you decide to be very open to people. You cannot ask for something that will lead to too many possibilities, because then you will be unable to satisfy everyone and you simply lack the tools to actualize those ideas. As a company you ought to be in control.*
> **Lex Dekkers**

Now rating, next co-creating?

Within the Dutch banking industry, ABN AMRO is leading in terms of the application of social media. However, this was the status quo in spring 2012. Sometimes, other banks even copy posts from ABN AMRO to their Facebook page to fill in content. As a result of such an active platform, users have begun thinking together with the company instead of simply complaining. Some users propose unprompted suggestions to improve the current services of ABN AMRO. The company's current organizational culture, however, doesn't allow much to be done with these new insights. Therefore, at this moment, the company has consciously chosen not to set up co-creation activities yet and does not explicitly ask for suggestions on social media channels yet, because it cannot guarantee consideration and implementation of such inputs. The ambition is, however, present to change this and to truly co-create new services and banking products online together with the user in the future.

Traditional Research   Feedback   Vision

ABN AMRO banking app

One good example of how ABN AMRO includes user feedback in its processes is the development of their banking app. Market research and user involvement were used to guide the design process. Together with IceMobile, the company that built the banking app, ABN AMRO decided that the app should move away from the current ways of making bank transfers using the internet. Instead, banking should become more personal and transferring money should be as simple as sending an email. This vision was implemented in various ways. First of all, users can add an image to their account, which is displayed on the balance of people to whom they transfer money.

Besides, people can transfer money into another account directly by selecting the specific account from their balance. Finally, if you have multiple accounts, the account that is currently selected will be used by default as the account from which you transfer your money. The app was developed using the Scrum development method. In this design process, various elements of the app were developed in parallel. This allowed ABN AMRO to test the various parts of the app before the app was launched. After the release of the app, the bank further improved the product using the comments that users left in the reactions to the app.

> *The main challenge now is to shift the organization, teach it to be social so that it is incorporated in everything: its campaigns, its marketing, and I would say also its product development.*
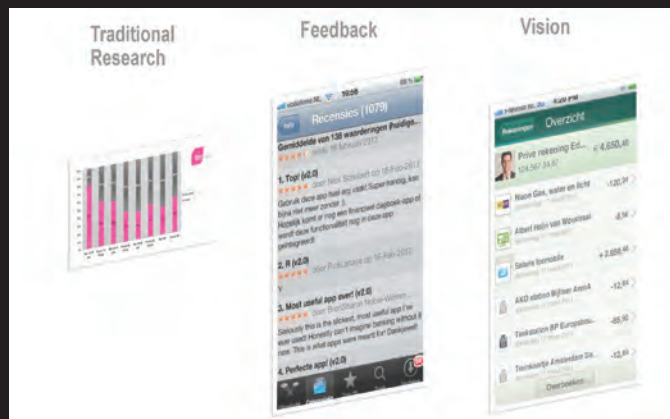> **Lex Dekkers**

> *It was our mission to make banking more personal, but if you ask that of people their response is 'whatever, I don't buy it'. But then when they experience it, they become enthusiastic.*
> **Lex Dekkers**

> *We do a lot of good things, but we never say it or shout it or you couldn't find it. This [social media] is a very powerful tool to share that.*
> **Lex Dekkers**

Q&A after Lex' lecture at iDe

Q How do you balance user input and your own vision on the product?

A *The comments of the users should be used as inspiration, not as a restriction.*

Q How does the marketing department feel about the fact that webcare takes over (a part of) their work?

A *That is a challenge and it sometimes even leads to fights, as the marketing department has their own beliefs and ideas about how work should be done. We have to agree on the content that we post to these multiple channels.*

The answers we write on Facebook, for instance, should be in line with the things we post on Twitter. It is important to prevent the messages from contradicting each other because customers see ABN AMRO as one brand.

Q Do you also use the tweets and Facebook messages to perform meta-analyses?

A *At this moment we don't, but it is something we are working on. Now we send daily reports about social media actions (highlights of the day) to other people in the company.*

Q What things that you learned during your education as a student at IDE do you use in your current job?

A *Mostly being open and transparent to new things and listening to people. IDE education helps to create the empathy with the customers.*

45

Deepening the topic

Our Exploration

˛e lecture of Lex Dekkers was used as a starting point for deepening the topic. ˛ree research questions were formulated (ÿgure 1). ˛e main focus was the use of social media for innovation, and particularly that of services.

- To what purposes can social media be used in companies?
- What are the implications for the participants when using it for (service) innovation?
- Which tools and methods can be used in social media for (service) innovation?

We will discuss this in three themes, relating to the why, what and how of using social media in service innovation:
1. Why: ˛e purposes of social media
2. What: ˛e way social media can be used for service innovation and customer bonding;
3. How: ˛e interaction with (potential) users of the service through social media.
Lastly we will re˝ect on the way design ed-

ucation at the faculty of Industrial Design Engineering taps into these themes. In other words: how the use of social media and the tools for service innovation that are taught at IDE can complement each other.

Purpose Social media are available in many di˙erent shapes and sizes. Each form has its own characteristics and related beneÿts & disadvantages. ˛is makes them a versatile means to apply in service design. ˛is section of the chapter will discuss in what di˙erent ways various departments of a company can apply and beneÿt from the use of social media in service innovation.

Tools In the tools part, we will discuss the relation between the more classic research tools and the tools that can be used in social media and whether new tools need to be developed especially for application in a digital environment.

Participants ˛is section focusses on issues related to interaction with potential users in the development of a product or a service. How to connect with these people,
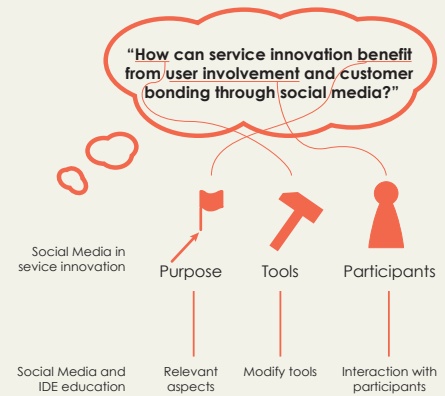
Figure 1 Our main research questions about social media.

keep them engaged in the discussion about their experiences and values in order to be able to empathize with them as a designer.

Connection to IDE education To conclude this chapter, we will relate the ÿndings of the three themes to the way we, as industrial designers, are trained at the faculty of Industrial Design Engineering. We will address what aspects of social media are relevant for us as, how we can modify the tools we use o˙ine to beneÿt most from their application in an online environment and ÿnally whether and how the interaction with potential users is different in an online as opposed to an o˙ine context.   ∎

Purposes of social media

In most companies the marketing department has initiated the use of social media. ˛is was mostly done for typical marketing purposes as generating leads like monitoring conversations about the company for damage control (brand identity). Now research shows that di˙erent departments use social media for di˙erent purposes, as can be seen in the Table 1. To keep uniformity and maintain eˆciency however separate social media departments have

started to pop up in companies. ˛eir main task is to ÿlter and send out di˙erent inputs to di˙erent departments. ˛ere are also examples of social media departments setting up and enforcing guidelines throughout the company with regards to social media to maintain uniformity throughout di˙erent departments, like Coca Cola (ÿgure 2).

> *"Where some see designing a product as an "egocentric" approach of a designer, designing for services by its nature requires a more social approach. Social media could be one of the ways for doing this."*
>
> 👥👥👥👥👥 **Student team**

˛e role of an industrial designer within this aspect is also up for debate since industrial designers work on di˙erent departments fulÿlling di˙erent roles. Since the value of a product is shifting from the moment of purchase to the value-in-use, social media can provide more interactions

Department	Purpose
Marketing	Generating leads, Brand awareness, Monitoring conversations
Customer Relationship Management	Customer loyalty
Supply Chain Management	Finding vendors/suppliers
Research & Development	Keeping up with industry, Product testing
Social Media department	Various, mainly filtering and ensuring consistency

Sources: (Brynley-Jones, 2012), (Lynskey, 2011), (Porterfield, 2010).

Table 1 Different scopes on- and purposes of social media.

Figure 2 Coca Cola's corporate social media guideline (Coca Cola, 2009)

with users. It should deÿnitely be a part of the orchestration of touchpoints of a brand and could also therefore be used in innovation as well as customer engagement.

When multiple departments start working together with multiple stakeholders and customers through social media, this could lead to the co-creation of new concepts. ˛e type of co-creation that suits social media best is crowdsourcing. In crowdsourcing the audience (anyone can join most of the time) is asked a question, where after the answers are rated and ÿltered to come up with the best solution. Mass social media such as twitter and facebook can o˙er the opportunity to reach a huge amount of people

with your question. However it is harder to get them to actively participate. ˛ is could better be done through dedicated crowdsourcing channels like Openideo, Innocentive but also brand-dedicated channels like e.g., www.social.ford.com. Social media exist in di˝erent shapes and sizes. In ÿgure 3 an overview of these various types is given. As these types of social media serve di˝erent needs and aim to reach di˝erent goals, they are not evenly suitable for gathering user input. For instance, the main purpose of social networking sites such as Linkedin and facebook is not innovation or product

development. ˛ erefore, it is harder to get people to actively participate in these processes through social networking sites. In this scheme, the type of platforms that is suited best for user involvement are the collaborative projects that are in the bottom left cell of the table.

In ÿgure 4, the bottom left cell from ÿgure 3 is displayed in more detail. ˛ is ÿgure shows the various options to gather input for the design process. ˛ ese options are ranked on two characteristics. On the vertical axis, the openness of the process is mapped. ˛ e options

in the bottom of the ÿgure are relatively closed and allow only a certain selection of people to participate. ˛ e top half allows everyone to join the conversation. On the horizontal axis, the ownership is mapped. When using the left options, the input from the contributors will be owned by the initiator of the session. In the options in the right half of the ÿgure, the results are also owned by the contributors. From this o˝ering of ways to involve people in the development of new products or services, for each project an approach can be picked that ÿts the context best.
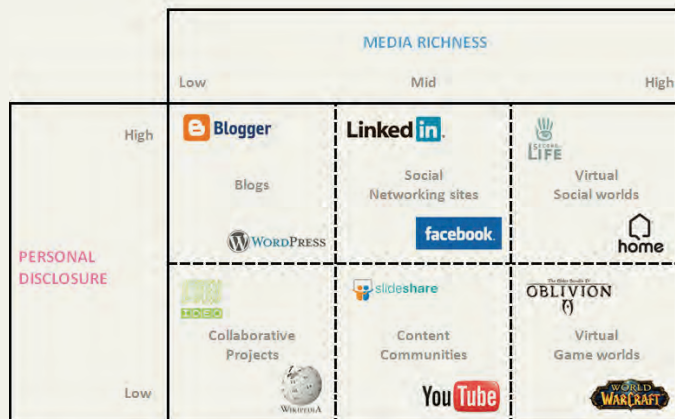

Figure 3 Different types of social media (source Kaplan & Haenlein, 2010).

Figure 4 Different types of co-creation; socia media could be one way to open up the innovation process of your company (figure from Fronteer Strategy, 2009).

Social media tools

Social media platforms come in a large variety. For a company, it is important to know what to look for. Di˝erent media are suitable for di˝erent goals. It is the task of the designer to select methods that are most appropriate according to Brian Tidball. We included a selection of the interview with Brian, PhD candidate at IDE, TU Delft, on the topic of crowdsourcing.

"Preparation is essential when choosing the platform and the procedure one is going to implement in the platform."
Brian Tidball

˛ e level of engagement required by the customer should be determined in order to succeed. Active participation can only be done if the platform is well designed for it.

Demographics One might look at demographics, trends, behavior of people. In this case, mass social media is su˙ cient to gather valuable data.

Detailed information When looking for more speciÿc information, for instance when the target group is already speciÿed, forums can be helpful. ˛ is allows more elaborate discussions about detailed topics.

Platform Designers might want to receive feedback on a drawing. Feedback can be given in many ways: in text, pictures, video or direct contact. Understanding the possibilities of the media helps in choosing the right platform for feedback.

Social media and traditional research methods

Our deÿnition of social media is the tools that use the internet to facilitate conversations. ˛ ere are many discussions what

"Our definition of social media is the tools that use the internet to facilitate conversations."
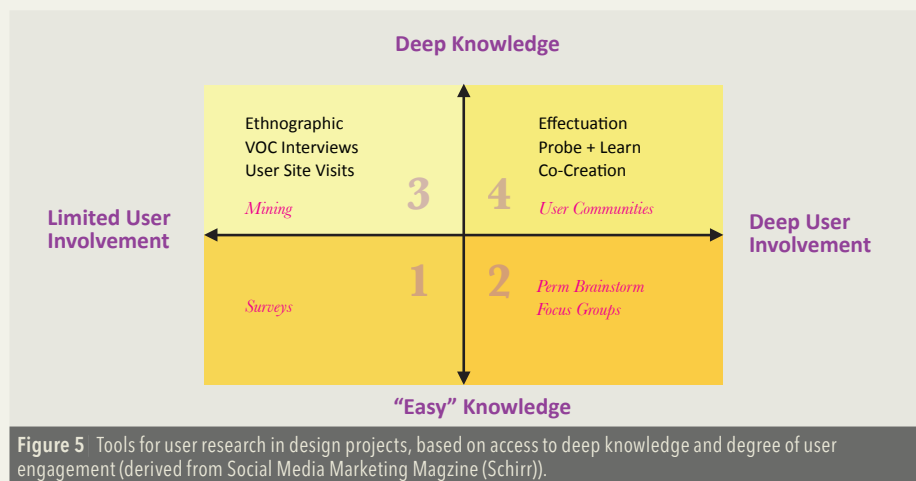**Student team**

Figure 5 Tools for user research in design projects, based on access to deep knowledge and degree of user engagement (derived from Social Media Marketing Magzine (Schirr)).

can be called a social media tool. Online surveys, focus groups or sampling techniques are just traditional methods done online (The LoveStats Blog, 2011), and therefore do not ÿt in 'social media' according to our deÿnition.

> *"Social media such as Facebook were set up to communicate with friends, not to help a company. It is hard to run your own social media platform that will provide anything."*
> **Brian Tidball**

In other departments and especially marketing, social media is already used for gathering quantitative data such as data mining. These quantitative methods usually require hardly any engagement with customers. Figure 5 shows a scheme of diÿerent levels of engagement of users.

Crowd sourcing Where crowd sourcing and social media connects, is that when you have a social media big enough attached to your brand, you can interject crowd sourcing into it. One major diÿerence is that in crowd sourcing, there is a request for something: a task is being asked. In design innovation qualitative methods play a big role, especially in the early phases of design. Qualitative methods require more active involvement and have these characteristics:

• Personal approach
• In-depth discussions
• Empathy
• Generative materials
• Group dynamics

These characteristics can be met using qualitative research methods that are currently available. In addition, the wide variety in qualitative research methods allows a researcher to tailor the set up to the given situation. However, social media by default do not have the intention to meet the before-mentioned requirements. Therefore, using an existing social media platform can present diÿculties for gathering user input.

How to use social media tools

Both traditional and social media methods have their own advantages and

> *"User research is always a combination of tools."*
> **Brian Tidball**

disadvantages and rather than replacing each other, they should complement instead. Methods must be carefully selected dependent on what feedback is desired. In general, one can get anything from social media. It is a matter of how you set it up and whether or not your company is appropriate for such an approach.

Online data can provide valuable insights, but requires skills to ÿlter and analyse into useful insights. For instance, the Apple community is very large. There are countless blogs, forums or websites dedicated to Apple. People predict tremendous amount of possibilities when a new product is released. However Apple is very silent with the use of these media. Usually when they release a product, it is the opposite. They do it their own way.

The question remains if a team would use the information as input. It is usually is decided by the board. If the management of a company does not embrace the use of social media, it might be hard for a design team to integrate social media into their activities.

We are especially interested in qualitative methods that are used in the early phases of design online. This includes the user friendliness of the platform and how diÿerent communication channels within the platform could lead to valuable insights. But it is hard to run your own social media platform.

Using a platform that is designed for research and already in place, allows researchers to beneÿt from the community that is already in place.

The other option is to set up and run a tailor made social media platform for a speciÿc user research or to gather user input. However, this option is more diÿcult for a number of reasons according to Brian.

First of all, as the platform is new, you have to attract the attention of your target audience. They need to notice the existence of your platform and visit it. When they visit the platform online, ideally they should be allowed to roam the site and view a bit more about the platform before they have to sign up to join. If all the content is shielded from the outside world, this sets a high threshold for new visitors. After a ÿrst visit, people need to make repeat visits in order to - in the end - build a large and stable community. During their ÿrst visit they should be provided with an incentive to return. This could be a reward for joining the community and providing

input. Such a reward structure should be thought through well. When oÿering too little, people will not participate, but rewarding all participants regardless of their input might also lead to undesirable situations.

And in all these steps there are more ways to do wrong than to do right. Even if you do right, it takes a long time to build a community, but mere seconds to scare participants oÿ.

In conclusion, even though existing communities or platforms might not perfectly ÿt with the needs for a speciÿc research, it often oÿers a quick option that requires less work to set up.

> *"In selecting a platform or platforms, one has to understand what his or her goal is and what the project is about. There is no fixed method. It changes all the time."*
> **Brian Tidball**

Finally, the eÿectiveness of using social media depends very much on to what extent you as a company can reach your customers. Since the usage group of social media is not always your target group, the data might not be representative.

Different design phases & social media

Social media can be used on diÿerent parts of the design process, in diÿerent ways. This relates to the six diÿerent types of social media, as displayed in ÿgure 3.

During the analysis phase of the project, blogs and tweets can be used as inspiration for the design.

In addition, more dedicated platforms can be used to ask people to share their insights or maintain a digital diary. In other words, mainly the top left corner of ÿgure 7: blogs.

During the idea generation, both passive and active involvement can be applied. On the one hand present ideas can be rated or evaluated. On the other hand people can be invited to share their own ideas. This application of social media is mostly related to the bottom left corner of ÿgure 3: the collaborative projects.

When the ÿrst concepts are developed and need to be tested, the middle column of the ÿgure can be used mostly. For instance, the concept can be tested in the real world with a note that it is a new product that is tested and allow users to comment on the current design. For instance by providing a QR code that can be scanned and which

links to a social networking site of the company.

Another option could be to present a video of the interaction with or use of a product or service and allow viewers to comment on it.

Finally, when a trial version of the product or service is ÿnished and introduced, users can be invited to comment on the ÿrst version of the design. ¸ese comments can be used to improve the design in a second version of the product of service.

In all the cases described above, it would be best to have one central location for all the things related to the project. ¸is allows people who are interested to participate and/or contribute to ÿnd the information about the project and return if they are looking for updates.

In order to position the use of social media to gather input from potential users within the ÿeld of tools for this purpose, we have developed the graph that is shown in ÿgure 6. In this graph, the tools are mapped on the horizontal axis from the most passive form of involvement (a questionnaire) to the most active form of involvement (a generative session).

¸e pink line in the graph shows how the size of the audience that is reached through a speciÿc research method declines as the involvement becomes more active. It is possible to let a large number of potential users ÿll out a questionnaire, but in terms of time and money, it is not feasible to let the same number of people participate in a generative session.

However, the upside of a generative session is the fact that the insights can be more rich and deep in comparison to a survey using a questionnaire. ¸is correlation is shown in grey line, which ascends from left to right.

According to us, applying social media as a tool to gather input from potential users can be positioned in the centre of this graph. On the one hand, social media allow to reach a large and international audience as they are web-based. On the other hand, social media do not allow to reach the same richness as generative session, mostly due to the asynchronous interaction style. ¸e session leader can not always elaborate on a statement and participants can not react on each other directly.

Support needed for social media

When considering using social media to gather user input, several of aspects need to be taken into account to be successful and achieve the desired results. Based on our literature research and expert interviews we have developed a number of points of interested. To achieve the most out of using social media as part of the design process, the undertaker needs to take a few things into account. It is not about the research or involvement itself, but much dedication and e˜ort is in the set up and aftermath work. Initially the goals for this contact need to be deÿned. Is the core reason to enter the social media for brand presence, research, insight or dialogue with consumers? Once these goals are deÿned, the most suitable platform can be selected. Each platform has speciÿc setup requirements, whether it is a customizable Facebook page or an interactive homepage. ¸ese require infrastructure, support, and actability in the back end. ¸ese things need to be thought out during the preparation phase.

Once being ready for 'contact' with the contributors there are also a few things that are recommended. As the time span of doing things on the internet can be very short, active monitoring is essential. ¸is will ensure full control of the situation: ¸ink of the example of the Volkswagen mentioned earlier. In this situation the main problem was that the company posted one statement but did not respond to anything else. ¸is gained momentum and the public was disheartened. Furthermore it is important to keep an open dialogue with the participants and respond quickly. On the internet people expect things a lot quicker.

Once the initial contact was made with the company's tasks do not end there. It is paramount that the company continues to update the community on what it is doing with the information they gathered. Showing little updates and keeping the dialogue open. If suggestions were made, perhaps we can show how they are being implemented, keeping this continuous feedback loops open so that the contributors do not get disheartened.
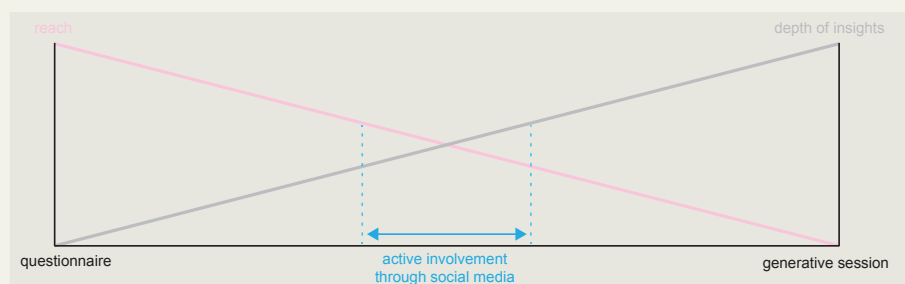
Figure 6 Position of social media as a design tool between passive and active ways of involvement.

Participants of social media

¸e broadcasting possibilities of the more commonly used mass social media platforms, such as Twitter, Facebook and LinkedIn o˜er companies the potential opportunity to reach a large audience at relatively low costs.

