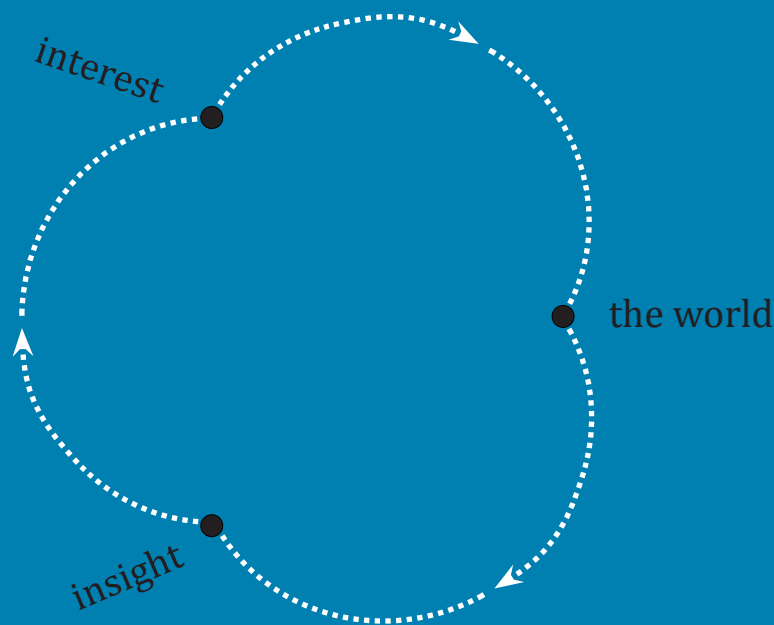


# Locating Method Principles

between research interest and design insight



# Locating Method Principles

Between Research Interest and Design Insight

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Master of Arts Thesis  
Industrial and Strategic Design

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**Abstract:**

'Locating Method Principles' is a Master of Arts thesis that asks how design relevant insights are drawn from user inspired, contextual research. In particular, it asks how methods have supported and guided such a process in a study of passengers' safety experiences in leisure cruising. This particular project was run in 2012 in a Triad, a multidisciplinary student team of three employed by Cruise and Ferry Experience Program, a unit of Marine Technology in the department of Applied Mechanics in Aalto University. This thesis is part of the original contract, and therefore delivered for Cruise and Ferry Experience Program.

The foundations of this thesis are set on the argument that design and business benefit from looking at situational and multifaceted practices, i.e. human activity in the places where it normally takes place. The rewards for seeking to understand related experiences lie in producing a clear, grounded perspective on opportunity areas: design directions that would be desirable for studied people or people like them, as well as the organization producing offerings to be consumed by these target audiences. However, given increasing emphasis on design research, there are more methods to choose from than ever. This has potentially reduced sensitiveness to original method aims and working principles. A main motivation for producing this thesis is therefore to enhance the gains of running research for design.

Here design research is presented as an early front end, concept development serving activity. A brief introduction is given to research for design in general, and its history within design. The main part of this work concentrates on the process review. For it several research activities have been first grouped into six main chapters based on shared, methodological characteristics. These have been classified as three ways of gathering data, and three aspects of producing insights: benchmarking and reference seeking, semi-structured interviews, observation and context studying, interpretation, synthesis, and communication of results. For each of the six discussed methods, a background and adopted perspective are outlined first in order to study key aims. Then a set of method principles, i.e. essential criteria binding the application of the method in question are covered. These principles have been derived from practical experiences and a study of related literature. Explicit references to the underlying, earlier project are provided by introductory case descriptions preceding each of the six method chapters.

In the discussion section observations on an emerging general view are drawn out: Methods provide a shared starting point for discussing research intensive practices. However, any drive for applying produced findings, inducing change by i.a. design, has to come from the people involved and invested in the research. Method principles are seen to be shaped by the acknowledged legacy of used methods, as well as contexts of their use. As such, they structure practical work and further define research focus. Design researchers are promoted to the role of active agents that lead the identification, articulation and selection of design opportunities. In adopting a user oriented stance they mediate between engaged stakeholders. To this end, methods can break routines and facilitate collaboration. A working over of methods as a part of defining necessary action and objects of interest then becomes an essential ingredient of produced learning. Finally, given the qualitative, small scale and open ended take to research, produced insights are of a tentative nature: No promises are made of universally agreeable or generalizable results. In fact, the relevance of such criteria is being questioned given a focused, selective sampling, as well as ambition to provide novel, differentiated designs.