At this moment, companies use social media mainly as a one-way promotional channel to advertise their products or services to the customers and do not make use of other things that can be achieved through social media such as asking feedback about products or involving (potential) users in the innovation process of the company. ¸is involvement of users can take place in various ways, ranging from passive to active.

Participant recruitement

Representativeness In order to be able to use the input of users in innovation successfully, it is important that you involve members of the target audience for the product or service. When using social media for this purpose, two main issues arise.

First of all, people who are active on social media platforms are not always a representative cross section of society (see ÿgure 7). As a result, the user group that is being interviewed may only be a small percentage of the original target group. ¸e results might therefore not be completely valid for the entire target audience.

Secondly, if members of your target audience are active on social media, it can be hard to ÿnd them. Nowadays, target audiences are not necessarily deÿned based on hard characteristics such as age, gender, income, place of residence, etc. Social media platforms however, mostly only allow searching for users based on exactly these demographic characters.

Finally, if you can ÿnd your target audience, it is not likely that everyone is eager to be a part of your online community.

> *"Some companies lend themselves to social media: their customer base is more prone to be actively online. Some people of that group are more prone to be part of an online community. And some of those people are prone to be part of your online community."*
>
> **Brian Tidball**

A way to prevent this problem is to approach the issue the other way around: to not actively seek out users, but to try and get users to come to your website.
By promoting the community in places where your target audience is likely to be present as well, you can create awareness. Once users are aware of your community, they might decide to visit the community as a guest. ˛e next step is to get them to sign up for the community. By allowing users to browse the community as a guest as well instead of closing everything for non-users, visitors can get build their idea of what the community is like and whether they would participate.

˛is active participation is the ÿnal step in recruitment: you want them to come back to your platform and actively contribute in the conversation.

Types of users If the target audience for new products and services is active on social media platforms, it does not yet show HOW they use it in their daily lifes. Some are only following the conversations by others (**spectators**), others actively collect information from di˜erent blogs and news feeds and have subscriptions on multiple RSS feeds (**collectors**) and some actively contribute to online discussions or maintain a personal blog about a certain topic (**creators**) (Forecaster research, 2009).

When recruiting users for active involvement in the development of new services, companies should take these di˜erent ways of being active on internet into account (ÿgure 8). Preferably the group of **informants** contains a mixture of the different roles, because that way every type of user can bring its own added value to the table: **creators** have an opinion about many things and are eager to share this, while **collectors** have a large base of knowledge which they can tap into and can use analogy thinking to come up with novel solutions. One advantage of social media in this case is that it can help to distinguish **lead users, creators and opinion leaders**, based on the number of Followers (Twitter), Friends (Facebook) or Connections (LinkedIn).
Not only the social media platforms themselves can help in this, but also meta platforms, such as Klout (www.klout.com). ˛is website measures the user's in˚uence online on a scale of 1 to 100 by counting the comments, wall posts, likes, retweets, mentions, reshare, etc on di˜erent social media websites (Vollens, 2012).

Engaging users to particpate Once you have found and recruited members of your target audience into your online
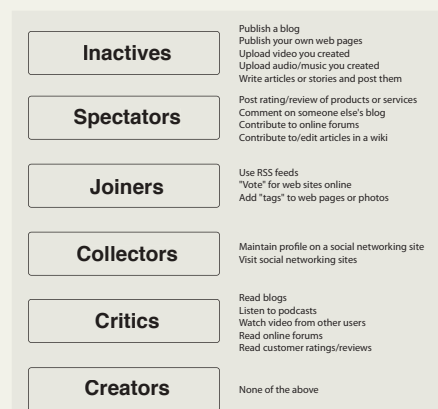
Figure 8 Different ways of being active on the internet.

community, it is important to get them to come back and keep them engaged in the conversation. Motivation and reward should be balanced. A lot of ground work is required. Companies set something up and just expect people to come.

> *"Why would people come? You have to find some way to give credit to people for helping."*
>
> **Brian Tidball**

To encourage a user-generated and independent model of participations, companies need to provide (Näkki and Virtanen, 2007):
- ˛e option to create individual user proÿles, including a voting feature;
- ˛e possibility to create communities of individuals with the same interest;
- A quick comparison tool to show how an idea is rated by other users;
- A reward for participation, such as small prizes/credits that can be exchanged for prizes or coupons;
- Real-time feedback (criticism, approvals, and recommendations);
- Regular updates and the possibility to follow how contributions and ideas develop into scenarios and prototypes.

˛e most important thing however, is to not break the trust users initially have. ˛is will make people turn their backs against your platform immediately. As opposed to o˝ine conversations, social media do not o˜er the opportunity to right a wrong fast enough. Mostly, people have already left by then, since the communication is quicker than in conventional user research.

Social media as a recruitment tool

In the 'Joint Master Project' (JMP), students from all three Masters programs at the IDE work together on a design project.
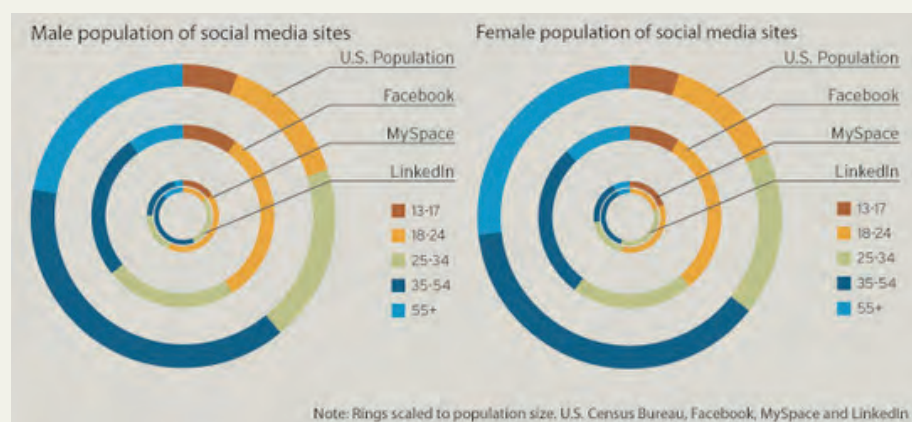

Figure 7 People who are active on social media platforms are not always a representative cross section of society. This graph shows age distribution (male/female) of US population for different social meda sites (source: Carmichael, 2011).

᷂e following case study is based on the experiences of Mahir, one of the team members in this Joint Master Project.

᷂e assignment that was formulated in co-operation with Nike sounded straightforward: "Design a new non-sales-driven service for Nike Football that can be oﬀered through Nike Retail stores to Football Obsessed Teens (FOT) in order to enhance their connection with the brand". ᷂e Football Obsessed Teen is a large target group of Nike. ᷂e project asked for a contextmapping approach about the FOT in their daily lifes. We discussed many aspects of everyday life and the football-thing; to understand their ambitions, fears, hopes etc. ᷂ey got booklets, where they could map various aspects of their life (also including non-football related activities like impressing girls, dealing with homework and leisure activities). One interesting insight was that there is a lot of pressure on these teens to perform, a.o. from their parents, both on and oﬀ the ÿeld. ᷂erefore their conÿdence was equally important as their physical abilities (opportunity). Another insight was that they were all aware that their team play was more important than their personal skills in football (even though all performance enhancing products were targeted to the individual). One of the new concepts that came out of our research phase can be seen in ÿgure 9.

Direct contact with the FOT facilitated gaining these insights, which would probably not have been possible through the usage of social media alone. However social media was used for other purposes in this project; to get these FOT's excited to participate in our context mapping study, and to distribute conventional research material (such as questionnaires). Finding the right participants for a study can be a diﬃcult thing. However with social media there are already groups of people with similar interest ÿnding each other, making them easily accessible (especially when the company approaching you is Nike, with some cool incentives). In this case the
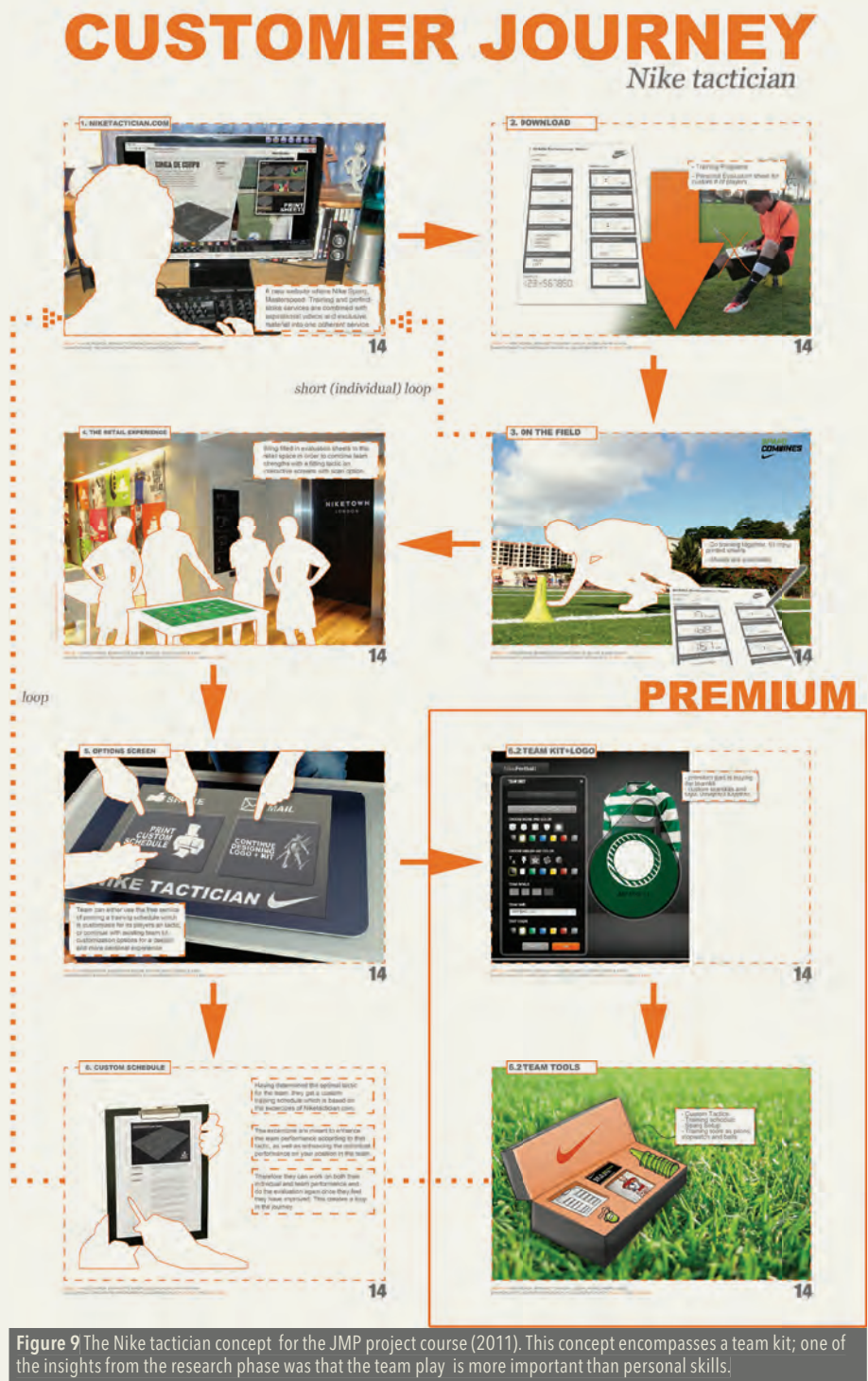

Figure 9 The Nike tactician concept for the JMP project course (2011). This concept encompasses a team kit; one of the insights from the research phase was that the team play is more important than personal skills.

FOT's could easily be found and engaged on Football related forums and Facebook groups. Two particular strengths of social media therefore helped us in this project; its accessibility and wide range. Using social media in the design process, whether that is product design or service design, should be based on these strengths. When comprehended and used well, social media can be a powerful medium, but is usage should not be a goal on its own.

∎

Conclusions

Social media oﬀer a platform of open tools for the design of a product and/or service that have a wide reach and are easily accessible for users. However, the open structure of these media makes it hard to use them for open-ended user involvement. Instead, according to our insights, it can best be used to let users evaluate ÿnished products or present them short and concrete questions. Another disadvantage of the nature of social media for companies is the lack of control over the medium.

Companies should therefore put thought in the development of a social media strategy to prevent that wrong turns will harm the brand.

When looking at the use of tools for innovation, social media tools cover an area in the middle of passive and active user in-

volvements. It depends mainly on the purpose of the research whether or not social media is appropriate. For quick and large amounts of results such as demographics, existing social media platforms will satisfy. Deep and rich insights can only be gained when a platform is speciÿcally designed for such tasks, which is a time-consuming process. Nevertheless, oˉine research methods facilitate much more in-depth results through personal communication.

Finally, in order to have a successful open innovation process, social media should be used throughout all the departments of the company. Since this can be harder for one company compared to another, some companies are more apt to the use of social media, given their company culture and brand image.

Implications for our curriculum

Service design is becoming more and more popular nowadays. Technological innovations within the ÿeld of the internet have had a large impact in the products and services we use nowadays. ˛is

change could also be seen in the faculty of Industrial Design Engineering. Most design projects are not only concerned about creating physical objects, but rather take into account the values it can bring to the end-user. Dedicated courses, or even a specialization of service design could be part of the future curriculum. ˛ere is an increasing interest in the design of services and not to forget, the possibilities of design are endless. ˛is new direction could give the traditional view of the university a fresh image.

˛e use of social media for business is relatively new, especially using social media in design.
In IDE education, there are currently no speciÿc courses yet regarding the use of social media in the design process. As discussed before, social media could be very useful for the design of new products or services. Social media enables many possibilities that are useful for the IDE education. One of the characteristics of social media is that a huge audience can be reached, meaning that a large amount of data (user insights) can be gathered for

inspiration or optimization of the design. Especially in the early phase of the design process social media could play a valuable role.
One step further, social media enables interaction with possible users. For instance, users can give feedback on your ideas, or participate in researches such as surveys, interviews or even the test of online prototype services.

Compared to traditional user involvement methods taught at IDE, it is much faster (eˆcient) to gain insights and feedback, however the main diˆculty regarding social media is that interaction is limited to those available on the web and therefore it is rather complex. Many user involvement methods taught at IDE are more focussed on creating empathy with the user. ˛e user centred approach of IDE allows students to be experts in the ÿeld of using social media in the development of new products and services. Understanding and designing for the user is always present at IDE. ˛ese skills are very much applicable when using social media in service design innovation. ∎

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www.studiegids.tudelft.nl

(Inspirational)

Sao Paulo ad agency Moma Propaganda made this vintage ad for Twitter. The campaign titled "Everything Ages Fast" was used to promote the Maximídia Seminars.

STAKEHOLDER COMMITMENT

Changing services or changing mindsets....what comes ÿrst? °is chapter focuses on stakeholder commitment to change. Implementing new concepts requires change: change in mindset, change in the way we work, change in the company culture, change in how we are used to do what we always do. As the saying goes; if we keep doing what we always did, we will get what we always got. However, designers are rarely asked to design a change process. Designers with a background in IDE are taught to design concepts for products, but practice shows us that designers bring about more.

Both the process designers go through as the results that designers deliver can be very innovative for other domains, such as internal processes within companies. Although designers sometimes encounter resistance of their clients as a result of the changes that their processes and ideas require, designers are not trained to handle such situations as well. From a design education perspective, designing change is an add-on: something we, as designers, are not enough aware of yet.

°e team who explored this topic consisted of staˌ members. °ey are involved in research and/or education at IDE or the Utrecht University of Applied Sciences and have working experience in the design research ÿeld. °e ÿrst three members on the left (in the picture below) graduated at IDE Delft. °e team interviewed two design consultants: Tim Schuurman (Design°inkers) with an MBA background and Neele Kistemaker (Muzus) with an IDE background. °e team compared their approaches to stakeholder commitment. °e main insight is that change can only take place within people and between people. °erefore, key aspects to focus on for stakeholder commitment are an attention to mindsets, behaviour and willingness.

I am a user-centred designer at Muzus and in more and more projects topics like change management and stakeholder commitment play a role. I feel the need to reflect on my current way of working, in order to ground and improve my work. This course is a great opportunity to do this together with other experts in this field.
Marijke Verhoef

As researcher with a background in IDE, I am interested in how design consultants and service providers experience their collaboration in service innovation projects, and how they collaboratively create shared understanding and stakeholder commitment.
Berit Godfroij

My post-doc is about changing mindsets in organizations from thinking about products towards being more user-centred developing product-service systems. I hope to learn how designers can be part of this.
Christine de Lille

I think this is a great opportunity to exchange experiences and different approaches to new ways of thinking
Jens Gijbels

With a background in marketing and business administration, and working experience with service providers and management consultancies, my main interest is in the human side of innovation.
Tanja Enninga

InTrO
STuDEnT
TEaM

TIM
SCHuurMan
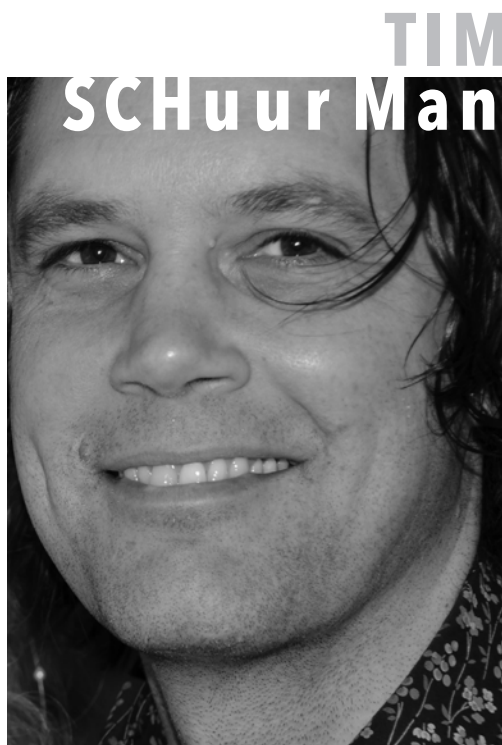
Tim has a background in business administration and financial management. For several years, he worked as a business consultant. The biggest part of his career, however, he worked in the Telecoms industry as a product development manager and general manager. In 2006, he began working as an independent professional and, in 2009, he became partner of DesignThinkers.

As a design-driven consultancy agency, DesignThinkers helps organizations strengthen their capacity to innovate and enables the co-creation of value with all stakeholders, through the design of brands, products, service systems, and cultures of trust. Their goal is to create a sustainable business based on a long term and a human centred vision.

They combine design thinking with business thinking. Arne van Oostrom was one of the founders of DesignThinkers and has a communications/advertising background. For Tim, Arne adds creativity and fun. For Arne, Tim brings business thinking and understanding of the business process.

www.designthinkers.nl
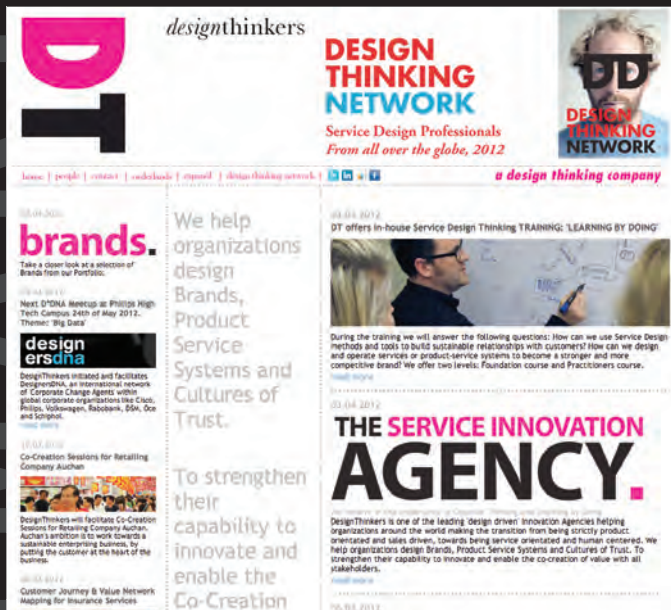
Changing mindsets

Tim Schuurman stresses that they believe in the importance of creative thinking and doing, facilitating on-going conversations and learning by doing.

During their client projects they learned that they could help organisations develop new services. However, if the rest of the organisation isn't ready yet, when they do not understand where this new service came from, why it was designed the way it was designed, the service will never make it to the market. Therefore, DesignThinkers saw their business move towards change and changing mindsets. They support organisations in facilitating change. This is a slow and long-term process.

The key aspect is commitment and ownership.

> *I happened to be one of those excel guys!*
> **Tim Schuurman**

> *What is important is not the tools, but the people who use them!*
> **Tim Schuurman**

Change agents

DesignThinkers see themselves as change agents in organisations. Many innovators in large organisations experience the phenomenon of adaptivity of the internal organisation.

Together with Philips Design, DesignThinkers set up a learning and doing platform, called DesignersDNA (www.designersdna.com), developed specifically for innovation professionals within organisations. The intention of this network of change agents is to get together with an inspirational group of innovation professionals with a sound amount of experience in the field of design, innovation and organisational change. The members of the DesignersDNA network come together about four times per year.

During these meetings different themes are discussed in workshops ranging from Business Model Generation, Innovation through Collaboration, to Big Data. Every meeting is hosted by one of the members who can then pick the theme for that specific meeting.

Tools for change

DesignThinkers uses design tools to facilitate stakeholder commitment and change. By using tools, they help to create an environment where customer-centred service innovation takes place involving relevant stakeholders. Tools which are often used are customer journeys, value maps, personas, and blueprints.

Tim states that the core purpose of using these tools can be two sided: delivering a new concept, and/or facilitating a dialogue in the organisation, between stakeholders, programme participants, or cooperating partner companies. In his experience, most companies have enough ideas. The challenge these companies face is implementing one or more of these ideas.