Tekijä:	Elisa Pyrhönen		
Työn nimi:	Locating Method Principles. Between Research Interest and Design Insight. (suom. Menetelmäperiaatteiden paikantaminen. Tiedonhalusta muotoilunäkemykseen.)		
Laitos:	Muotoilun laitos		
Koulutusohjelma:	Teollinen muotoilu		
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#### Tiivistelmä:

'Menetelmäperiaatteiden paikantaminen' on taiteen maisterin opinnäyte, jossa kysytään kuinka käyttäjälähtöinen, kontekstikeskeinen tutkimus tuottaa muotoilutyötä tukevia oivalluksia. Tarkastelu pohjautuu vuonna 2012 Aalto-yliopiston Insinööritieteiden korkeakoulun, sovelletun mekaniikan laitoksen Cruise and Ferry Experience -ohjelmalle suoritettuun projektiin. Kyseisessä projektissa tutkittiin risteilymatkustajien turvallisuuskokemuksia. Se toimitettiin 'Kolmen koplassa', kolmihenkisessä ja monialaisessa opiskelijatiimissä. Tämä opinnäyte on osa alkuperäistä sopimusta ja on siten tuotettu Cruise and Ferry Experience -ohjelmalle.

Työ perustuu ajatukseen siitä, että muotoilutyö ja liiketoiminta hyötyvät tilannekohtaisten ja monivivahteisten käytäntöjen, eli ihmistoiminnan tutkimisesta paikoissa joissa sitä tavanomaisesti ilmenee. Palkkiona pyrkimyksestä ymmärtää näihin liittyviä kokemuksia toimii selvien, perustelluiden näkemysten luominen avoimista mahdollisuuksista: kehityssuunnista jotka vetoavat niin tutkittuihin, tai heidän kaltaisiin ihmisiin, sekä yritykseen joka pyrkii tuottamaan tarjoomia näille kohderyhmille. Muotoilututkimuksen suosion kasvaessa menetelmien kirjo onkin kasvanut huomattavasti. Tämä on mahdollisesti heikentänyt tuntumaa menetelmien alkuperäisiin tavoitteisiin ja toimintaperiaatteisiin. Motivaatio tämän opinnäytteen tuottamiseen nousee siten tavoitteesta vahvistaa muotoilututkimuksesta saatavaa hyötyä.

Tämän opinnäytteen puitteissa muotoilututkimus nähdään osana varhaista konseptisuunnittelua. Aluksi luodaan lyhyt katsaus muotoilututkimuksen yleiseen luonteeseen, ja sen kehitykseen muotoilun saralla. Työn keskeisin osa pureutuu prosessikuvaukseen. Sitä varten useita eri toimia projektin varrelta on ensin ryhmitelty kuudeksi pääkappaleeksi jaettujen, metodologisten piirteiden perusteella. Nämä on puolestaan luokiteltu kolmeksi tavaksi kerätä tietoa, ja kolmeksi tavaksi tuottaa syvempää, jäsennehtyä näkemystä: vertailuanalyysi ja vertauskuvien etsiminen, teemahaastattelu, havainnointi ja kontekstin tutkiminen, tulkinta, synteesi, ja tulosten välittäminen. Jokaisen kuuden, käsitellyn menetelmän tausta ja valittu näkökulma käydään ensin läpi keskeisten tavoitteiden selvittämiseksi. Tätä seuraa menetelmäperiaatteiden, eli menetelmien soveltamista sitovien perustavanlaatuisten kriteerien tarkastelu. Nämä periaatteet on johdettu käytännön kokemuksista ja kirjallisuuskatsauksesta. Opinnäytteen lähtökohtana toimineeseen projektiin viitataan suoraan menetelmäkappaleita alustavissa, lyhyissä tapauskuvauksissa.

Pohdinta-osiossa nostetaan esille rakentuvaa kokonaiskuvaa käsitteleviä havaintoja: Menetelmät tarjoavat yhteisen lähtökohdan keskusteluun tutkimuspainotteisista toimista. Panostus tuotettujen tuloksien soveltamiseen, muutoksen aikaansaamiseen mm. muotoilun keinoin, on kuitenkin ensisijaisesti tultava tutkimukseen osallistuvien, ja sitä seuraavien tekijöiden puolesta. Menetelmäperiaatteet muodostuvat niiden tunnustetun perimän ja käyttäympäristöjen vaikutuksesta. Täten ne jäsentävät käytännön järjestelyjä sekä tutkimusfokusta. Muotoilututkijat nähdään aktiivisina toimijoina joiden johdolla suunnittelumahdollisuudet tunnustetaan, tuodaan esille, ja valikoidaan. Omaksuessaan käyttäjälähtöisen asenteen he toimivat välittäjinä eri sidosryhmien välillä. Tätä varten menetelmät voivat rikkoa rutiineja ja tukea yhteistyötä. Menetelmien itsensä työstäminen tarvittavan toiminnan ja kiinnostuksen kohteiden määrittämiseksi muodostuu keskeiseksi osaksi oppimisprosessia. Kvalitatiivisen, pienimuotoisen ja avoimen tutkimusasettelun takia tuotetut näkemykset ovat luonteeltaan kokeellisia: Lupauksia yleispätevistä tai yleistettävistä tuloksista ei anneta. Vastaavat kriteerit itse asiassa kyseenalaistetaan, kun lähtökohtana on kohdistettu, valikoiva otanta, ja tavoitteena tuottaa uusia, eriytettyjä muotoilutöitä.