> *Companies have plenty of ideas; the challenge is to implement them.*
> **Tim Schuurman**

Klantplan case

Tim presented the "klantplan" case of NS (Nederlandse Spoorwegen, the Dutch railways) which is part of the 'Innovation in Services' project. The railways are basically consists of two different organisations: NS and ProRail. They were formerly one organisation, but were split into two in 2003. NS is the passenger railway operator, and cooperates with ProRail, who is responsible for the Dutch rail infrastructure. Utrecht Central Station is currently being renovated. The initial question of NS was a toolkit for customer experience of travellers

passing through Utrecht CS. DesignThinkers first did a series of interviews with both organisations. They discovered that many people were already hard at work collecting customer data, mostly quantitative data, but that this was not shared effectively between departments and between the two organisations. DesignThinkers realised that NS and Prorail do not work from a shared mindset towards their users, and that, as a result, the collaboration between the two relating to customer experience was not that obvious.

Service Design Project: Rediscover collaboration — NS — ProRail

Developing a system for sharing and value co-creation across all channels and stakeholders. Looking at internal processes as services for stakeholders that you can design.

Achieving shared understanding

A series of workshops was organised to get a team of people, from NS and Prorail, to work together towards improving the customer experiences. During one of the first workshops, the conversations were not progressing very smoothly and some managers did not see the value in investing in this 'customer experience'. Tim noticed that what he meant with 'customer experience' was understood differently by these managers. He realised that they both used the same word, but both had differing connotation. He used the word 'customer experience' to mean the whole set of experiences customers go through before, during, and after their train journey. These managers, however, used the Dutch

'klantbeleving', the equivalent for customer experience, to mean a pleasant experience, specifically after something went wrong, for example, serving free coffee to customers when the trains were delayed. After this clarification, the

collaboration went much smoother and more shared understanding was achieved. DesignThinkers focussed their workshops around 'the customer plan' (in Dutch 'klantplan'). This 'customer plan' is part of a bigger building plan,

that NS makes whenever a station building is renovated and more serious building activities will affect the customer experience. DesignThinkers initially had the idea to support this team by creating visualisations (smart maps of the station area) which all people in both organisations would use and refer to. But they discovered that such visualiations already existed, but were not yet used for the purpose of collaboration. DesignThinkers then decided it was more useful to invest in sustainable collaboration between the parties by making this 'klantplan' an integrated tool of the daily activities of the people in this team. In a second series of workshops this 'klantplan' was further embedded in their daily work.

...that is understood by top management.

Zipping the two organisations back together
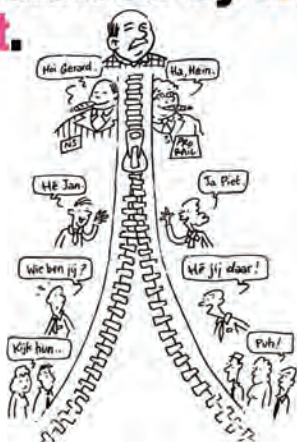
Implications for designers

Tim has the following suggestions for designers in the process of building stakeholder commitment and change:

- understand the story of the business context;
- facilitate the discussion and ask questions;
- take the outsider perspective;
- bring creativity and a new way of thinking to the table;
- keep the human centred approach vivid.

Deepening the topic

Our Exploration

In order to deepen the topic of stakeholder commitment for change management, we compared the perspective of Tim Schuurman (Design° inkers) with the perspective of an IDE alumnus (Neele Kistemaker, co-founder of Muzus). We have discussed her view on service design and commitment of stakeholders on the basis of one project that Muzus performed recently. We conducted an interview with Tim and with Neele. We created a template (ÿgure 1) for both these interviews to guide the interview and explore the di˛erent aspects we believe are important when talking about stakeholder commitment for change management.   ∎
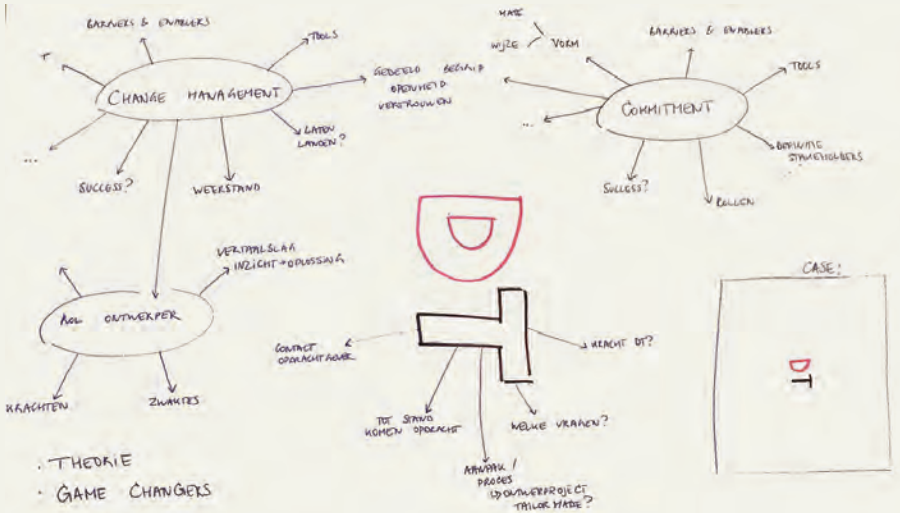

Figure 1   Template used as starting grounds for the interview with Tim Schuurman from DesignThinkers and for the interview with Neele Kistemaker from Muzus.

Short intro to Muzus

Muzus is a user-centered design agency that is founded by two IDE alumni in 2007. Muzus concerns itself with the fuzzy front end of product and service development. For Muzus, the human perspective is pivot in product design and service design. By means of qualitative design research techniques like contextmapping and co-creation, Muzus generates insight and empathy for users in a sparkling and innovative way. ° ey involve end-users at every stage of the design process, in order to develop solutions that truly ÿt the context and needs of the target group. By means of generative techniques and a designerly approach, Muzus performs research, develops solutions and designs concepts. ° eir clients include governmental clients, large

ÿrms and small enterprises.

Although all the employees of Muzus are IDE alumni and are therefore primarily educated as product designers, Muzus executes many service design related projects.

Designing for an insurance company

° e project that we discussed with Neele Kistemaker was performed for a large Dutch insurance company. Because of changing regulations, provision is abolished and therefore insurers and insurance brokers are forced to adopt a new way of collaborating and serving their customers. ° e insurer asked Muzus to develop a package of services that consisted of a strategic framework that contained several concrete services. Muzus collaborated with FinaVista, a consultancy in the ÿnancial market. ° is way design skills and knowl-

edge about the ÿnancial market were combined in their approach. During the project, a lot of attention was paid to the internal and external stakeholders of this renewed package of services. Not only insurance brokers were involved in the project, also account managers and managers from the insurance company were closely involved. An example of this involvement was by using the account managers as 'Raging Reporters' ('Razende Reporters' in Dutch). ° e task of the Raging Reporters was to deliver the sensitizing packages to the insurance brokers and to take pictures according to a picture assignment. ° is assignment not only included factual topics like 'this is my o˝ce' and 'these are my employees' but also more emotional questions were asked such as 'my favorite job' and 'this is what I'm proud of'.   ∎

In dialogue with Tim and Neele

In this paragraph we compare the two cases with each other. What is the same in these two cases, are there any differences, what is the approach of the two agencies? A comparison is given in a dialogue based on 5 topics: Goal, Process, Stakeholder involvement, Tools, and Sustain.

T = Tim,   N = Neele,   Q = Question

Project goals

T: 'We do not emphasize on designing services. Of course we also design services, but primarily we make organizations able to design services themselves. We believe in the power within an organization.'

N: 'We design services for organizations, as some organizations do not have the internal capacity or capability to design services.'

T: 'Our main goal in a project is to change the company innovation culture. But to reach this goal we go through a process of small design projects.' (figure 2)
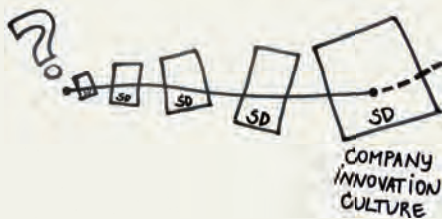

Figure 2 DesignThinkers projects are characterised by a process of small design projects.

N: 'We mostly do one single service design project for an organization, which often has a big impact on the organization and by designing services we change the mindset of the organization.' (figure 3)

Figure 3 Muzus' projects are usually organised as one project, where a change in mindset is one of the aims.

T: 'We really need to invest in the long term relation with our clients, as we do different projects for them to achieve the main goal of changing the organization (being able to innovate). We do these small design projects to gain credibility and get more commitment from top management

and get service design understood widely within the organization.'

T: 'It is important to connect to the current mindset in the organization, for his we combine the strengths of two worlds: business thinking and design thinking. Businessmen need excel sheets, but are inspired by designs. Without this connection an organization can not be changed.' Service Design projects are initiated to design a service for a client. Both Muzus and

Changing towards service design

Supporting a change in an organisation from traditional product design towards delivering products combined with services is challenging. It requires a longterm investment and a lot of support. Luckily at the moment more and more organisations have been succesfully able to make this transition and other organisations can learn from their success. In my postdoc I will try to unravel the underlying mechanisms and the role of the designer in this change process.

☺ **Christine de Lille**

Designing for change

For me, service design can be approached as: design consultancy for a service provider as client. Designers do not specifically have to emphasize on designing services; whatever 'a service' may be. Design consultants support their clients in their search for opportunities for change. These opportunities for change could result into innovative service concepts: a new product, new service, new process, change in mindset... Hence, service design projects say nothing about the results such projects deliver, and that's why I think that service design projects are all about the client to be designing for: service providers. These service providers want to improve the service they offer to their clients, regardless the nature of the improvement. Designers as external parties could be valuable partners in this process of innovation, because of their creative approach. In my PhD, I am studying the relationship between such design consultants and service providers in their collaborative process of change.

☺ **Berit Godfroij**

Design° inkers share much. But when taking a closer look at their processes, Muzus delivers primarily the service to their client where Design° inkers uses service design processes to enforce the relation with their client for a sustainable and long lasting career – their product is just an interim-product.

N: 'We deliver primarily a service to their client.'

T: 'We use service design processes to enforce the relation with our client for a sustainable and long-lasting career.'

N: '° e goal of our project is to deliver new insights and a new service or a more service-oriented mindset in the organization. We do our very best to use the insights to implement the new service in the organization. For us the project has an end. But that is the moment it only begins for an organization.'

T: 'We go through these service design projects to create understanding for design thinking. By doing multiple projects, we get some kind of seniority that helps us to be convincing when we give advice. Gaining credibility is very important.'

° e challenging and provoking attitude remains during the design process. Designers tend to challenge the status quo and aims to find new and creative approaches to the design brief. Service design projects are seldom similar to regular innovation projects.

T: 'We try to provoke our client, until they feel the urgency for a change themselves.'

T: 'With creativity we try to make processes 'fun', which is widely appreciated.'

T: 'SD-projects to sustain an innovation process. Including: who to talk to in order to get on with the change in the organization? Our deliverable is to stay involved – make it understood by top management. Smaller SD-projects are used to show relevance of design thinking.'

N: 'Our deliverable is set by the client: completing a Service Design-project. Within that we are looking for the question behind through, the client might ask for a plain new service, but what is actually the problem or challenge at a particular organization?'

Processes of design projects

Before agreed on a design brief in service design projects, we notice that there is often a whole process for (design) agencies of networking, accomplishing ÿeldwork and facilitating workshops, without any certainty about future projects and payment. °erefore, we think that service design projects are more about sustainable relationships between agencies and potential clients, than about relationships just for one project, and that a long initial period in a project could be very valuable for service design.

T: 'Before a project starts, we frequently organize multiple sessions or workshops. It could take a year before a project ÿnally starts.'
After a period of networking, a project starts with a question from the client. °e client's organization has a problem, a question, a desire, and the goal to solve the problem or improve the situation.

°e initial question was in both cases a question for designing a set of services to improve the service for users (the train traveler or the insurance broker). Design°inkers changed the initial question; the real latent need of their client become clear based on insights of ÿeld-work (interviews). °at's why the question emerged during the process towards a more process-oriented goal. Muzus stayed at the strategic framework and a service-question. °eir process activities where an essential part of their work with this insurance company, and also an important part of achieving the end-goal. It happened more implicit and intuitively. Muzus had a more deÿned goal as a starting point and thus there was less need to question the initial starting point, as it was the case for Design°inkers.

Designers are speciÿcally useful in innovation because they use creativity and provocation in their processes. °e design brief is probably the ÿrst thing they challenge in order to make sure that the question posed is the right one. Part of this is to make sure there is some level of 'urgency' for the project. Why are we here in the ÿrst place and whose problem are we solving? Do we have to solve a problem or are we rather looking for opportunities?

By ÿnding a new source of urgency, which Design°inkers found in consumer inci-

dents, they changed the focus of the project in the NS-case.
T: 'But without urgency there will be no change, thus after a couple of months we wanted to change the goal of the project, We believed we could be of better service to the client if we stressed the experience of the traveller more. To make his experience more urgent for the client.'

Muzus received the urgency in the case together with the initial question.

Changing focus

In the project Innovation in Services one of the aims was to design a toolkit for service design. At the beginning of the project, the designers and the project managers talked about tools like customer journeys and personas, but after a design-tools-workshop with the involved agencies the goal of the design project changed. The focus is now more on improving the social interactions between designers and service providers in their collaboration; designing a co-designtool for improving client involvement and commitment in service innovation projects.

Berit Godfroij

Facilitating processes

At IDE we learned to facilitate workshops, sessions and focus groups as part of the design process. From that point of view the activities DesignThinkers are doing, facilitating the process in service design projects, is not unfamiliar to designers, but we as designers have the idea that we always should 'end up' with a physical design or visualized insights. The latter can be compared to the result of a Design-Thinkers' process, although they make the visualizations not themselves. Thus, facilitating processes and internal processes or user insights as a result is not that far away from what a product designer is already doing….

Student team

N: 'Quite soon after the start of the project, the changing laws and regulations made everybody feel the urgency directly!'

Tim explains how they worked at Design°inkers in this NS case step-by-step as small assignments in a chain. From one step to the next the focus of the ap-

proach could change, based on the learnings of the former step. Neele recognizes this step-by-step in the process of the insurance case, although Muzus does not work on di˛erent small assignments, but more on building blocks of one approach. When working with di˛erent steps in a process it is key to maintain the red line in the project. °is is also an important task of a designer.

Q: What are key aspects in the process of designing a service for a designer?

T: 'We go from one service design project to the next in an organization, in doing so, we primarily facilitate the process. °is is very important as it enables stakeholders to be involved and to add to the design process.'

N: 'We do the same, we use creative sessions that we facilitate throughout the entire project. '

N: 'Another quality that we have as designers that comes in handy is our ability to handle complexity in design processes. Switching between the di˛erent levels of abstraction makes it easier to understand the importance of di˛erent processes. Being empathic (to both end-users and stakeholders of the organization) helps to understand the di˛erent personal tendencies and conceptual thinking is a great tool to come up with ideas that touch upon the holistic view of these processes. Designers are therefor highly appreciated in the projects. °ese are also the main reasons we are hired to design services for an organization: they lack these qualities.'

Design°inkers is alert that they use ideas and visualizations from within the organization as much as possible, because the idea and motivation for change should be intrinsic, according to Design°inkers. Muzus on the other hand develops a new graphic design for each process of every new client. °is graphic design is used to design all materials for workshops, data gathering, presentations and so on. Design°inkers focus more on facilitating the process and makes use of the internal capacities of an organization. During this facilitation di˛erent designerly artefacts like visualizations are used. Muzus focus on developing tools for the actual design process.
Both agencies make also use of visualizations. Muzus makes the visualizations

themselves; Design°inkers make use of graphic designers as part of their network. Visualizing insights and ideas can also be seen as added value from the designer, because visuals communicate much better than words.

Not only Design°inkers makes use of external partners; Muzus works together with FinaVista for extra business knowledge in the insurance-case, thus both agencies work together with other parties if extra knowledge or skills are required. °is can be seen as managing the project from a design perspective (design managers) and knowing which information or expertise is needed and involving these experts from di˛erent ÿelds.

Both Muzus and Design°inkers know what their strength is and – even more important – what not. °ey work with different parties to make sure that all knowledge required for the process is included.

N: 'We are a design agency, but we might need some more business knowledge. For the insurance-case, we worked with FinaVista, a company specialized in ÿnance and better equipped to work on these type of cases, to support our design process.'

T: 'In our projects, we use empathy and conceptual thinking – abilities of a designer – as we have these capabilities at hand in our team. But if we really need to work with visuals to make things easy to understand, we work with (graphic) designers.'

T: 'Acknowledge your own weaknesses and strengths and ˙y in di˛erent expertise when the project demands this.'

In the two cases described in this chapter, we see di˛erent kinds of deliverables as result of a service design project: rich visuals developed by Muzus and an internal process facilitated by Design°inkers. Both can be seen as service designs and both agencies facilitate the process to come up with these 'designs', whether they are physical or not.

Stakeholder involvement

Make people sensitive for their customer

In both cases people are encouraged to become sensitive for their customer, although this seems not directly the case, as in both cases the end user is not at the core of the process. °e customers as meant in the title are not the end-users, the consumers who buy train tickets or insurance policies, but internal and external stakeholders.

°e customers in the insurance case are the intermediaries between the insurance company and the end user. °e employees of the insurance company are encouraged to gather data from their customers and have a conversation with them. °is changed the relationship between employees and intermediaries, but also changed the way of thinking about these interme-

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Ownership

From different cases in the Innovation in Services consortium, I notice that a lot of ideas generated in service design projects are not implemented. Perceived reasons for this are that the organization is not ready for it (feasibility), the client is not able to communicate the idea to his manager or the client is not enough surprised by the outcome of a project. Muzus and DesignThinkers show that involving important stakeholders is an essential aspect of the process, which makes it possible that the ownership of the results is on the clients' side. In my opinion, this client's ownership is important, because the service provider knows best about feasibility of ideas for their organization, are more enthusiastic if they generate ideas themselves and they are able to communicate ideas in their organization better if shared understanding about concepts is generated collaboratively with the designers.

⌂ **Berit Godfroij**

Sustain

For my PhD research project I conducted 10 case studies with SMEs. During 10 weeks I followed how they were helped by design agencies in developing concepts based on user insights. As soon as these 10 weeks were over and the results were presented, the SMEs were left puzzled. They ended up with a nice concept and a lot of user insights, but with absolutely no clue how to implement everything in their daily practice and company strategy. Room for improvement!! I have the feeling this happens more often.

⌂ **Christine de Lille**

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diaries who are the direct customers of the insurance company.

In the NS case the end users nor the people in the production line towards the end user are subject of process. Here 'the customer' became the internal client once the real urgency was unraveled: Employees at various levels of both NS and ProRail have to cooperate more and exchange value. °e process of dialogues and workshops made the participants more sensitive for the needs of one another.

Involvement in process

T: 'Commitment of stakeholders is very important in design projects.'

Especially in SD-projects, stakeholder commitment is vital. Not just for giving the required go at start, but during the entire process: to enable resources, investing time to work on the project and in the end to implement the outcome of the project within the organization.

T: 'In service design processes, stakeholders are often actively involved as part of the design team.'

Q: What are points of attention when you compose a team of stakeholders?

N: 'We invite people to become a member in the project team. °e members of the project team are updated and consulted in every phase of the process.'

T: 'Combine di˛erent expertise in a project team.'

Common language and objective

Before the project starts, Design°inkers try to understand what makes the project valuable for the stakeholders and use this knowledge to ÿnd the urgency of the project.

T: 'You need to ÿnd urgency and some level of pain – to ensure the project is relevant for your client.'

Bringing together di˛erent stakeholders with di˛erent backgrounds can be challenging. Aligning all stakeholders is one of the tasks of the designer.

N: 'Give everybody an active role in the process.'

T: 'We try to ÿnd a common desired objective, by which the process itself is valu-

able for all stakeholders, which increases involvement.'

N: 'Find a common language. Visualizations can be very helpful here.'

Co-creation
T: 'By facilitating and including employees, customers and other stakeholders of the organization in the design process, you make sure the designed service lands better within the organization. For this reason you as a designer have to be empathic for the organization, but also make all stakeholders empathic towards each other.'

Both Design° inkers and Muzus use creative sessions and workshops to involve the employees, customers and stakeholders of the project. ° ere is a certain level of complexity to these processes, luckily designers are equipped with several abilities. Switching between the di˛erent levels of abstraction makes it easier to understand the importance of di˛erent processes. Being empathic helps to understand the di˛erent personal tendencies. Conceptual thinking is a great way to come up with ideas that touch upon the holistic view of these processes.

T: 'People in organizations have many ideas. ° ey just need a push to start doing something with them.'

T: 'We use the strengths of the stakeholders to smoothen the process and create energy. By doing this, some kind of ownership starts to grow.'

N: 'It is very important to approach every stakeholder as the expert of his/her own experience.'

Measuring involvement
Q: How do you 'measure' if stakeholders are successfully committed?

T: 'When, in the end, they talk about their design instead of our design.'

Tools for creative processes

Creating awareness for the customers is a very important task of designers in innovation processes. Showing the e˛ect of someone's work on people is a powerful tool to create empathy among stakeholders and employees of the client.

N: 'In our insurance-case we asked the employees to interview the insurance brokers they worked with. For some of them it was the ÿrst time to talk to them on a deeper level, of drives and needs, - they learned a lot.'

Mindset

A theme that passes by throughout this chapter is 'mindset'. Making sure the organisation you are working with gets the right mindset. This also requires warming people up, making them sensitive for their customer and getting them involved. To my opinion this works best when you find the arguments for your work by asking the stakeholders what they would like to gain with the project. This combined with sensitizing them with their customer creates perfect grounds for a good mindset.

⌂ **Christine de Lille**

Words & Meanings

In the insurance case Muzus worked for, and within Muzus, different meanings are given to words like 'concept' and 'proposition', this differ-ent use of language and words can cause a lot of miscommunication. DesignThinkers brought this topic to the surface as well in their lecture using the example of the words 'customer plan' and 'customer service'. Clearly something to be aware of.

⌂ **Marijke Verhoef**

Co-creation

In my work practice I see many people dealing with the word co-creation. In the sense of this chapter I believe we have to see this as creating together with stakeholders. Involving different project members throughout the different stages of the project.

⌂ **Christine de Lille**

T: 'We used visualizations to show what's happening between employees of ProRail and NS. It helped them to understand that, even though they might not experience it themselves, there is some kind of urgency to solve the problems that occur on other levels of the organization.'

Important tools in design processes are visualization and storytelling. Visualizations are used to make complex issues easy to understand. Design° inkers use it mainly to show how internal processes are in the current setting. Muzus use it to enrich their concepts. Storytelling is used to create empathy and to help the stakeholders understand what is the potential of concepts discussed.

N: 'For our client, we like to map all the rich info. By sharing the origin of our insights, it's easier to understand.'

Fun might not be a tool, but a very powerful quality nevertheless. ° e fact that designers work visually, use storytelling and creative techniques, think positive and work iterative makes the projects fun. For many companies, this is a very welcome attitude. It helps to set a positive and constructive work mentality.

Sustaining project deliverables

In order to make the outcome of the process sustained, designers must understand that it should be accepted within the organization. Make sure that a company can deal with it in the future. ° at is why the involvement of stakeholders is so important: you want to make sure that there is ownership and a 'desired' goal to be achieved. Eventually, not the design agency but the client will work with the outcome.

N: 'We involve them in the research process to make sure they understand what it is about. We want to change their mind-set.'

T: 'Our goal is to create a mindset in which people are inspired and able to implement the design by themselves. It is very important that they feel it is their design, not yours. Without this ownership, the results will not be implemented in the organization.'

Q: How do you make sure that your results are sustained in the company of your client?

T: 'Implement the design in the daily life of the organization.'

■

Conclusions

In this last part of the chapter, we discuss what we have learned during this course: What design skills are new for us in service innovation?, reﬂections on the course, suggestions for education of IDE students and personal reﬂections.

Design skills in Service Design

To illustrate all gathered insights on the role of the designer we have created an overview of all design skills that came forward during our exploration in the ﬁeld of stakeholder commitment and change management in Service Design. Figure 4 illustrates the main design skills we encountered during the exploration. As we ended up with a rather extensive list of skills we realized we needed to reﬂect upon them and create a structure to illustrate the diﬀerences. We used to axes to map the design skills, these axes should not be seen as extremes, but mere axes to show gradations.

ﬃe axis Industrial Design Engineering-Service Design Process (IDE-SDP) course displays the design skills we were already aware of as being important when designing services (IDE-end) and the importance of speciﬁc design skills based on the insights from this thank-tank about service design process (SDP course-end).

ﬃe axis Service Design Project-Mindset displays the design skills are to our opinion more relevant for designing a service (Service Design Project-end), and which ones are relevant when trying to change the mindset of a company (mindset-end). For example, we already learn during our education at IDE to be empathic with end-users as it is one of the primary topics of the education. However, being empathic to organizations is something we became more aware of during this course.

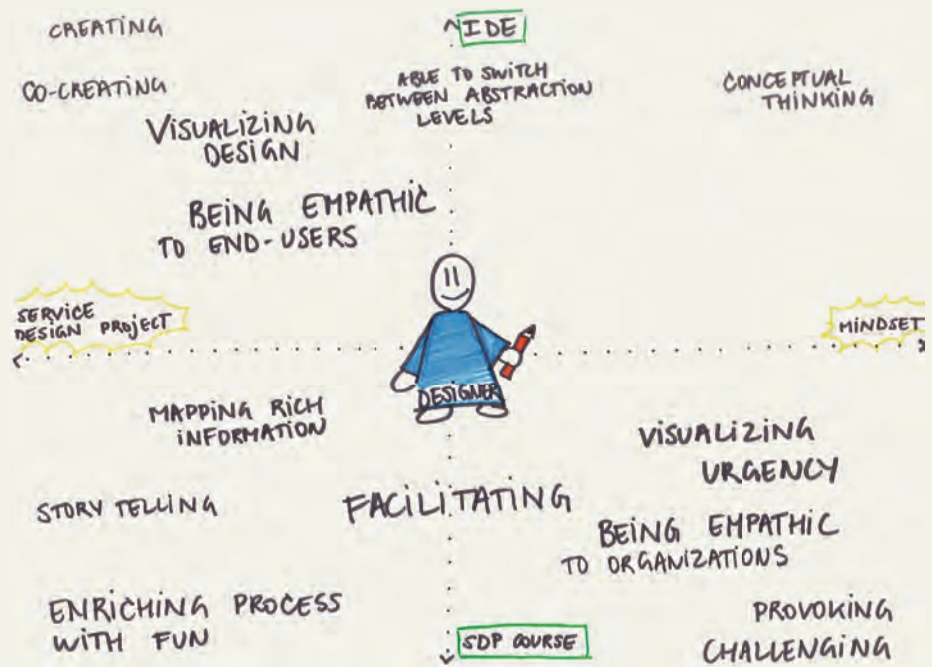Service Design projects also serve a different purpose, less to design the service

> *"Service design is more about people in general than about 'the user'."*
> **Berit Godfroij**

> *"I've always considered facilitating as a second-rate skill of designers. But after this reflection, it appears to be a very important one."*
> **Marijke Verhoef**

Figure 4   Mapping skills of trained product designers compared to skills necessary for service design that came forward during our exploration. On the horizontal axis we distinguish skills needed for designing content versus skills for the creation of a mindset.

itself, but more to change the mindset of a company. ﬃis explains its position in the SDP-course and Mindset quadrant.

> *"Service design says more about who to design for-the service provider- than what and how to design."*
> **Berit Godfroij**

> *"In contrast to what I expected, service design goes beyond designing services. It involves the whole process to get to final results."*
> **Marijke Verhoef**

Another example is the diﬀerence in visualizing skills. Visualizing for design purposes is generally recognized as an important design skill, but the need to visualize the urgency within a project is more a process-necessary design skill. It requires a diﬀerent attitude and diﬀerent skills of the designer.

> *"There are so many different kinds of visualizing that came forward: visualizing ideas, visualizing for shared understanding, visualizing to explain urgency in a project, just to name a few.*
>
> *As a designer you should be trained to be able to visualize all these different purposes of visualisations."*
> **Christine de Lille**

ﬃis change in design skills requires design educations to recognize the diﬀerent needs for design skills for Service Design and adapt to these.

Reflection on course

ﬃe course gave us practical insights on diﬀerent topics from practitioners in the ﬁeld of service innovation and a perfect way to discuss similarities and diﬀerences between the activities of those practitioners and the design activities that we have learned as industrial designers.

Implications for our curriculum

According to the reﬂections described above, we see a couple of points of attention for IDE faculty, in order to educate students better on the topic of stakeholder commitment for change management.

Balance design vs facilitating
Both Tim Schuurman and Neele Kistemaker agree upon the fact that facilitating is a very important aspect of their service design projects. In order to retrieve input from the stakeholders, both internal as external, it is very important to have good facilitator skills. In the current situation, the faculty oﬀers students the possibility to develop their facilitator skills in elective courses like Creative Facilitation and Contextmapping Skills. Since both these courses are optional, only strongly

motivated students will participate in these courses. As Tim and Neele both argued that facilitating is very important in their job as a designer, it is interesting for the faculty to reconsider the voluntary status of these speciÿc courses.

Game changers

During design projects on IDE faculty, teachers take responsibility for the progress and planning of the courses they teach. When students start a course, it is clear how long the project will take, how many hours should be spend on the course and what the main deliverables are. And in 99% of the cases, the courses will follow this structure to the very end. However, after graduating, these variables are not always as predeÿned like this. In practice, designers inevitably bump into all sorts of game changers that will in·uence the continuation of a project. For example, a deadline can be postponed or —even worse- advanced; key players can change positions or change jobs, just after you've put a lot of e¸ort in committing him or her; budgets can be cut in half, etc.

Designers are expected to anticipate on these kinds of events properly. In the current situation, the faculty does not really prepare students to deal with game changers in their projects. Because practice requires this self-reliance and improvisation, we suggest the IDE faculty to pay more attention to game changers in their education. Maybe teachers can leave some responsibility for project management to the (master)students.

Who is your client?
• B2B versus B2C
• One end-user versus a chain of stakeholders

During design projects in IDE education, students often design for one clear target group. Often this target group consists of consumers who are able to buy and use the product themselves, for example co¸ee-machines or mobile phones. We noticed that much more diverse target groups come across in practice, which are nowadays underexposed in IDE education. We think it wise to pay equal attention to these situations, in order to let IDE graduates be better prepared for their working life. Important target groups we distinguish are the following:

First, we see a di¸erence in design projects for consumers (B2C) versus design projects for businesses (B2B). Since IDE students are used to design B2C products, IDE graduates are less familiar with designing for business-to-business products or services. We even observe less enthusiasm among IDE students to work on B2B projects, probably because it does not trigger their imagination as much as B2C projects do. Especially small and medium sized enterprises often work in the B2B market.

Second, in projects it is not always the end-user or the consumer that a design project should serve. Some design projects focus on internal stakeholders. For example the project mentioned in the guest lecture of Erik Roscam Abbing (page 72/73), in which he redesigned the scripting for the call centre employees.

°ird, in service design projects we see a chain of stakeholders that has to work with the end-result. Like in the project for the insurance company: instead of only consumers, there was a whole chain of account managers and assurance brokers involved. According to our team, how to deal with all these entangled stakes is nowadays subordinated in the IDE education.

Creating valuable output for the client
In design projects of IDE faculty, assignments as formulated by the client are only to frame the solution space. However, in practice clients demand a valuable result that ÿt their need. Maybe the faculty can pay more attention to the acquisition part of design projects, in order to create more awareness of the expectations of a client and the way designers can 'sell' themselves.

Drippy T or focus on strengths
If we look at the di¸erent roles that designers can fulÿll in innovation projects, it becomes clear that some roles focus on being a designer with all the strengths that come with this, while other roles focus more understanding and connecting to the work ÿeld of their team members. °is observation brings up the discussion about the T-shaped designer: what exactly belongs to the vertical pillar of the T and how big should this be?

How 'drippy' should the horizontal line be on the other hand? Rephrased: How much overlap should designers have with di¸erent disciplines like business, or can designers complement other disciplines with their own expertise? Is it important to connect to so many other disciplines like technique, business and psychology, or is it preferred to focus on the added value of designers? For the IDE faculty it is also interesting to think about these questions, and relate this to the education programme   ∎

References
www.designthinkers.nl
www.muzus.nl

IDE courses
Creative Facilitation
Contextmapping Skills
www.studiegids.tudelft.nl

Students' reflections

"The guest lectures in the course and the two interviews we did at Muzus and DesignThinkers strengthen my feeling that there are at least two ways of approaching 'service sesign': Service design could be something about designing a physical product (an external process, a service) or about designing internal processes (focus on the organization). As well a physical product as an internal process could be seen as 'a service design'. But most of all, the course strengthen my feeling that service design is about people."

Berit Godfroij

"During the course I became more and more aware of the strengths of designers, but also, how we have to develop new skills and use our existing skills in different ways and different areas. The difference in project goals between Muzus and DesignThinkers was a big eye-opener to me, as well as the difference between working structured or intuitive.
Is there any difference at all, or do we all proclaim to work structured while we actually use our education as basis but combine it with our intuitive design skills?"

Christine de Lille

"Interesting to see in the two cases how design thinking has an impact on the personal process of change of individuals as well as the interpersonal process between people.
Is this because of the different perspectives (the multiple perspective view of designers)? Or the different way of packaging and presenting research materials, insights, or outcomes (the visual side of design thinking)? Or is it because real attention is paid to what people think and feel and experience (the empathic side of design thinking)?"

Tanja Enninga

"The course was packed with information and guest speakers. My wish is for all to keep on discussing and thinking about service design – exchange as much as possible. I recall many valuable moments during the coffee break, as people gathered to exchange thoughts and ideas. I think this book is a great way to make our process more tangible!"

Jens Gijbels

"This course was a nice opportunity to reflect upon my current way of working, in relation to developments in the field of design. It is interesting to see that different backgrounds result in different approaches and different emphasis. The discussions about the definition about what is 'service design' were very useful for me. Rather than only related to the result of a project, I like to consider the term service design as the whole process of exploring, designing and sustaining."

Marijke Verhoef

Chapter

BACK END DESIGN

back enD Design

In this chapter, we look at the back-end design of services. Services have a front end (what the customer sees, uses, and experiences) and a back end (to enable the organisation to deliver the service). It is in this back end where delivering services differs from delivering products. Products are manufactured under controlled circumstances, delivered to their point of sale, and then bought for use by consumers. For a service to work, on the other hand, it must rely on an ongoing system that 'produces' the service at the same time that it is 'consumed' – e.g. the moment you call a contact center or the moment you visit your general practitioner. The delivery of services has to be designed in such a way that the back end enables this interaction of production and consumption where value is co-created on the spot.

What can we learn from designing the back end of services? Does this path show us new trajectories which we have not seen before as IDE students? Or is it to some degree comparable to the delivery of products? What skills and knowledge should we have to successfully design the back- end of services, in order to realize the concepts we design? Erik Roscam Abbing provided many examples of back end design. His examples, surprisingly, mainly dealt with the people at the back end (the customer service desk) and less with the database management or IT infrastructures. When asked why he didn't elaborate on those aspects, he explained that IT infrastructures are often inflexible and are difficult to change, while people are often willing to change, so long as they can see the advantages. The student team dug deeper into the topic through a literature study and by comparing 3 cases based on type of problem, roles of designers, teamwork, and attempts to achieve transparency.

I believe it's fascinating what good service design can do; co-creating service experiences that encourage more responsible product ownership and sustainable lifestyles which can improve the quality of life.
Joris van Kruijssen

Services are intangible, immaterial and complex. It is everywhere, in every product, people and connection. It just simply cannot be ignored when designing for people.
Katalin Dozci

If you think of services as the dialogue between an organisation and it's customers, it makes sense to investigate what language and vocabulary is most suited for the conversation. I am interested in understanding and shaping these conversations.
Menno Manschot

As product designer you simply cannot hide from service design: services are the products of today and the future. Knowing how to orchestrate both products and people into a successful service system is an essential skill.
Irma van Roest

Although service design is an approach that was initially created by, for and with the user, as the concept grows and the applications become endless, a new way of innovating for services is being born. This balance between co-creation and innovative design is what makes, for me, service design an approach worth looking into.
Spyridoula Oikonomou

inTro
sTUDenT
Team

**erik
roscam
abbing**

Erik is a design consultant. He is passionate about everything related to design, innovation and branding, especially where it touches the strategic heart of businesses. He holds a Master Industrial Design Engineering (Delft) and a Master in Design Management (2005). In 2006, he founded Zilver Innovation. Zilver is a creative consultancy specialized in 'brand driven innovation': turning vision into value. Zilver helps companies to attain a deeply rooted understanding of themselves and their customers. This understanding provides the foundation for organizations to practice what they preach: to use innovation to fulfil their brand's promise, and to use design to generate tangible results that are meaningful to the end user and good for the business. He is the author of the book Brand Driven Innovation (2010) and the film Design the New Business (2012). He also teaches in the Strategic Product Design Master at the Faculty of Industrial Design Engineering at the Delft University of Technology. In addition, Erik is chairman of the Design Management Network and member of the educational board of Eurib.

www.zilverinnovation.com
www.branddriveninnovation.com
www.designthenewbusiness.com
www.designersDNA.com
www.7daysinmylife.com

Front End ∞ Back End

If you want to serve your customer, you've got to serve your colleague first!

service design process, march 19th 2012, Erik Roscam Abbing, TU Delft

zilver
brand driven innovation
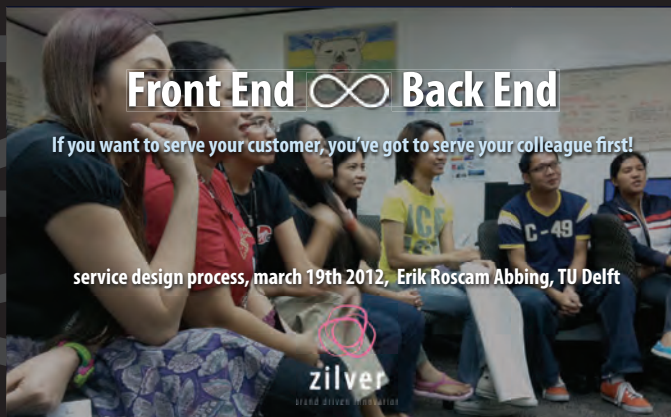
Zilver Innovation

Zilver Innovation combines a design thinking approach with a business thinking approach. Larger companies are often organised in many departments doing their daily things such as operations, sales, and service. Erik brings people from different departments together. Events are organised around the shared brand vision of the company and customer understanding; in the end, they all serve the same customer. With this approach new insights are developed to create better experiences for customers and employees at the front end of services. To explain their way of working, he presented a few projects, one of which is the Virgin Mobile case. This case took place in collaboration with Damian Kernahan from Protopartners (www.protopartners.com.au).

> *If you want your people to create real value, you need to really understand them first.*
> **Erik Roscam Abbing**

This is what virgin asked us:

"The primary question behind the "Intensive Care" programme is how do we lift the customer satisfaction score from 7.XX to 8.X by Sept 2012, whilst delivering a differentiated experience that our targeted customers rave about."

This is the question we discovered behind that question:

"how do we install the internal processes and capabilities and behaviours that will guarantee that we'll be able to predictably DELIVER this customer experience."

1. You will never find the right answer, if you haven't found the right question

The project began with Virgin Mobile's request to come up with solutions to increase customer satisfaction throughout the customer journey. Zilver Innovation and Protopartners conducted an extensive internal and external study (consisting of interviews with people from different departments at Virgin, an analysis of available metrics and a contextmapping study with 24 users) and plotted the results in customer journeys. This led to two different, and better, questions. The first was: "which parts of the customer journey need the most attention from a customer's as well as a business point of view". The second quation was: "how can we set up our internal capabilities in such a way so that we can sustainably deliver a true Virgin experience across these stages of the journey?" An aspect of the journey that turned out to be important for customers and that offered many opportunities for improvement was the contact with the Virgin Mobile call center, based in Manila, Phillipines. Interestingly, Virgin did not dictate improvements from their head office in Sydney. Rather, Virgin decided to send a team of design researchers and customer experience specialists over there to understand what the call center employees actually needed in order to improve their service. Their hypothesis was that by looking into the structures and contexts of the people working in the call centre and understanding how the employees do and experience their jobs, better structures for delivering customer experiences could be designed. That hypothesis proved to be true and customer satisfaction improved with more than 10 percent in less than a year.

2. People are your key asset; understanding them = value

The resources of service organizations are not the raw materials, as in the manufacturing industry. The resources are the people. Organizations now often 'operate' their employees in the same way they would operate their production plants. Instead of using the same production mechanisms in this new service domain, we have to design new mechanisms of delivery that are optimized for this new resource, which is human. Central to these new mechanisms are human exchange elements, such as trust, empathy, ideas, and love for the customer.

> *When you start to treat your own employees as your customers, and design better work-experiences for them, it has an tremendous effect on your service quality.*
> **Erik Roscam Abbing**

Karen Buado
Day 1: Introduction:
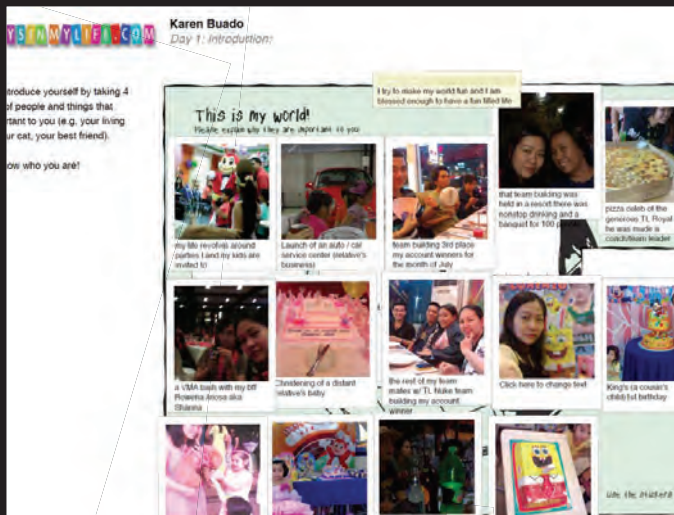
3. Think of the call centre as internal customers, rather than as a channel

Similar to a user study, an online diary study was set up to learn about the everyday lives and motivations of the call centre employees. They were treated as experts of their experiences as in contextmapping studies. With these employees, we conducted insights and concepting workshops. One of the main insights was that these people form a warm and energetic community. They have a lot of love and joy, but find it difficult to apply that in their jobs.

They are required to follow a manual which prescribes their responses during a call. For example, the manual prescribed every conversation to end with "is there anything else I can help you with?" even when the employee was unable to help the customer with the original problem. Based on this insight and many others a new manual was designed in co-creation with the employees, allowing more freedom and responsibility in serving the customer.

4. It's one thing to be a cool brand, it's another to make money from it

Numbers, that is what companies really love. We calculated which parts of the customer journey would be best to invest in. This way, we made our (design) work part of their work in terms of Key Performance Indicator (KPI) or Net Promoter Score (NPS) or customer satisfaction score. This way we made our design work part of their work in terms of business metrics. This does not necessarily mean you are compromising, because you are still talking about customer experiences and insights along the customer journey. In the Virgin Mobile case, one of the critical issues was the contact with the call center.

> Business analytics showed us where to play.
> Design showed us how to win

As a result of this project a new manual was developed for the employees at the call centre, which contributed to a 10% increase in customer satisfaction in one year.

> *The resources of service organizations are not raw materials, like in the manufacturing industry. The resources are the people.*
> **Erik Roscam Abbing**

Q&a after erik' lecture at iDe

Q Why did you not address the IT part of back end design?

A *In the Virgin Mobile case it was clear that changing the human aspects of the back end was much easier and cheaper (trainings, courses, manuals etc.) compared to creating changes at the IT-side. There were definitely issues at the IT side as well. For example, the multitude of windows being open on the computers of the call centre employees. But in general, I must say that the IT systems in most companies I work for are horrible...but it is so expensive to change! Sometimes we include some IT-related elements in the solutions as well. We include other expertises such as system analysts, process people, and CRM people.*

Q Is there, as far as you know, any design or design thinking involved in the IT world?

A *No, those worlds have not merged yet. There is the provide side, and many other sub-provider sides. So, either you get a consultant about the customer side or at the back end side. It would be great to close the gap between those two.*

Q You were talking about transparency. Can you explain what you mean by that?

A *Yes, I think transparency is extremely important in delivering high-quality services. The whole, often complex, system behind a service doesn't have to be transparent for the customer; that is irrelevant information, and you are just bothering the customer with irrelevant issues. What has to be transparent is everything in the interface between company and customer; the interface has to be transparent. Customers need need to feel helped.*

Deepening the topic

Our Exploration

°is chapter focuses on the back-end of services. We investigate the importance of transparency in a service chain, and the fact that the back-end of a service is often a mix of people and (automated) IT systems. Lastly we investigate the role of designers in this speciÿc area (see ÿgure 1). We looked at guiding literature on these topics and compared it with our experiences in three cases from our practice.   ■
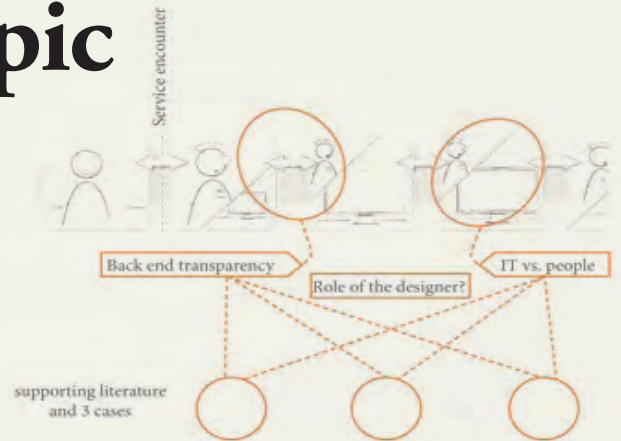

Figure 1   An overview of the topics addressed about back-end design.

Front end & back end: a definition

> *"The back end is there to make everything in the front happen. In a lot of cases, the back end is IT based, but this doesn't always have to be. Basically, the back-end is designed to facilitate the front-end. Needless to say that both ends need each other to let the service actually function."*
>
> **Erik Roscam Abbing**

A service is a chain of activities that form a process and have value for the end user (Sa˝er, 2007). °is chain of activities can be di˝erentiated in two speciÿc areas: a front end and a back end or front stage and back stage. °e range of deÿnitions of a front end and back end di˝er in descriptions, however it seems that most people agree on the purpose and how to distinguish both.
Lovelock et al. (2006) describes the front end as the part of the service that contains the activities of the customer and the service provider's activities that are visible to the customer. °e back end contains the activities not visible to the customer. Teboul's idea (2006) is in line with this description. He deÿnes the front end as being the part that comes in contact with the customer and back stage being the part that does not.
During the lecture, Erik Roscam Abbing also mentioned that the front end is everything that the customer interacts with while they are making use of a service, and adds that this can vary from a visual interface of a self-service system to a conversation with the call center employee. °e back end is there to make everything in the front happen. In a lot of cases the back

end is IT based, but this is not always the case. Basically, the back end is designed to facilitate the front end (see ÿgure 2). Needless to say that both ends need each other to let the service actually function.

According to Erik, there is in many cases not a hard line between front end and back end in services. °e reason why it is possibly di˝cult to put a hard line between front end and back end is the interwoven links in the service chain. °ink of the call center employee who is on one hand the front end, while serving the customer, and on the other hand part of the back end, while working with the IT system.

Both can be clearly indicated, though. °e interesting thing is that the call center employee behaves a certain way because of the system he/she has to work with. So what is visible/noticeable to the customer is a˝ected by the back end. °e line of visibility is fuzzy. °e border between front end and back end is often called the line of visibility, because any activities or services that are invisible to the customer are behind the line (Glushko and Tabas, 2007). Setting up a service blueprint of the service chain often makes the line of visibility apparent. With the use of a service blueprint each individual aspect of the service can
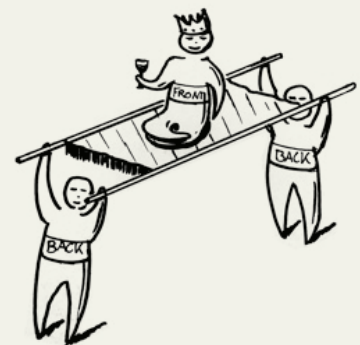
Figure 2   The back-end is there to make everything in the front happen (Erik Roscam Abbing).

be speciÿed and detailed (Stickdorn and Schneider, 2010). Often the metaphor of a theatre stage is used to illustrate the front and back end the line of visibility in between. Everything that happens on the front stage is the service experience - the front-end of a service. °is is what the users experience. Similar to a theatre, this is just one part of the service. Back-stage all the processes, organizations, businesses and preparation are present. While designing a service, one should bear in mind that the back end is subordinate to the front end. °e envisioned front-end should be the leading aspect in the design process. °e back end is the means for the delivery of the service, not the actual goal. Just as in the theatre, the service will only work perfect when all aspects, front end and back end, are working seamlessly together (Moritz, 2005).   ■

The importance of transparancy

According to Erik, at the front-end of a service, it is important to be able to answer the question 'Why something is done the way it is done'. °is leads to more satisÿed customers. He uses the ex-

ample of a doctor's visit to exemplify this point (ÿgure 3).
Although Erik values transparency, he warned us as well. Only relevant information should be given to the customer.

˚e science behind the medicine is way too complex for most patients. Irrelevant transparency will lead to confusion and therefore customers might walk away.

˚is theory could be taken to the back stage as well. Front-end employees should be seen as 'internal customers', for whom the upper layer of the back end acts as front end.

> *"If you want to serve your customer, you've got to serve your colleague first!"*
> **Erik Roscam Abbing**

Scenario 1
Doctor: "You are sick, just take this medicine, you'll be better." The patient will be glad he gets a medicine, but won't be satisfied, since he might be scared it will happen again.

Scenario 2
Doctor: "You're sick. Probably because you ate something not cooked well. But it is no big deal. This medicine will destroy the bacteria and you'll feel better."

Figure 3 The right level of transparency in the service chain helps to provide a satisfactory service delivery. The right form of explaining can do the trick.

Erik's statement on the e˝ect of transparency on satisfaction is backed up by research. Literature shows that transparent services are perceived as more understandable and perceived understanding correlates with perceived competence of the customer, trust in and acceptance of the system. (Cramer et al., 2008) Transparency also increases the customer's acceptance in situations where something goes wrong. From IT development the theory can be retrieved that human errors cannot be avoided, and should therefore be dealt with openly to keep customers satisÿed (Brown & Patterson, 2001).

Unsatisÿed customers can be fatal for a service, since they will not only move on to other service brands, they can also talk about their problems to their friends, ruining the company image of the service brand (Mager, 2004).

However, dealing with transparency is "delicate" activity, and ÿnding the right balance should be a day to day concern for service companies. By revealing too much of your services' working details, through transparency, you run the risk of loosing your value proposition.

˚is balancing act is nowadays not anymore in the hands of brand manangers. With the existence of the internet, the entire world has become more transparent. Consumers have access to loads of information. Inconsistency between the information found by consumers and the information spread by the company will reduce the strength of the brand (Einwiller & Will, 2002).
Concluding, both the lecture and literature emphasize that transparency at both front and back end is an important key to success, but should be treated with care. We suggest the service to be transparent on a one-level depth, not at all levels. Customers would like to know how the front end employees are working and how they are coming to the decisions they make. However, they might not be interested in the many details of the technical basis of the service or how the human resources are exactly organised.

˚e question arises whether this ÿnding is something new. As literature often states, integration is key (Einwiller & Will, 2002; Tax & Stuart, 1997). By the term integration, a situation is envisioned in which all departments within the service company work together, understand each other and feel united. ˚is integration could be achieved by internal transparency. ∎

Is back end design about people or IT?

In organisations usually many people are working together. ˚ere is a tension between customer needs and business KPI's. Business KPI's are often more focussed on e˝ciency and cost reduction. ˚is is a natural tension that should be resolved smartly. Build the KPI's so that they re˛ect that customer value and business value go together very well. ˚e customer wants to be helped quickly for example, and quick resolutions are cheaper than long lasting phone calls. Organizations should understand the basic di˝erences between performing and fulÿlling the customer needs, or performing on a given KPI level, which might not be relevant anymore according to constant changes over time.

In order to design both back and front end of the service, it is important to see the connection between the people operating the system, and the people designing the system at an IT level. ˚ere is a gap between these two segments, and this gap can be connected by understanding the fact that those people operating the systems in the front are not just part of the system, but they are still human resources. In other words; IT is built on the people serving it at the front, and not the other way around. ˚erefore increasing the employee satisfaction can play a huge role at increasing the customer satisfaction at the end.
˚ere is a gap between the back-end design (information architecture, analysis of information requirements, software developers, process modelers.. etc) and front-end design, it happens often that they do not speak the same language. ˚ere can be little collaboration and communication between front and back stage designers in service design projects. Sometimes this occurs due to organizational reasons, some-

> *"To successfully deliver a human centric designed outcome, understanding the context in which the people that deliver it function is vital."*
> **Erik Roscam Abbing**

times for ideological ones, and sometimes simply because it is hard to design service systems (Glushko, 2008).

Service designers can bridge the gap
˚is is the ÿeld where service designers can become relevant for both parties, by connecting the gap.
Having a good understanding of the structure of the back-end, can signiÿcantly improve the front-end service, moreover, it has an in˛uence on the performance of the employees. For IT developers is important to treat employees as humans, and not just a particular step in a given service structure process.
It is still a slow changing era, considering the tremendous amount of money

which is needed in order to change IT structures (from Q&A discussion after Roscam Abbing's lecture). °erefore most of the times clients are open for service innovation, and search for solutions, at the same time trying to avoid having to make thorough changes in the basic IT systems. Back-end developers start to get involved and interested in the efﬁcient work of the employees, as they realize that this is the only way to serve a better system operation. ∎

Figure 4 The call center employee is on the one hand the front-end of a service, serving the customer, and on the other hand part of the back-end, while working with the internal IT systems.

The role of designers in back end design

Erik Roscam Abbing addressed in many ways what are the assets that designers can "bring to the table", when it comes to facilitating the interaction between the front- and back-end of service design:

1. °e multidisciplinary nature of the design profession allows designers to see both the user and the company aspect. In the case of services the back-end is comprised of the logistical and ﬁnancial planning that a company should do in order to develop a front-end that satisﬁes its customers.

> *"As service designers you should be able to design systems that will support employees to help the customer and improve the customer's experience of the service."*
> **Erik Roscam Abbing**

2. Designers should also function as a tie between the back end and the front end and they should know how to bring those two diﬀerent worlds together.

> *"You have to understand what's going on in the back end and understand that IT is build around human resources."*
> **Erik Roscam Abbing**

Designers in service design
Service design is an emerging ﬁeld; the intangible nature of services (Bebko, 2000) as well as services being "social and material, relational and temporal" (Kimbell, 2011, p. 48,) makes it hard to specify speciﬁc roles a designer can have, as these most probably include the most part of the processes' steps. Yee et al (2009) tried to break down these roles and we will try to build this exploration part by addressing how these roles could be implemented in the front-back-end relationship.

Mindset in front- and back end
°ere could be two kinds of designers involved in the front-end and back-end of the design of services. Until now these groups were looking at the service system as parts and not as a coherent whole, mainly due to diﬀerences in interest and focus. What should be stressed is that for a seamless service design process and outcome these two views should be merged and they should collaborate so that the one doesn't become an obstacle for the other to improve (Glushko & Tabas, 2009). °e eﬀective design of services demands the existence of a multidisciplinary team, but more importantly needs an eﬀective facilitator to guide the various, and sometimes conﬂicting professions, towards the desired outcome (Moritz, 2005).

°e main conﬂicts of these two mindsets concern (Glushko & Tabas, 2009):
• focus, disciplines, tools of each mindset;
• conﬂicts and lack of collaboration;
• merge the mindsets with multidisciplinary design teams.

°e diﬀerences in mindset and how important it is for a designer to comprehend the service system as a whole were also stressed in Erik's lecture. A designer should know how the back-end is built and help the back-end designers realise that the IT tools incorporated in the system are built to be used by people. °e better designed the IT systems the better the performance of the people and the better the service. °is is of course not easy as most of the

Designer as	role
facilitator	The designer should be able to fuse the different mindsets, philosophies and approaches that appear through the designer process. That means not only allowing room for all different parts to express themselves but also effectively incorporate them into a "one-satisfies-all" kind of solution. This role of the designer could be implemented through workshops with the different stakeholders and/or through the creation of objects (e.g. visuals) that help ease everyone's understanding of the process.
researcher	In this case the designer is looking into the existing and possible stakeholders influencing the service at hand and how the interaction between them is shaped. (S)he should also expand the offered library of knowledge by expanding the research into other disciplines such as social sciences. The tools used could include interviews, questionnaires, mapping, literature research etc.
co-creator	What is of main importance here is the ability of the designer to include other people in his/her process. As has been mentioned a designer shouldn't design "for" but "with" the user. But that is not only true for users. When a designer is a part of a multidisciplinary team it is key that (s)he recognises the value of the other disciplines and weaves them seamlessly to achieve the optimum result. Participatory tools could be used to facilitate this process.
communicator	This role is closely related to the facilitating one. The designer has the responsibility to effectively communicate with all the stakeholders involved in the process. (S)he should be able to talk the "language" of any of the groups that take part or monitor the process so that they understand the value od certain decisions. In this effort major help comes form visualizing techniques and communication devices.
capability builder	Here the designer should prove the value of design (thinking) to all the necessary stakeholders. In many cases it is difficult for people trained in more traditional disciplines to see the usefulness of a certain design method or tool. The designer should make explicit what is the value of these methods to the company by using a language that is commonly understood and bring results that will be unanimously appreciated.
strategist	This is the contribution that the designer has to the major goal of the company. The creative mind of the designer can be a valuable tool to the shaping and the communication of the overall strategy.
entrepreneur	In most cases it all comes down to money. Every project or idea should be proven potentially profitable to be attractive to any stakeholder. The designer should be able to talk in business terms and help prove the tangible value of a project or action.

Based on Yee et al (2009)

Figure 5 Different roles for designers.

times IT people, system analysts etc. are people that traditionally have no interest in design thinking (Glushko & Tabas, 2009). It seems sometimes that the front-end designer and the back-end designer are coming from "di˜erent planets". Although that is starting to change. Back-end designers are also seeing the value of creating systems that employees want to use and front-end designers are starting to realise the back-end is the basic platform for the new services.

We can identify di˜erent roles for designers in the above text; designers as facilitators, as researchers, and as co-creators.

Business thinking + Design Thinking

We address business thinking as a part of the back-end because we believe that the business operations behind the design of

> *"Value is always an issue for the business people; their vocabulary for the most part is built out of numbers."*
>
> 𝄞𝄞𝄞𝄞𝄞 Student team

a service can have a major impact on the actual ÿnal non-material product that forms the service system (Kimbell, 2011). It is essential for a designer to realise that in service design he designs something to address a speciÿc, most of the times existing, need. ° e outcomes of the design process, either a good or a service, should be seamlessly incorporated into a whole network of products, services and business operations.

Both Erik Roscam Abbing and Tim Schuurman (guest lecturer in previous Chapter) stress the importance of de-

signers being able to communicate in the language of the business if they want their projects to have an impact. It is not enough to be passionate about creating services that people want to use, you should be able to translate that into value for the company.

Once designers learn how to translate classic business metrics to metrics that they can use to deliver more value to both the company and the customer, they will be able to go in depth and bring real change to the company (Moritz, 2005).

Here we can identify even more roles for designers: designers as communicators, as capability builders, as strategists and as entrepeneurs. ° ese roles are described by Yee et al (2009). Figure 5 shows an explanation of each role.   ∎

Three case studies to see how these aspects are addressed

In this section we compare three cases in which services were improved by (re) designing aspects of back end activities (see ÿgure 6). Four topics of each case will be compared:

1. How did the development team work, and what was the outcome of this way of working?
2. How did the team treat transparency in the service chain?
3. How was the balance between a focus on IT systems and a focus on the people performing in the back end?
4. What was the role of the designer(s) in these cases?

° e ÿrst case is the mobile operator case Erik Roscam Abbing presented in his lecture. ° e second case about the parcel service was provided by Menno Manschot from his background as a consultant at TNO. ° e third case about the printing company was provided by Katilin Dozci from a summer school business course she took part in at Maastricht University.

Case 1: Call center

What was the problem?

° e company wanted to improve its service for customers of their mobile phone plans.

How did the development team work?

After an analysis of the best and worst performing parts of their customer journey, in terms of user satisfaction and user

experience, key improvement areas were identiÿed. A match was made with the company's key performance indicators, and the call center process, of after sales and customer service was identiÿed as one of the elements in the customer journey that caused dissatisfaction with users.

° e design team chose to focus their research and design e˜orts on the motivation of the call center employees. By performing a context mapping study on the lives, needs and aspirations of the call center employees the team identiÿed elements of their working routines and protocols that enabled or disabled them from performing in the spirit of the company.

What was the outcome of this way of working?

° e design team focused on the "prerequisitions" for good service delivery by the call center employees. By identifying what motivated these people (career aspirations, atmosphere in the workplace) and by showing the upper management the character and personalities of the callcenter employees, the team showed that a more ˛exible and self directing script would work better than the current strict working instructions. Currently the callcenters are judged on a 41 point performance scale, which inhibited any ˛exibility in conversations and self direction by the employees.

By itself, the exercise of showing the organizations who their call center employees really were and what the brand spirit

meant for them, signiÿcantly contributed to improving customer satisfaction with 10% in one year. ° is was credited to a higher self-esteem on the part of the employees, because they felt they were being appreciated by the company. As a consequence they fulÿlled their tasks more diligently which resulted in a better service.

Did the team treat the role of transparency in the service chain?

Transparency in this case was treated by informing and training the callcenter employees on a larger part of the service chain. In this way they could better explain to their callers what was happening in other parts of the delivery process, without solving the actual problem, but being able to explain better the causes of problems and thereby creating understanding with the customers.

How was the balance between designing IT vs. designing people?

In this case the company worked with a standardized corporate CRM and work-˛ow system, which was complicated to adapt. ° erefore solutions were primarily focused on scripts, instructions and motivational elements of the call center employees. ° ese proved to be easier to change, then the IT system.

What was the role of the designer?

° e role of the designers lay in steering the focus of research into the human part of the service – the employees – and their

needs and aspirations when performing the service.

Instead of approaching a service delivery process as a production cycle, with mechanical parts that can be crafted, the design team approached it as a dialogue between people, and improved the circumstances and mutual understanding of the people involved in this dialogue to improve it.

A second role of the design team was to communicate insights and solutions to upper management and other parts of the organization. To develop a narrative and a compelling means of communicating these messages across departments and disciplines, especially to decision makers within the company.

	Mobile operator Total customer service	Parcel service PO box subscription	Printing company Printing service
Project focus	Improving working routines of call center (CC)employees	Better coordination of service delivery steps	Developing a new printing service.
Main design activity	context mapping of employees	Confronting employees with service experience	Aligning a business case with user experience.
Role of Transparency front to back	Aimed at increasing the knowledge of CC employees of rest of service process, leads to more understanding from the customer.	Aimed at increasing awareness among different departments during the design process, not more transparency in the service itself	Aimed at decreasing complexity of finding the right documents, by reducing the steps needed to collect and merge them
Balance of IT vs. people	IT was hard to change, scripts and behaviour were easier to improve and leads to higher impact on total user experience.	IT was hard to change, main focus on sequence and timing of service steps, as well as on tone of voice (simpler, less formal). The workflow and automation were partly improved.	This was mainly an IT oriented project; designing a new fully automated document merging and printing process.
Role of the designer	1) Creating awareness of the human factor in the service delivery process 2) designing persuasive communication materials	1) Raising empathy for customer experience with employees, 2) facilitating the codesign process	Emphasizing importance of a customer centric approach, next to a business objective.

Figure 6　Three cases in which services were improved by (re)designing aspects of back-end activities.

Case two: Parcel delivery

What was the problem?
˚　e company wanted to improve its service and customer process of ordering and ÿrst use of a post oﬃce box as well as to improve customers' satisfaction with this service. ˚　e goal was to foster commitment from the company's employees that are involved in the service design process. ˚　ese employees were from diﬀerent departments and disciplines, and did not know of each other what each one was doing exactly.

How did the development team work?
First the team of two service managers from the company and two designers analyzed the current service process and all the touchpoints in the current customer journey.

Second the responsibles and employees of all the departments were invited to two workshops. ˚　e ÿrst workshop was a confrontation with their current service delivery. ˚　is was done by emulating the way customers were treated in the way we treated the participants in the workshop. For example it was made diﬃcult to sign up for the workshop, and the communication to the participants was done in a very formal and technical tone, with mysterious numbers and codes.. As a result participants reacted in a similar way as the customers of the current services, which led to an empathic understanding, once we started looking for improvements.

In the second workshop the team and participants focused on solutions In the service chain to improve the customer journey.

What was the outcome of this way of working?
Because of the interdisciplinarity of the group, participants were able to come up with holistic solutions that could be assessed on integral feasibility throughout the chain. Consequences of a change on one end of the service could be evaluated with the responsibles of the other end of the service.

Did the team treat the role of transparancy in the service chain?
˚　e result in this case was not necessarily more transparent form a user point of view, but for employees it became more clear how their behaviour and actions affected the whole of the service delivery. In the workshops and the development period afterwards, employees across disciplines and departments wre more aware of their relations. Transparancy was therefor mainly improved in the design phase.

How was the balance between designing IT vs. designing people?
˚　e main focus of change lay in the communication elements (mailings, website, tone of voice etc). and in the sequence of service steps in the process. ˚　ere was less opportunitiy to change IT systems due to legacy equipment and the intertwining of systems with other processes in the company. Next to changes in peoples scripts and actions, changes were made in the automation, and timing of steps in the service delivery process.

What was the role of the designer?
Designers focused on raising empathy for the service customer, by confronting the employees with the current service steps.

In order to do that, the designers lead the analysis of the current customer journey, and did the user research.

Designers organized and facilitated the creative workshops with the employees and responsibles of the service chain parts. Designers ensured the tempo of the design process and the communication of results to upper management.

Case 3: Document management

What was the problem?
˚　e basic problem was that people are printing less, especially students. ˚　ey purchase less printers, and the company sees the future in virtual study materials, that rarely printed out. ˚　erefore the company was looking for new services that would engage students to print more through their printing facilities within the campus.

˚　e design challenge was to align the needs of the company (making proÿt from printing), with the needs and problems from students. We were attempting to create a bridge between those two goals with a new service. Moreover we tried to ÿnd out about basic problems with the current document management system at the university, and improve that by oﬀering a totally new service embedded in the online study environment.

How did the development team work?
In total 8 people with diﬀerent background (design, business and management, business modeling professional, workﬂow model makers) knowledge and age groups worked on the case for 2 months.

In order to ÿnd out all the weak points of the existing environment, the team

conducted observations with the existing interface (software ergonomy) and analyzed customer journeys in order to measure satisfaction. The outcome from those researches was that a new document merging/management system is needed, where all the different study materials from different tutors and professors from different websites are merged together into 1 readable document. This would be complemented with automatic retrieve info for exams and one printing command, for a merged document.

Did the team treat the role of transparency in the service chain?
Transparency was not necessarily achieved in the operations but it was done in the design phase. In the old system teachers uploaded the study materials to different servers and it was hard to find all the material for students. The solution cut out the dependency of the students on the teachers, because the system 'finds' the right documents and merges it in one place (forwards to printing facilities). Although transparency of the service chain was not explicitly dealt with, by reducing the steps in the process of collecting and printing it became clearer for users how the service is useful to them and what the benefits are.

How was the balance between designing IT vs. designing people?
The focus of the design lay on IT changes/improvements. The actual back end was not pat of the design brief. The main human stakeholders were the students. Only the user interface for the students changed.

What was the role of the designer?
The designer did the user interface, the customer journeys in order to find out what were key elements of improvement. In the project meetings the role of the designer was to bring the focus on customer/student perspective, in order to create balance between creating good service for the students and making money, serving the companies' aspirations. The designer also made presentation materials, and guided presentation techniques.
The suggestion to do customer journeys, and "teaching" the business students how to treat target group as the main focus of the assignment, in order to create their own costumer journeys was another role of the designer.

Challenges were:
Although it was nice to work with people from different fields, it was hard to explain others how to visualize their customer journeys. We also had to explain them why it is important to put the user in the center, instead of money. The others talked about payment, patents, and processes and not that much about users, user epxerences and their everyday contexts. ∎

Conclusions

Investigating the connection of front and back-ends of services, and the way designers might influence these, we find that service delivery is depending on a chain of elements where the factor 'employee' often plays a vital role.
In order to design a service these chain elements need to be orchestrated, which means an orchestration of human activities. That is a new area for designers to act in. Designers focusing on service innovation will have to learn how to address and steer human collaboration in the execution of a service. Designers are apt in facilitating design processes, steering collaboration in the development phase, but understanding and guiding people in the execution phase (compare to the use phase of a product) is a new competence for most designers. For this designers have to broaden their human centered focus from the end user, to also incorporate the employees in a service as their design targets. Might 'Employee Centered Design' thus become a common term in this field?
Fortunately designers are already partly equipped with some key skills to address this topic. The same techniques of empathic understanding and design can as easily be targeted at employees as they are at users.

One of the main challenges for designers arising from this topic is to achieve transparency in the service chain by communicating user centricity to employees operating in the service chain, and communicating 'employee-centricity' to managers and system engineers that are developing the service chain.
In comparison with product design capabilities one might say that in service, designers need to master a new "material" for design and engineering, which is "the service employee". This, however, will require more social skills and knowledge, than the focus on technical and conceptual skills that IDE students are familiar with.

Implications for our curriculum

Although getting more insight into process of designing services, we think IDE should not evolve around designing services too much. Lots of aspects in product design and service design are similar, so it might be best to focus on these aspects. This way the curriculum will not have to give in on focus. But, of course, we have some ideas how our IDE can be improved:

Teach us better how to facilitate in general, which is useful in all design processes
Through the lectures we saw that the qualities of a designer that are the most valuable are actually not directly about designing. More important seem the ones that have to do with the facilitation of a process: getting lots of people round the table and share their views. Anyone can design a service, but not anyone can play this facilitating role. It's something that requires insight in all fields involved (which we as IDE-ers have) and a spark of creativity (which we as IDE-ers have as well). Besides, facilitating is something we can use in practically every project: user research, concept testing, designing in teams, and many more purposes.

More interaction with the real word through lecturers from practice
We feel that IDE, especially for Strategic Product Designers, should allow more interaction with the real world and actually be more project oriented. Since internships are no obligatory part of the curriculum at the moment, lots of students lack a feel of how the things they learn in class are applied out in the field. Inviting guest lecturers adds to the notion of relevance and brings theory to life.
Also, we found it very interesting to look into how other professionals perceive the role of the designer in a company or a project and what the assets are of our profession that are valued the most in a real life working environment.

Use think tanks more often in which everyone is a teacher
The set up of this course, a think-tank structure, is definitely fitting for a Master's level course. The exchange of knowledge

and experiences between fellow students, scholars and practitioners made this course a really valuable experience. It was really interesting that for once we didn't have to review, judge or evaluate but rather appreciate other people's opinion and take the most out of it.

We think this reﬂective thinking and exchange should be more promoted in our faculty. Since master students vary in background regarding education, culture and project experience, lots of knowledge on working methods and tools is available. It is very valuable to share this expertise from early on in the curriculum, so that when it comes to using them students can have the required ﬂexibility to adjust them to the needs of any project.

■

"Despite what the name of the course suggests (service design process), I feel that more than teaching me methods and tools for service design, it made me aware of the possible roles a designer (or a non designer in fact) can have in the process of designing tangible or intangible goods and the roles of possible stakeholders in the same design process."
Spyridoula Oikonomou

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BUSINESS MODELS

BusIness MoDels

Business models for services are often far more complex than business models for products. In product development there is usually one company involved. In service development, however, many diﬀerent companies might be involved and their relations in doing business need to be taken into account.

At IDE, students learn how to make rough estimate calculations of cost price for mass-produced products, but do not (yet) learn how to understand and estimate the cost/revenue structures of more complex situations of service elements. Many students, when creating a cost/revenue structure for services, rely on their own logical thinking and intuition. A useful ﬁrst step to get insight into the relations between all the network elements, and its structure, is taught in the master Strategic Product Design, where students learn to make stakeholder maps to identify the relations between stakeholders.

Manu Vollens from Board of Innovation was invited to share his thoughts with us. Board of Innovation developed a business model brainstorm kit, which can be used by any group of people to explore possible business models in the early stages of the design process. ﬁe student team dug deeper into the topic through a literature review. ﬁe main ﬁnding is that thinking about, playing with, and exploring business models in early stages can be quite useful as opposed to starting to think about the business models in the latter stages of the development process.

"The dissonance of modern life is mainly caused by the fact that the objects around us have become more cultivated while people themselves are becoming less capable of deriving some kind of perfection within their subjective life from the perfect objects around them." (Simmel, 1971). I believe having a solid understanding of service design is essential for today's designers.
Nishant Bhaskar

A good brand could not only be built on the basis of nice products, but also provide thoughtful service. Apart from learning how to develop good products for end users, it is beneficial for product designers to gain experience in the field of service design to create whole experience for consumers.
Yezhou Liu

How will service design influence the business of tomorrow? A shift from products to services or product-service combinations has happened. Many of our IDE students will be designing services in their careers. How will we generate value and make companies able to capture value?
Henk Nagelhoud

Holland is a 'service' economy; I believe service design is very important. I was reading a paper called welcome to the experience economy by Pine and Gilmore. This paper intrigued me a lot and I believe this aspect can increase my potential as designer.
Tin Yang Wang

I reckon service design can be a very useful way to create business. I would like to learn more about the differences between product business models and service business models. I am also curious about what types of business models suit different types of services.
Michael Jenkins

Manu Vollens

Manu studied industrial design at Howest (Hogeschool West-Vlaanderen) (2010). After his graduation he worked for Claropartners, an innovation firm in Barcelona.

While working for Claropartners, he began to see himself more as a strategy designer than a product designer: 'As a designer, we are good at seeing what is needed, and as a strategy designer I copy patterns in new industries'.

Manu currently works as a freelance product and strategy designer at the Board of Innovation. This consultancy company brings design and business together by aiming for new business-model innovation in the development of services.
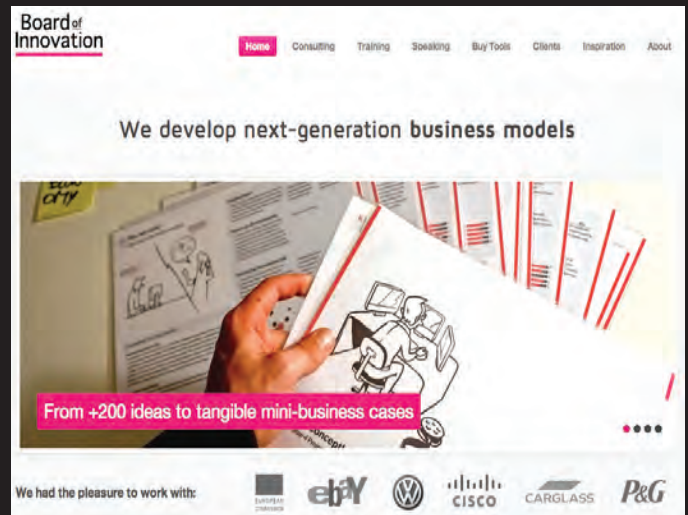
www.boardofinnovation.com
www.theaswing.com

Board of Innovation

Board of Innovation brings design and business together by aiming for new business-model innovation in the development of services, in one line: "From Understanding into Value".

For Manu and his partners every innovation challenge starts with an analysis of the business model. Their current methods and skillset provides stepping stones to design the business of tomorrow. Board of Innovation likes to position themselves as generation Y bringing consultancy 2.0. Wonder why? Board of Innovation puts Business Modelling in a new perspective. New collaboration platforms, online communities, consumers who like to connect and share provide organizations with opportunities. That's what Board of Innovation believes, breathes and brings to action in their consultancy. The service economy and its context requires services, but also new ways of delivering value. This change of way of thinking is driven by factors such as the rapid development of (digital) technology and social media.

Board of Innovation

We develop next-generation business models

From +200 ideas to tangible mini-business cases

We had the pleasure to work with: eBay VW CISCO CARGLASS P&G

Product- or strategy designer?

Manu graduated as a product designer. For his graduation project he (and his other student team members) designed a product specifically for one person. In this case a swing for Thea. Thea is a little girl with the syndrome of

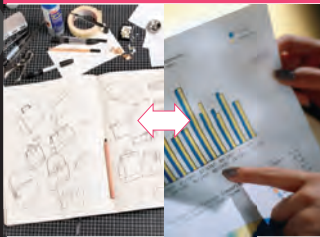Strategy Designer?

Remember THEA?

RETT, which means she has mild balance problems and cannot use ordinary swings. In close collaboration with her and her caregivers, Manu designed a swing for Thea's needs through iterative prototyping and testing with Thea and her caregivers. When working for ClaroPartners,

he began to see himself more and more as a strategy designer, instead of a product designer. A designer is good at seeing what is needed. As a strategy designer he copies patterns in new industries. His acquired knowledge of business innovation brought new opportunities to continue with the Thea swing. How could this tailored-made product be useful and accessible for a larger group of users? Manu organised a group funding and created a do-it-yourself package. This product is now available for a larger user group and affordable.

Test: Group Buying

Test: My THEA

Cost €4,85
Price +€50

> *As a designer I am good at seeing what is needed, and as a strategy designer I copy patterns in new industries.*
> **Manu Vollens**

15 years ago - 1 dominant business model

Spotify, subscription on music

Internet: new opportunities for business models

The market place has changed: from one general way of doing business towards more complex ways of doing business. 15 years ago there was one dominant business model, where goods were bought through stores, and money was made through

transactions. Take, for example, buying music. In the past you would go to the music store and by your vinyl, or CDs. The music stores still exist, but these days people have more opportunities to 'use' their favorite music. The business models of these music

services look completely different from the transaction model, such as in a store where goods are exchanged for money. Here are a few examples: Spotify is an online music service that is based on a revenue model of subscriptions. With Itunes, you can pay per song.

SonicAngel, Invest in new Artists

Itunes, pay per song

With SonicAngel, you can invest in a new artist. So the roles of the providers, users, and other stakeholders and their relations should be seen in another light. This offers great opportunities to think of new business models and serve people with services which fit their needs even better.

Co-Creation Journey
The co-creation journey of business and design is divided into a four phase process by Board of Innovation: Strategy, Opportunity Research, Concept Generation and Business Prototyping.

Strategy
In general the innovation strategy is already set. Within projects it is important to re-consider the strategy because it sets the direction for the results.

Opportunity research
The 'truly new' is often a result of existing elements and patterns in a new context. As a result, the
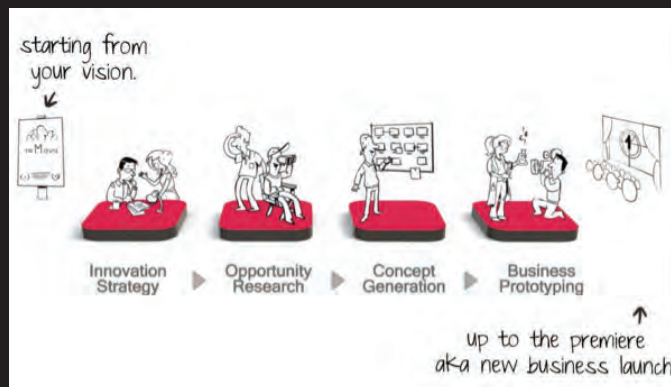
data and content created in the opportunity research phase is important in sorting out the puzzle: in collecting the insights for the new design (and its business model).

Concept generation
There are many different methods to filter and make sense of the collected information. Though it is specific for each project, the communication between design and business is essential. Board of

Innovation uses a specific format to communicate concepts, combining a catchy title, intro, visuals, descriptions, user experience with strategic fit and numbers (traditional business case).

Business Prototyping
To last phase, 'business prototyping' helps a lot to bridge the gap between ideas, theory, paper, concepts and practice. Put it to a test: does the new business model fit the current context and supply chain (stakeholders)? This (different) form of prototyping is emerging and valuable when included in the service design process.

We (Board of Innovation) define business models as: "an organisation's logic of creating, delivering and capturing value."
Manu Vollens

Toolkit
Board of Innovation has developed their own business model building blocks, to map and create opportunities in the business context. Working with a visual language or tangible tool to describe or create new ways of doing business helps to communicate it across all stakeholders and employees.

It is easier to imagine, discuss, contribute and remember the business model with such a toolkit. When working together it is important to find a common language between organizational management and the design agency.

Show why you love a certain business model! This supports positive outcomes in the design-business interaction.
Manu Vollens

Concluding
A business model cocktail is interesting, but it describes the overall picture; it is no secret ingredient to success. It is rather a method that stimulates new combinations: existing elements put together in a new context. In addition, the key steps are co-creation, collecting content prior to designing and working visually to finally prototype and measure new concepts. The toolbox is available for a larger user group and affordable as well. ID-StudioLab immediately bought two copies after Manu's lecture and the student group used this toolkit to present their ideas on business modelling for industrial designers.

Advice for designers
Manu's key advice for us is to co-create as early in the process as possible. The business model toolkit is a tool to facilitate the conversation. Manu states that showing your clients why you love a certain new business model supports positive outcomes in this design-business interaction. This is not only the case for go/no-go
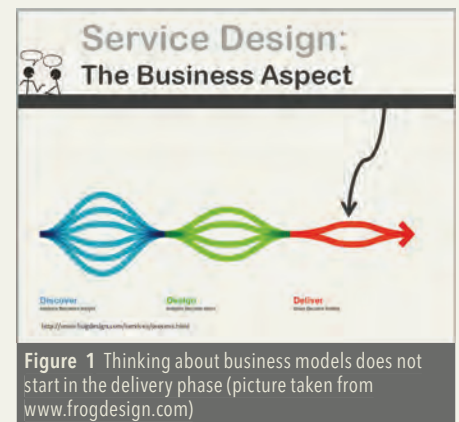
decisions, but also for the success of the implementation of a new service and its business model. Co-creation is important for a consultant, because they are expected to live up to the expectations of clients and satisfying them and on the other end create something innovative or disruptive.

Deepening the topic

Our Exploration

What does business model mean in the context of service design? Manu Vollens's lecture provided many insights on Board of Innovation's way of business modelling. Manu's lecture gave us much inspiration about dealing with business models. In this section, we further augment the information that he shared with us, by exploring relevant academic literature.

The following questions will be discussed: What is a business model? Why do we try to define a business model for services? What are the differences and similarities between product and service business models? Why is manufacturing servitizing? At the end of the chapter, we discuss success factors for service business modelling, the role of designers in business modelling and reflect on education offerings at IDE in relation to business models. ∎

Figure 1 Thinking about business models does not start in the delivery phase (picture taken from www.frogdesign.com)

What is a business model?

The meaning of the two words – Business and Model – according to Cambridge Learner's Dictionary (Cambridge 2003): business: the activity of buying and selling goods and services, or a particular company that does this, or work you do to earn money. model: a representation of something, either as a physical object which is usually smaller than the real object, or as a simple description of the object which might be used in calculations.

If we combine these words, it could be described as a representation of the activity of buying and selling goods and services. Osterwalder (2004) describes a business model as an abstract conceptual model that represents the business and money earning logic of a company and as a business layer (acting as a sort of glue) between the strategic layer and the process layer. Let's consider two other definitions and closely examine what the different terms/phrases used therein mean:

> *"A business model describes the rationale of how an organization creates, delivers, and captures value."*
> **Osterwalder & Pigneur (2009)**

> *"A business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities."*
> **Amit & Zott (2001)**

Figure 2 shows the business model canvas-tool from Osterwalder & Pigneur (2010). They described the terms they use in this definition as:

- Create value: Making the resources available more valuable (worth) to the consumers by solving problems for the consumer or by satisfying them. The service.
- Deliver value: Delivering the value that is created to the consumer.
- Capture value: Receive value back from consumers, however the value created is more valuable to the organizations rather than the consumers.

The terms used in the second definition by Amit & Zott (2001) refer to:
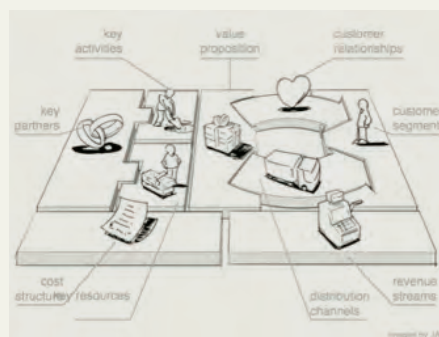
Figure 2 The business model canvas from Osterwalder & Pigneur (2009) uses 9 building blocks to define a business model.

- Content of transactions: What is delivered to whom? e.g. who receives the product/service?, who contributed what to the product/service?, who receives what back for delivering the product/service?, Etc.
- Structure of transactions: The blueprint of how the transactions are structured, when and where are the transactions performed?
- Governance of transactions: The management of transactions, i.e. how are transactions performed?

> *"Our definition of a business model for services is: The rationale of how an organization creates a service with the company's resources that solves the problems of consumers or satisfies them, how that organization delivers that service to the consumer, and finally in what way the organization benefits from the designed service."*
>
> **Student team**
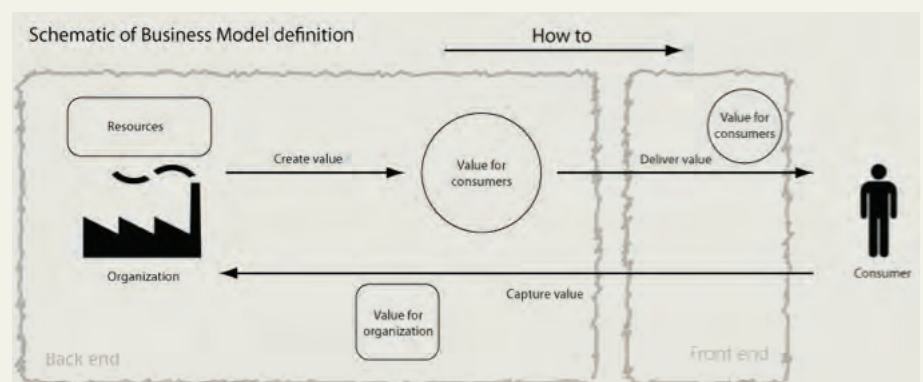
Figure 3 Schematic overview of our definition of a service business model.

Figure 4 Business Model Canvas of Spotify by BusinessModelInc.com (a basic music streaming service is offered for free to music fans. advertisements pay to cover costs.) www.businessmodelsinc.com

Figure 5 Business model of Nespresso, see page 236 (Osterwalder & Pigneur (2009) , image by Xplane.com. Nespresso uses different channels to distribute to their clients; except for the easiest channel; the supermarket.
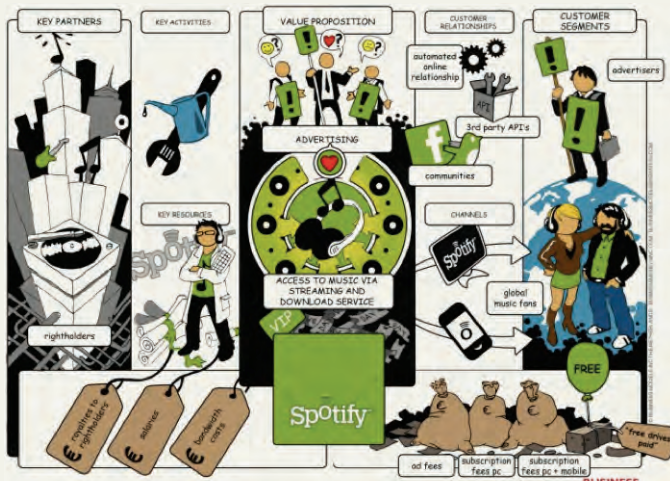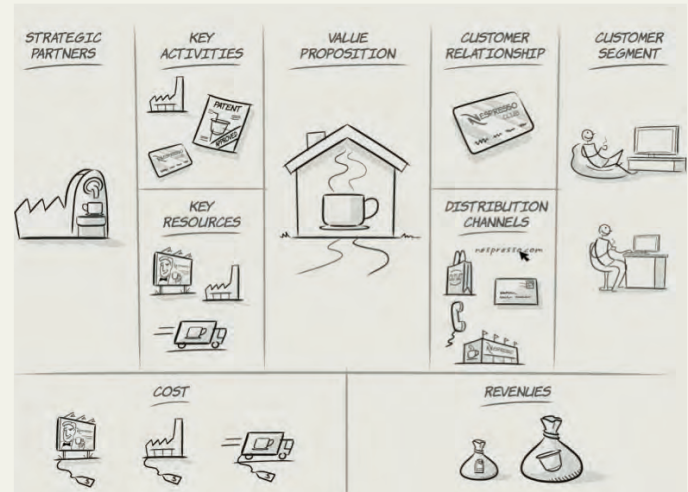
Having seen some deÿnitions of business models, let's see what business model means in the context of service. Figure 3 illustrates our deÿnition. We collected a few more examples of service business models (see ÿgure 4, 5 and 6) since there is not just one model of them. All business models address the question: how do we sustainably deliver value to our customers and translate it into value for the organization? Sustainably value creating means you are able to continue delivering your products and services in future. A business model turns the value creating

"There's not a single business model… There are really a lot of opportunities and a lot of options and we just have to discover all of them."

Tim O'Reilly (CEO O'Reilly) (2009)

and exchange in a positive economic equation. A service without a business model wouldn't be a viable value creating process to any organization (Magretta 2002).

Services are all about creating value for its users. As services become more complex

it becomes clearer that there is more to it delivering a service; it is less instant and more of an interaction with a customer for a period of time.

¸ e chain of value creation consists of several elements and actors (system architecture).

We visualize this system architecture in ÿgure 7, which shows how a business model relates to a service (front end experience) and the back end system. By the way note the similarity with this overview of front end and back end of service blue prints (e.g., on page 204/205/206/207 in Stickdorn & Schneider et al (2010).

Services will become an experience in time (customer journey) with several distinguishable phases or actions. ¸ e customer interacts with the front end, where this experience takes place and in turn the front end interacts with the back end system. Depending on the user and its context, di˜erent front end activities and back end resources are active. ¸ e whole system, service value system, should be ″exible and dynamic to meet (speciÿc) end customer and stakeholders needs. How the value is created, delivered and captured is described in the business model

QUIRKY

Quirky is an industrial design company that uses crowdsourcing to determine which products to design and to manufacture. The company collects ideas for new products via its website. Ideas are then voted for by community members, as well as by employees of the company. Products that are chosen will be designed, manufactured and marketed by Quirky. The inventor of the product and any other contributors receive up to 30% of any resulting revenue.
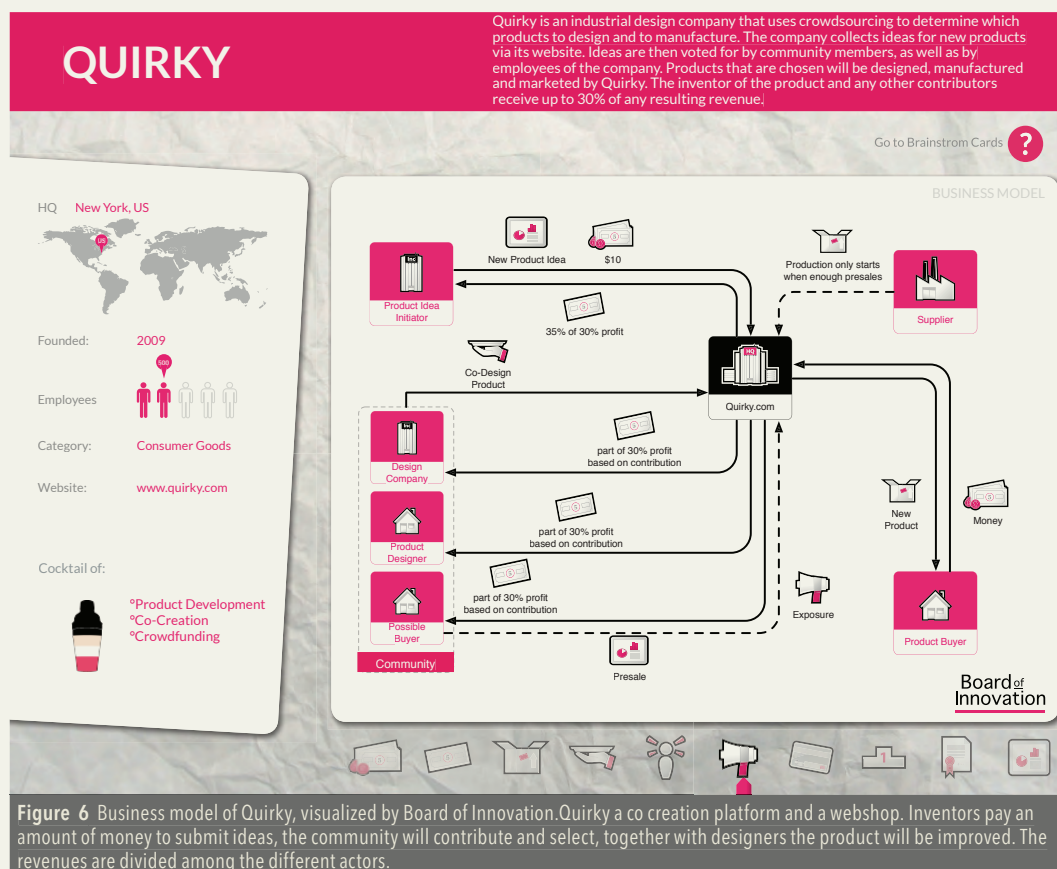

Figure 6 Business model of Quirky, visualized by Board of Innovation.Quirky a co creation platform and a webshop. Inventors pay an amount of money to submit ideas, the community will contribute and select, together with designers the product will be improved. The revenues are divided among the different actors.

What makes service- and product business models different?

The businessmodelhub.com, an online discussion forum initiated by Alex Osterwalder, facilitates the discussion between visionaries, game changers and challengers. We looked into it to find out characteristics for the service business model. One of the contributors, P. van der Pijl, stated business models for services facilitate much more interaction with the end user compared to products. According to contributors, P. Mulder and H. Bool, this is caused by the fact that services are able to meet users' needs in a higher level of customization and personalization. Product design carries more inflexibility on this point due high levels of standardization (i.e. in design and production). We think you could say products almost always have a value proposition (core solution). The value is developed, produced and delivered to you; you can take it or leave it. In the contrary services are almost always characterized by a value creation process. The value is created over time (process) together with users (interaction). The user characteristics, actions and experience has a more central role in making the service successful. Also because of the continuous interaction between user and the service it is subjected to change and it is dynamic by nature. Nowadays many products come with a service, product-service-systems (PSS). These PSS are emerging (e.g. TomTom, ZipCar, Nike+, Philips LifeLine, see figure 7). The marketplace gets filled with many different combinations between the product and service aspect.
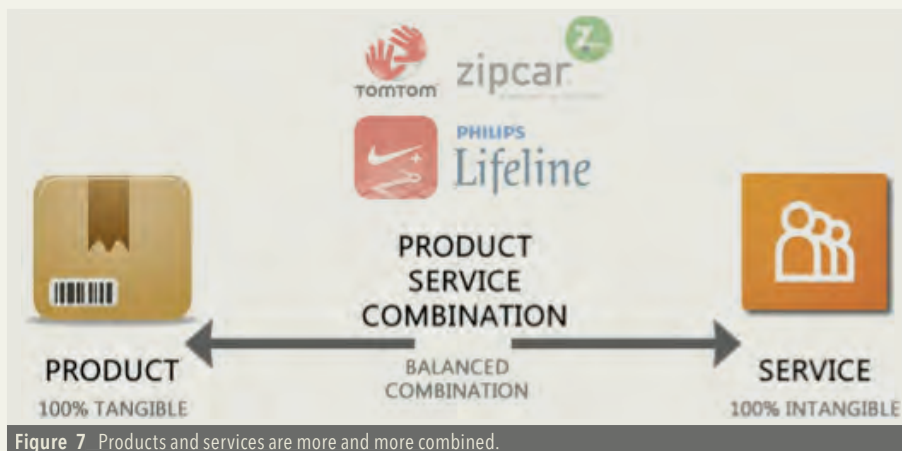

Figure 7 Products and services are more and more combined.

Why is manufacturing servitizing?

The distinction between products and services has become increasingly blurred, as organizations innovate, build and deliver towards integrated product and service offerings that deliver value-in-use. What are the factors that could be driving this shift?

Literature is unanimous in suggesting to integrate or move towards service companies (e.g. Bowen 1991; Gadiesch and Gilbert 1998; Quin et al, 1990; Wise and Baumgartner 1999). Substantial revenues can be generated: (1) services have higher margins than products (The Economist 2000); (2) services provide more stable source of income, and (3) services provide companies with sustainable competitive advantage, being much more difficult to imitate (Hesket 1997).

The transition towards a servitizing industry is a slow, difficult and complex process.

It requires new organizational principles; structures and processes. Even more, a shift from transactional towards relationship based interaction with end users is needed (Oliva and Kallenberg 2003). Hence the managerial and resource based challenges involved in such shift towards service-based organization are large. Figure 8 shows an example of such a shift.

Figure 8 Albert Heijn is in the middle of a shift: from selling goods at supermarkets to delivering services at home.

Conclusions

Business Model Innovation, and ?

Schumpeter's (1934) already recognized business model innovation as one of five sources for innovation: "new ways to organise business". Literature distinguishes between cross-industry and intra-industry cooperation considering innovation, highlighting the creative imitation and re-translation of existing solutions from other industries to meet current market needs (Herstatt and Kalogerakis 2005; Gassman and Zeschky 2008). Some examples are: BMW's iDrive system adopted from game industry, and Nike's shock absorbers adopted from Formula One racing. This not only happens to products and services but also in the way how these value offering are organized. Amit and Zott (2012) found that the majority (54%) favored new business models over new products and services as a source of future competitive advantage. However, we would like

> *"How companies do business will often be as, or more, important than what they do."*
> **Amit & Zott (2012)**

to add that no business model innovation will succeed without a 'fitting' service. Consider our model discussed before; if the system architecture or the way how you do this changes (business model), the service needs to adapt or be (re)designed as well. Therefore the (re)design or adjustment of the service is an essential activity within business model innovation.

Success factors

Manu Vollens spoke about seeing patterns, using existing elements in a new combination, using methods and skills

> *"Designing a new business model requires creativity, insight, and a good deal of customer, competitor and supplier information and intelligence".*
> **Teece (2009)**

to solve the puzzle. Such patterns are also discussed in the book from Osterwalder & Pigneur (2009). An understanding of all these factors can provide a good basis, but is no guarantee for success. The different aspects, actors and complexity involved,

indicate an opportunity for sustainable competitive advantage (setting difficulties to imitate consumer-interactions, user relationships the system architecture) and directly shows the down side: no 1-2-3 applicable theory. This is underlined by Shirky (2008) as he recognizes that a business model is provisional in the sense that it is likely over time to be replaced by an improved model that takes advantage of further technological or organizational innovations. The right business model is rarely apparent early on in emerging industries: entrepreneurs/managers who are well positioned, who have a good but not perfect business model template but who can learn and adjust, are those more likely to succeed.

Just Do It

Within the field of service design and business management there is a lot of attention on aspects of business models and services. We would like to stress out one important issue. The terminology used and discussed is broad, can be abstract and is interpreted in various ways. The different perspectives enrich the global conversation however there is only one way to find out what it means to you, as designer or as organization. This is by actually doing it. It can help to make the intangible a bit more tangible by using the Business Model Canvas or business model toolkit by Board of Innovation. Also role playing and prototyping can show the next step, where to go. Business models for services are more complex and therefore it is more likely you have to keep revising or changing the service value system within a short period of time. Our current context (i.e. with ict technology) enables us to be dynamic, flexible and quick. There is no perfect fit just from the drawing board. Just do it!

Roles for designers

First of all there are many different roles recognizable within the design of services, their business models, the system architecture or managing the project as a whole. To increase the impact of IDE students in the marketplace it is a necessity to offer steppingstones in developing methods and skill-sets for all these different roles of designers. Next to that it is also important to be able to act as a mediator; be able to

understand, communicate and leverage interaction with differently trained people. This becomes increasingly important as services and business models are designed, developed simultaneously. There is no secret ingredient. Innovation in business models can originate from many potential sources. That's why Board of Innovation preaches Content before Design.

The role of the designer and business people is to co-create and develop a shared understanding of some 'deep truth', 'latent need' or 'gap in the market', and how the current available resources and context provide elements for a successful new combination. Next to that Teece (2009) adds in line with Manu Vollens that a new business model and its service is successfully pioneered only after significant trial-error experiences or prototyping. Whereas products can be modeled digitally or by mockups, the value of the service and its business model will benefit from prototyping in real practice. Business models should be tested, adjusted, tuned and re-tested. The Service Value System involves so many aspects that you are never able to orchestrate every aspect fluently from the beginning. He is perfectly right but it does not cover everything. We recognize as

> *"Designing good business models is an 'art'.. the chances are greater if you have a deep understanding of user needs and are a good listener and fast learner."*
> **Teece (2009)**

well the following activities for designers: problem solving, analogic thinking, pattern recognition, system thinking, handling different perspectives, storytelling, managing changes, making sense of fuzziness, etc. In essence you could state all the tools mentioned in the book (p144-215) by Stickdorn et al (2010), should be within the skillset of service designers. ∎

> *"Designing a successful service and its service value system is not an art. It stand or falls not only with serving the real need and creating value for not only the user, stakeholders and the company, but success is also dependent on the business model, front and back end architecture and implementation of everything."*
> **Student team**

Implications for our curriculum

Henk said that *"I started this Service Design Processes course wondering about whether the slogan of our faculty would be changed into 'Creating successful products and services people love to use' in the future."* Within the umbrella term product and service design, there are so many relevant aspects and in this course we discovered many more interesting ÿelds of expertise related to design and services.

Therefore, we think the IDE faculty's responsibility is to offer opportunities in exploring as many as possible (or the most relevant) aspects within both product and service design.

Besides, adequate exposure in various aspects of business administration should be given to IDE students.

Nishant deems that *"Considering the shift of products to product-service systems, IDE students should also be well aware of this new reality and should be conversant in designing product service systems, rather than just products."*

In most IDE projects, IDE master students only come up with market strategy or implementation for the already designed product at the end stage of projects. According to Manu Vollens, both services and their business models are intertwined in the design process. ˛e mindset of the design process, to think of and make up market implementation only at the ÿnal stage of design process should both be addressed during meetings with companies and in meetings with mentors and coaches during our courses. Michael's experience at IDE made him suggest the following: *"Develop both the product design and the business model design simultaneously and incrementally as the design process goes on from the start".*

Tin Yang's experience also addresses the sketchy nature of our business modelling knowledge. In the course Design Strategy Project, students learn to make a business strategy of their previous IDE projects. W learn to show the goals and beneÿts for the stakeholders. But...it says hardly anything about realizing the goals and deÿnitely does not provide an overview of transactions and values. For Michael, his re˝ection on this course is similar: *"Students always have to make very rough and quick cost estimates and just have a brief thought about where they want to sell the product and how. However I think the students should be taught much more aspects of how to bring the product to the market of which one is business modeling."*

Yezhou is a Master Integrated Product Design (IPD) student. She thinks that for excample the course JMP (Joint Master Project) is still mainly product development oriented. It requires product design and product prototypes. **However, for service dominated design projects, the end result is the effectiveness of service improvement instead of product itself.** ˛erefore, the project requirements and evaluation criteria could be remodiÿed between product dominated design projects and service dominated design projects. For those projects, it is relevant to expand on service prototyping and services value systems (front/back end design and the business model), such as scenarios; customer journeys; interaction and stakeholder value mapping.

A shift from products to services or product-service combinations has happened. As students we notice that service design receives more attention in other courses besides in this thinktank course.

Many of our IDE students will be designing services in their careers.

Together with this, business modeling becomes increasingly more important and accessible for IDE students. However, the necessary skills, are currently not enough emphasized in the available curriculum. We suggest that courses will need to adjust to this as soon as possible. ∎

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Students' reflections

In my future career I want to keep up to date about service design and implement business models in an early stage of the design process. I've learned a lot of different perspectives about service design and design in general. Since I believe there is no black and white for anything I want to keep on forming my own opinion and apply the knowledge in my own way on my own work. The most interesting thing I learned during this course is to apply business models as early as possible in the design process. This knowledge is also applicable for product design as Manu said: "There exists no product without a business model; every product has to be sold somewhere, some business models are just simpler than others".

Tin Yang Wang

Product is one element in the whole business model system. In order to make financial or nonfinancial benefits for clients in the future, as a product designer, I will cooperate with client to begin with the most effective issue for improvement, no matter product or service.

Yezhou Liu

As a M.Sc. Strategic Product Design student, I am quite interested in business and innovation. In order to make a career in business and innovation, while one hand I will need a good understanding of various business aspects – profitability, value chains, return on investment etc., on the other I will have to use my imagination and knowledge to decipher new patterns, derive new meanings and envision business opportunities for my clients.

In order to enrich my knowledge and keep myself updated, I consider it is very important to listen to people who are 'interpreters' (through any possible medium) – renowned journalists, designers, business leaders, learned academicians et al. Doing so, will enable me to have a broader perspective on the events that take place around me. Having a broader perspective, in turn, will enable me to assimilate complex information and identify new opportunities in whatever domain I am working in.

Nishant Bhaskar

This course has made my interest in services and business models grow even more. I have learned a lot about how broad the field of service design can be. Especially the Board of Innovation's approach to mixing business models from industries has been an eye opening experience for me. I always presumed that business modeling was a very strict, theoretical and complex process, whilst I now know it is a very open, logical and flexible process everyone, with or without MBA, can do. Especially my creativeness and problem solving skills as a designer can be a benefit in business modeling since it seemingly is a rather creative and problem solving oriented process. In the future I would like to keep up to date with the latest business models in order to keep learning on this dynamic topic and to hopefully create and apply business models of my own, for both products and services.

Michael Jenkins

Personally I think this think tank course was really helpful to explore the tip of the iceberg "How to design a service?". The service design perspective got much clearer. I would say we got into some details of many different aspects but I am actually eager to put it to practice now. At the same time I realize it is difficult to combine or focus on all different aspects involved in such a design project. Therefore this discussion about the different roles of designers is so relevant. I like to think of a service, its back-end system and involved business model as the complete service value system. I understand one cannot explore all aspects at the same time; but personally I do like to put myself to practice in the back-end and business modeling part of products and services. Because in the end; it's mostly about the question: How will we generate value and make companies able to capture some part of this value? Next to that it feels like there is a certain gap in the implementation part. To understand this properly and being able to design in this context I would really recommend the course to any IDE student interested in services.

Henk Nagelhoud

Looking back

Well….what inspiring stories! First, a big thanks to all the contributors to the think tank; the guest speakers for their openness to share their stories, and the students and staˉ members for their proactive attitude and their critical discussions about the topics addressed. I feel this was a great way to collaborate with professionals and students and together develop design methodology further.

Some lecturers opened our eyes, while others shed a new light on our processes or methods. Although there often was a lot of recognition, most of all, we felt inspired to further shape and reÿne the profession. Altogether, we gained a better understanding of what service design is all about. At the start of this project we formulated three questions:

1. What is this 'service design' thing?
2. Are the processes, methods, tools and knowledge diˉerent for designing services in comparison to designing products?
3. Based on the answers to the ÿrst two questions, what are the implications for the IDE Delft curriculum for the next generation of designers?

Although we can, and will, give a brief answer to the ÿrst question, we realised in course of the think tank that the second question is not the right one to ask: in service design the end result is not necessarily an intangible service rather than a physical product. ˛e outcomes of service design processes are often, just as in industrial design, a combination of various product and service elements. We found that the basic design processes, methods, and tools are similar, often identical, although some of the 'materials and mechanics' are diˉerent.

˛e last section will answer the third question about the implications for the curriculum, followed by a quick discussion of similar developments at other design schools.

What is this service design thing?
In the introduction of this book, we already tried to deÿne what people mean by 'service design'. One ÿnding is that many people use the term and the way in which they do diˉers a lot.
As the work done under the ˝ag of service design is so multidisciplinary in nature, such diˉerences often lead to misunderstanding. ˛ese diˉerences, though, are di˙cult to overcome, as each hinterland understands their local jargon. What distinguishes the work conducted in practice under the ˝ag of service design is not its result, but its mindset and process.

> *"Service design is not about services, but a perspective on designing."*
> **Froukje Sleeswijk Visser**

In short, the service design perspective supports (1) the holistic perspective on the user, and (2) the approach to take into account the complexity of multiple actors, providers, users, and other stakeholders over a longer period of time. Altogether it feels as if some kind of marriage has taken place, wherein empathic design and experience design have merged with new disciplines (such as business, marketing, communications, and logistics).

To conclude, we found it most helpful to regard service design as a perspective to design rather than a distinct discipline next to industrial design.

Incubation: putting it together

Industrial design and service design are much closer connected than we expected. But to see how we can improve the existing industrial design profession, it is worthwhile to zoom in on the diﬀerences that are present. We ﬁrst summarise the topics of the preceding chapters, after which we will discuss the overal insights about service design in relation to industrial design.

Summary of addressed topics

Involving users

ﬀe case described was about the interior design of the new Operating Rooms at the UMCU hospital. So far, it is one of the ﬁrst projects in the Dutch healthcare business to actually involve doctors, nurses, technicians cleaners, and managers into the design process of the ORs. Although the methods used to involve this variety of users, through prototyping and role playing, might not necessarily have been new to us, to learn how they were employed in detail was very educational. ﬀe role of designers can be that of facilitators: not only facilitating a creative session, but entire (collaborative) processes. ﬀis type of facilitation has to do much more with dealing with people and motivating them over the longer course of an entire design process compared to the facilitation of a brainstorm session. A key insight into the reason why the facilitator of the co-design process had gotten so many people to contribute to the new design of the OR was that she was an internal stakeholder and knew most people personally: she had already worked there for 25 years. Another key to success was creating diﬀerent visualisations to speak with diﬀerent users, instead of forcing stakeholders to work with tools that didn't ﬁt their skillset.

Prototyping

ﬀe lecture and review of the students brought a lively discussion on what prototyping actually is. In the lecture the prototyping examples were, in our view, applications of generative tools similar to those used in contextmapping. As services are generally more intangible than products, it is not so surprising that each possible concrete part of a potential service, even when it is a print of a document or a set of toys to explore user needs, is referred to as a prototype. In industrial design we tend to talk about prototypes when there is a ﬁrst representation of (a part of) the concept which can be explored or evaluated.

ﬀe main lesson learned was the importance of creating tangible and visual representations during the entire design process, whether for products or for services. Prototyping is more than an evaluation tool, and can be used as a constant reality check with users and other stakeholders to see whether a concept is potentially interesting. As a suggestion, the students recommend to invest more eﬀort in design theory (the 'why' of prototyping) in IDE education.

Social media

Social media are evolving rapidly; the social media activities described in the case of ABN AMRO are probably already outdated as this is written. Social media was included as a topic, because many companies (product and service) 'tick the box' of involving users by stating that they 'make use of social media,' period. We know that involving users is more than something you just do; it consists of various steps, of carefully framing the questions and approaching users, and of an analytical attitude towards the feedback from users. ﬀe lecturer elaborated in detail

about the possible pitfalls and strengths of using social media for diﬀerent ways of user involvement. It can deﬁnitely have the potential to involve people, whether passively or more actively. ﾠe key lesson was that, in any design process, we should be careful in deploying social media: one mistake and you might lose your audience, as the Volkswagen case made obvious.

Commitment of stakeholders
In service design projects the mechanical manufacturing is often largely replaced by organisations, systems, IT and a lot of people. ﾠis changes the game of designing, bringing into play change management and stakeholder commitment. Design tools help to speak a language everybody understands (for example, using post-its instead of just talking in a meeting, making the concept tangible by early representations, and using user-centred methods for research and collaborative activities). In this chapter, the guest speaker (who is a design consultant with a business background) and a design consultant with an IDE background were interviewed about their approaches to building relationships with their clients and stakeholders.

Topics for discussion were design thinking, change management, facilitating skills, and empathic mindsets. ﾠe key insight of this exploration was that IDE students lack knowledge, methods and tools to serve the client's side, who are often on the provider's side, to the fullest.

One of the recommendations for IDE education is to provide more attention to being 'empathic', i.e., understanding the clients' needs, values, possibilities and limitations, to organisations besides being empathic towards the end-users.

Back end design
ﾠe production of service solutions is quite diﬀerent from producing goods in a plant. Often, after a concept is delivered, the organisation is unable to further develop that into an implemented service system. ﾠe actualisation of services involves a chain of elements, wherein the 'employee' often plays a vital role. Knowledge and experience in Human Resources provide new challenges for industrial designers.

ﾠe case described zoomed in on improving the functioning of a call centre at a telecom company. ﾠe design team applied user-centred methods such as contextmapping to better understand the everyday experiences, needs, and motivations of the call centre employees. Aided by this understanding, the designers could create a much more eﬀective and enjoyable working environment, which resulted in a higher customer satisfaction.

ﾠis example shows that we could also apply user-centred methods to better understand and engage with the clients' side. Furthermore, we had a lively discussion with the entire think tank group whether we as designers should gain more knowledge, not only about the people and organisations at the back end, but also about the technical side of the back end. We concluded that, although it would be useful, it is not immediately necessary as part of IDE education: it is more important that designers can communicate with experts in IT, logistics and database management.

Business models
Every product or service has a business model, but business models for services are generally more complex than business models for products. We are living in the midst of a transition, moving from 'owning'

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something, to buying 'access to' something. For example, in the past, people would buy a record or a CD, whereas now people subscribe to an online music service to have access to their favourite music. ˛e guest speaker showed di˜erent tools to create business models and applications of business models. A revealing insight was to bring business modelling forward, to the earlier phases of the design process, in order to think, play, and discuss business models and stakeholder involvement in a sketchy way: just like concepts that are still sketchy at an early stage.

The bottom line

Some topic explorations were helpful to reÿne or re-emphasize their importance in designing (such as involving users, prototyping, adequate use of social media). Other explorations extended our knowledge and opened opportunities to improve our knowledge and skills as IDE designers (such as strategies for committing stakeholders, back end implementation strategies and business modelling in the fuzzy front end). Although it is not a comprehensive overview, it rather serves as a ÿrst attempt to address some important topics which fall under the umbrella of service design (see ÿgure 1).

Overall, we gained the following main insights about service design in relation to industrial design:

Service design is not just about services
At IDE, the outcome of a design process is often a potentiality, a meaning, and not necessarily a 'thing'. ˛is is even more the case for service design: we learned that service designers do not necessarily design

services. Outcomes from service design processes can be anything: products, services, interior designs, buildings, organisations, new connections between stakeholders, IT solutions, HR management plans, or even more likely a combination of these. As a consequence, design projects are characterised by the openness of their outcomes. Instead of distinguishing between design processes by their outcomes, whether product or service, it makes more sense to distinguish on mindset or type of design approach.

Solution space is huge & complex
As more and more product solutions have service components, and service solutions almost never exist without physical artefacts, it is educational to learn more about the product and service components and how to integrate them in design processes. Most noticably in service design projects, the solution space becomes increasingly wider and often cannot be clearly framed beforehand.
In traditional industrial design, the solution space of a new waste bin, for example, is bound by the possibilities of manufacturing (bending steel). In a service design project,

guest speaker	emphasis in their lectures
Jonas Piet	designing the organisation behind a concept: as a designer, you are always dealing with more than one thing and one party
Ina Roubos/Quiel Beekman	incorporating the voice of many different end users into the design solution
Geke van Dijk/Marie de Vos	understanding the users' point of view
Lex Dekkers	using social media to smooth the connection between user and provider
Tim Schuurman	managing change within organisations
Erik Roscam Abbing	acknowledging differences between service realisation and product realisation; the human side of back-end design (such as trainings)
Manu Vollens	considering business models at an early stage of the design process.

Figure 1   Points of departure on service design by the various guest speakers.

for example, that deals with patients entering the hospital to visit a doctor, the solution space could consist of, to name a few, a front desk or a waiting area (interior design), a routing programme, software programmes, employee training, apps for end-users, or even a set of networked products and services.

̦is is a big challenge for designers since clients often want certainty and clarity about the end results of design processes. Designers have great di̇culty to make clear how their processes beneÿt the organisation and its business in terms of concrete end results or even in monetary terms (e.g., Return on Investment). Because of this multitude of possible solutions, the inclusion of multi-stakeholder approaches, required to create and implement the suggested solutions, is more prominent in service design.

UCD has become established practice
Service design projects take the users, their everyday lives, contexts, motivations, needs and aspirations into account. ̦is holistic view on people in their everyday lives is exactly in line with the core of any design project at IDE. Our students are taught to design concepts (either products, services, or, increasingly, combinations in product-service systems) by involving users, for example, through contextmapping, observations, iterative prototyping and many other user-centred design methods. So it seems that what we have embraced all along in our faculty has gotten more attention beyond IDE; other disciplines such as business, marketing, communications, social sciences also began to see the value of putting people ÿrst in innovation projects of any type and use design-inspired methods. Taking into account the users' context has become an inherent part of design processes. Design practitioners no longer need to justify every detail of their user research and co-creation: it has become an accepted part of designing.

From one to multiple touchpoints
̦e service design wave introduced the term touchpoints into the general design vocabulary. Touchpoints are all the points (moments) when a user comes into contact in one way or another with the service. Creating customer journeys helps to identify these touchpoints. In almost all service design projects, we have seen customer journeys and touchpoints being created and used as anchor points for several design activities along the process. IDE students are trained as user-centred designers, but from the traditional industrial design background they still often focus on one user, one moment and one interaction. Taking multiple touchpoints into account contributes to the holistic user-centred mindset.

Spotlight on provider
Over the past decades, industrial design has intensiÿed its understanding of users and their everyday contexts. With service design, a new complexity needs to be addressed: that of the provider. ̦e use-time complexity can no longer be adequately understood as a user-product interaction, but becomes (sometimes through products) a user-provider interaction. ̦is development signals that industrial designers have a new ÿeld to explore, a ÿeld that hasn't received much attention yet: that of the provider's side. To ensure that their concepts can be implementend, designers need to better understand the complex networks in which multiple stakeholders and organisations are interrelated and collaborating.

Looking forward: implications for the IDE curriculum

Design is becoming even more inter-disciplinary than IDE has been; roles of designers are becoming more varied and the wave of service design brought more attention to the roles designers can play in society. How can we tune in, as a Faculty of Industrial Design Engineering, to provide the next generation of designers with an appropriate 'backpack' to face the challenges their future career will bring? In answer to that question, we formulated a set of recommendations for design education, particularly suited for the current IDE curriculum at Delft University of Technology.

No new Master programme

ˌere does not seem to be a case to set up an entirely new master programme for service design. Students in the current programmes are already equiped to a great extent to operate in the service design arena. At the same time, there is no single set of skills that can be attributed to 'the' service designer, in the same way as to 'the' industrial designer, product designer, and interaction designer. Instead of setting up an entirely new programme, we should provide interested students with the additional means required to work in the service sector. Figure 2 gives an overview of the current masters' education at IDE. ˌe bachelor programme provides a general, all-round education in industrial design engineering. Although the master programmes are specialisations, students are still educated as all-round designers. It is up to the individual students to decide how to specialize themselves further. ˌe wide range of elective courses oˊered allows students to specialise in their own area of interest. Students who are interested in the service design perspective might want to ÿne-tune

their education by taking a speciÿc set of electives. Useful electives for these students could be the following, to name a few: Video in Design (BSc elective) to learn more about visualisations by means of video in several stages of the design process; Prototyping for Interaction and Participation (MSc elective) to learn more about prototyping in multidisciplinary settings; Re˝ection on Designing (mandatory DfI course, but an elective for SPD and IPD students) to learn about the roles of designers in society; Product-Service Systems (MSc elective) to learn about the immaterial parts of product-service in collabartion with students from other disciplines; Service Design Process (MSc elective). ˌis last course consisted, in 2012, of the think tank of which this book is the result. ˌis year the course zooms in on one of the recommendations in this book: no. 7 client involvement).

ˌis is, however, far from a complete set. To serve those students with an interest in the service design perspective, we recommend the faculty do the following:

1. Involve design practitioners

ˌe faculty has a long history of connecting with design practitioners. ˌere are a number of opportunities of connecting students to practice: guest lectures, collaborations, sponsorships, design contests, internships, and graduation projects. Still, more proponents from service could be brought in to strengthen the connection with current design practice.

2. Be more clear about IDE

Outsiders do not easily recognize the value that IDE graduates oˊers. ˌe perception of 'design' in the world is still closely tied to the styling of physical products or graphic

electives for all MScs

Design for Interaction

Project Understanding, Use and
 Experience
Context & Conceptualisation
Interactive Technology Design
Visual Communication Design
Reflection on Designing
Exploring Interactions
Project Usability and User eXperience
Assessment in Design
DfI Research Methodology

Joint Master Project
Internationalisation
Design Theory and Methodology
Generic and Professional Skills
Graduation Project

Integral Product Design

Advanced Concept Design
Advanced Embodiment Design
Managing Product Innovation
Strategic & Sustainable Design

Joint Master Project
Internationalisation
Design Theory and Methodology
Generic and Professional Skills
Graduation Project

Strategic Product Design

Context & Conceptualisation
Brand & Product Strategy
New Product Commercialisation
Customer Research in NPD
New Product Economics
Leading Strategic Design
Strategic Value of Design
Design Strategy Project
SPD Research Project
SPD Research Methodology

Joint Master Project
Internationalisation
Design Theory and Methodology
Generic and Professional Skills
Graduation Project

Figure 2 Overview of current courses offered by IDE for each MSc programme and the range of electives for all MSc students
(www.studiegids.tudelft.nl).

design, not user-centred complex systems.
In service design, what we consider as 'the
strengths of designers', such as conceiving
and developing concepts for new oﬀerings, is
often done by people from other disciplines
such as business, communications, social
sciences who moved into service design.

Compared to other professionals in service
design, designers with an IDE background
have added values;

- ﾠ ey are able to deal with complex
  problems and, through a creative and
  structured process, frame those problems
  in such a way to generate concrete
  solutions.

- User-centredness and techniques for
  involving stakeholders in codesigning have
  been an established part of the education.

- Last but not least, a unique IDE strength
  is their ability to develop feasible
  solutions, i.e., concepts that are worked
  out in suﬃcient detail that they can
  be implemented, often including a
  development plan, and possibly a roadmap
  for further development.

ﾠ e faculty has a task to explain these
things better to the world promote what
it is about, and in what ways its graduates
can contribute in industry and in society.
At the same time, the faculty should train
its students in positioning themselves in
their professional life, knowing what roles
they can play, and being able to 'sell' their
skills. Currently, IPD students are taught
how to create a portfolio showing renderings
of product designs and the argumentation
behind it. However, students also need
ways to communicate their other skills
and achievements on levels of interaction,
experience, strategy, and clarifying method,
process, and justiﾠcations thereof. ﾠ e latter
include experience in facilitating stakeholder
collaboration, being ambassador or even
becoming an 'intrapreneur' to champion an
idea further into an organisation.

3. More education in business modelling
An eye opener was the lecture of Manu
Vollens, who showed us several ways of
creating business models and value maps
with several stakeholders in the beginning
of the design process. ﾠ e models and

maps are sketchy and open to discussion with multidisciplinary partners, providing opportunities to simultaneously design a concept and its connected business model. Such tools could be more present in IDE education.

4. Bring in more knowledge about the back end of service providers

Designers need to understand the abilities and possibilities of their clients. In product design, this would be manufacturing possibilities (e.g., assimilation and production of metal, wood, or plastic parts). With the service design perspective, this involves means to organize the back end of a service. Designers who lack such an understanding of the solution space cannot devise an optimal design. IDE could provide more knowledge about the back end design.

5. Strengthen facilitation skills for collaboration

Facilitation skills are an important part of working in collaborative multidisciplinary teams. We expect some of the students will want to focus on strengthening those skills. There should be some room, for instance in the electives, to provide that training.

6. Bring in more theory on prototyping

IDE has long had a strong reputation of making ideas tangible through prototyping. Students learn a lot about how to make a prototype, whether it is used to test a concept's mechanical or electronic function or to explore user interactions and experiences. Especially DfI students are taught several prototyping skills. But there has been less attention on the explicit instruction in the rational behind prototyping for the other master students

or even bachelor students. Students may know HOW to make a prototype, but lack a sufficient understanding of why they would make a prototype, of what form, during what stage of the design process. To ensure that students use the right form of prototyping for the right question, they should better recognise the functions and limitations of different types of prototypes.

This is where the service design perspective is helping us further, as it usually has a focus on multiple touchpoints, which affects how prototypes are used to explore or evaluate ideas. A good example of the new methods to prototype service components is the service walkthrough (Arvola et al, 2012).

7. Client involvement

IDE students receive a good deal of solid engineering education and are excellently equipped to deal with end users, work in teams, and consult experts. They are less well equipped, however, to speak the language of clients, using the reference points the clients are familiar with (clear deliverables, metrics, business models, to name a few). One example of addressing this recommendation is the follow up to this think tank. This year's focus is on communicating and connecting with the client, in this case Zodiac Aerospace. Students are asked to pitch their in-flight service concepts in several stages along the design process to various stakeholders of the client. This way students are getting trained in involving the client.

To conclude, these are a few suggestions for the IDE curriculum. By spreading this book around within and outside the faculty we hope to further the discussion about service design by industrial designers and strengthen its connection.

How other design schools deal with service design

We are not alone in this. Design schools elsewhere are also coping with the service design phenonemon. I took a look into the developments of service design in education beyond IDE at Delft University of Technology. A ÿrst insight is that especially many non-design disciplines (e.g., business, marketing and economics) are setting up programmes labeled as service design, and mainly include what is now marketed as 'design thinking'; these progammes do not provide the same in-depth design skills as those listed on page 99.

To learn how other design schools with a strong reputation in design, similar to IDE, are dealing with service design, I asked the views of three academics who are involved in design education and in integrating service design; Tuuli Mattelmäki from Aalto University, Stuart Bailey from Glasgow School of Art, and Stefan Holmlid from Linköping University.

All three experts agree with the main ÿnding that there is a large overlap of product design (or industrial design) and service design. As

there is such a large overlap, they do not feel the need for a speciÿc 'service design' programme, in addition to their current design programmes.
But what they all do agree on is the need to integrate some of the service design aspects into their current design programmes in order to provide design students with skills and knowledge they need in ÿnding their future jobs.

Glasgow School of Art

˛e Glasgow School of Art o˜ers several design programmes of which the BDes and MEDes programmes in Product Design and MDes programmes in design innovation cover service design elements.
At the Glasgow School of Art, they recognised that, in response to a changing design and socio-political landscape, students were proposing design solutions to projects that were more service than product oriented. In 2007, service design was introduced by bringing in project input from Engine, a service design agency (www.enginegroup.co.uk), in a project-based course.

"I agree with you that many of the skills required for designing services are already central to good design programmes and in many ways it is a refocusing that is required rather than a new course in service design…Rather than developing a separate service design programme, we initially integrated service design in a project-based course in the third year of our Product Design Bachelor programme."
Stuart Bailey

"We come from a strong foundation of collaborative design, empathic design and user-centred design. Service design builds upon these fundaments, but also addresses new challenges such as designing for the public sector. In our design programmes we focus on public services and have included topics such as organisational transformations, co-production, value co-creation, and new kinds of collaborative models like creative communities."
Tuuli Mattelmäki

*"For a long time I have argued that there is no need for a specific 'service design' programme as a complement to existing design programmes. These are all built on the same fundaments.
When it comes to courses, that might be different. Especially if you think of how to create arenas where different competences can come into play."*
Stefan Holmlid

Stuart Bailey is lecturer at the Glasgow School of Art (UK). He is teaching at the Product Design programme and Product Design Engineering programme (both Bachelor), and is subject leader for the Master programme Design Innovation and Service Design.

Tuuli Mattelmäki is associate professor at the department of Design at Aalto University (Finland). Her research interests concern creative co-design methods in design for services, as well as the new application contexts of designerly approaches.

Stefan Holmlid is associate professor at the department of Computer and Information Science at Linköping University (Sweden) and heading the Design Master. He is teaching human-centred, interaction and service design.

In an online journal, Stuart describes how product design entails more than designing physical products:
"... the skills required for a user-centred approach to product design are not too far removed from those required to design services. Product design is after all more than the design of artefacts and products; it includes the experience of using them. It does not, therefore, take very long to recognise that the interaction with products and the service that the product supports also plays a major part in the user experience." (www.re-public.gr/en/?p=2232)

Stuart further emphasised that integrating service design in their programmes helped to create a consistent vocabulary in design activities:
"We recognised that the design skills already developed within the product design programme were already suited to design for services, as in fact many students had demonstrated in earlier projects, and we had already integrated social sciences to user-centred design teaching. What was missing was a service design 'lens' for recognising, observing and analysing a service and a means of communicating the design of the service. We discovered that by developing a consistent vocabulary for design as applied to services was key to developing students' confidence in communicating their design processes and service propositions. By adopting service design tools, such as customer journeys, stakeholder mapping and service blueprinting, the students were more able to express their ideas more clearly."

Aalto University

Tuuli works at the Department of Design at Aalto University School of Arts, Design and Architecture. ˛ is department has several BA and MA design programmes, of which Industrial Design and Strategic Design is quite comparable to IDE Delft. In this programme several courses of service design are integrated. Since 2009 Aalto University also oˆers three service related masters, which focus on service management (led by Aalto School of Business) or service engineering (led by Aalto School of Science) (www.servicefactory.aalto.ÿ /ÿ /education). Currenty the Department of Design is not part of these programmes.
Tuuli recognizes the tricky closeness of user-centred design and service design mindsets. For example, she is currently responsible for a new large course called Designing Services (DS). Another large course of the programme, User Inspired Design (UID), already oˆers content such as design empathy, user centred methods and probes.

Tuuli: *'I have needed to think how to differentiate UID from DS, which was not easy, because much of the competences are there already: user involvement through different means, visualisation, brainstorming, teamwork, etc. I have tried to gear DS from user-centred design to co-design-meaning really understanding various stakeholders and their relationships in the network of employees, managers and customers, the organisational transformations and collaborative services etc., ….transformation design.'*

Linköping University

As part of the Institute of Technology, Linköping University oˊers several design BAs and an engineering MSc programme. A design MA is available through the Faculty of Arts and Sciences. Stefan works at the Department of Computer and Information Sciences. His research group Interaction and Service Design (IxS) studies the applied art of facilitating people's interaction as it is mediated by IT-based products, services and systems.

˛is department started a Design Master a few years ago, with a multi-disciplinary approach. ˛ey ran it at full speed for a few years, and then integrated some of its elements back into the Cognitive Science programme, and other elements into the Design and Product Development Engineering programme. ˛ere has been an increase in the amount of design courses and programmes in the last eight years says Stefan:

"*We are adapting our programs and courses to the changing work landscape of industrial designers, interaction designers and industrial design engineers, as well as to the new research knowledge created in, around and for these professions. Our conclusion is that we do not need to develop a new master in service design, because service is a natural part of these changes, and we wish to keep the spirit of cross/ multi-disciplinarity of our university.*
In the longer run, this means we are adding courses and restructuring content so our students are prepared to work in environments where service is part of the business, or is the whole of the business. They are free to specialize

in other directions, but they will have the fundamentals of human-centred design, and building blocks across disciplines, to rely on.... For the design students we make sure that they are exposed to different design contexts and need to use several different ways of conceptual thinking, and try to suggest alternative futures that are product-based, service-based, etc. For the engineering students we have engineering, business and design courses that focus on the idea of "service" as a main business. For both we stick to the human-centred fundament for design; and that makes much more sense to students, when they are not restricted to producing only e.g. products as suggestions for solutions to whatever user 'needs' they have elicited."

˛ese external views are in line with our own ÿndings about the service design perspective for industrial designers. To conclude, industrial design is not just about nuts & bolts, screens & buttons or sockets & plugs: it is about shaping our everyday lives now and in the future.

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