# Glossary

- concept design* development of offerings without immediate aim of production or launch to markets; front end, research and design emphasizing activity that can have diverse aims, within this thesis primarily seen as a way to map out potential design interventions, and define their key criteria based on a new perspective to address existing markets (Andersson, et al., 2004)
- contextual design* design work that emphasizes the need to study users in their 'natural habitat' in order to inform design; a term for a particular process originally developed to build software systems for professional use (Beyer and Holtzblatt, 1998)
- design ethnography* ethnography is a branch of anthropology that studies humans from the perspectives of communities and culture; design ethnography is directed particularly to produce design relevant insights on people and is typically run under organizational, project based constraints (Ylirisku and Buur, 2007)
- design research* a wide range of activities and perspectives concerned with informing, developing, and understanding design practices (Laurel, 2003)
- empathetic design* design work that seeks to become more capable of experiencing as another person would: to be able to comprehend i.a. relevant situations, interests and capabilities of studied people and communities on emotional, rational, physical, social, etc. levels (IDEO, 2009)
- experience design* design work with emphasis on user experience; a multidisciplinary approach to study use: in interaction with an offering, studied in context of use and seen from users' background and perspective, as a relationship between product and user (Battarbee, 2004)
- insight* comprehension of a new kind over an object, or phenomenon of interest; an epiphany; a piece of acute observation or argumentation
- offering* a combination of goods and services that a company offers, where either such entities are interconnected, or one entity holds qualities of both
- service design* multidisciplinary design work that aims to develop efficient and novel service offerings with an emphasis on customer experience (Stickdorn and Schneider, 2011)
- user* can refer to a number of persons as well as ways of using a product or service, e.g. could be seen to include intermediate users such as sales personnel or maintenance as much as end users (Hyysalo, 2009)
- user inspired design* design work that entails organized, directed efforts to collaborate with, and learn about users' in order to inform design: emphasizes designers interpretation and control over outcomes more than user centered design

# Preface

*“When you start with an honest and diligent effort to determine the truth of your situation, the right decisions often become self-evident. It is impossible to make good decisions without infusing the entire process with an honest confrontation of the brutal facts” - J. Collins\**

Collins challenges us to step down from self-asserting ivory towers, and to re-interpret what counts as necessary action:

Q: How do you research a situation and design for its future state when it seems to be an already more or less well functioning system - but you can't really be sure?

A: By critically revisiting standard assumptions, and working hard to establish new directions that could build upon existing foundations.

Q: But how can you learn to get good, relevant understanding of those?

*“One thing that should be clear is that choosing a methodology is a time-consuming, personal and reflective process. It requires an evaluation of self in terms of convictions, beliefs and interests. It means being honest about these beliefs, about what you know, and what you think you can know, and demands commitment to the process once a decision has been made” (Goulding, 2002, p.35)*

\* Collins, J. 2001. *Good to great*. New York: Harper Collins Publishers Inc., p.88

Table 1: Project progress overview

APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.
cruise business overview						thesis overview				
		studying passengers' safety experience				thesis compiling				
literature review meetings and presentations observation on Stockholm ferry + report Viking Line Grace expert interview STX and Viking Line Grace visit one week field research trip on board MSC Sinfonia MSC Sinfonia Triad report workshops and exercises with Triad team  <i>3rd Triad member joins the team in the beginning of July</i>						new literature review meetings and presentations synthesis of earlier findings writing out				

## Background

This industrial and strategic design Master's thesis started with an invitation to work for Cruise and Ferry Experience Program, a unit of Marine Technology under the department of Applied Mechanics in Aalto University. Collaboration was made with LOURA (Lounaisrannikko-yhteistyö), a development project between the cities of Turku, Uusikaupunki, Rauma and Pori. Funding and office space were provided for the work in Turku and Espoo.

Cruise and Ferry Experience program aims to introduce an multidisciplinary, passenger oriented approach that is still unconventional in cruise ship development. In design challenges, engineering and financial demands can easily overshadow passenger concerns - literally as well as figuratively in the minds of developers.

During a seven month contract I worked in close collaboration with two other master students: Heini Salovuori and Liping Huang, both from the School of Economics in Aalto University. Together we have formed a 'Triad', or 'Kolmen Kopl', coordinating research efforts, sharing data and discussing results while producing three independent theses. In the end, Liping explored service quality and fast information exchange via mobiles apps. Heini focused on passengers'

experiences of vulnerability, leading to a mapping of relevant, related actors in cruise context. Both theses are to be completed in spring 2013.

My project, on which the methods discussed in this thesis are based upon, looked also into passengers' safety experiences. To be more specific, my interest lay in how design and services on board can influence passengers' safety experience. My original intent was to produce a concept design based on my investigation. However, given the challenges in working over results, and in order to balance out our Triad's topics, I started anew with a focus on process and methods (Table 1).

### Underlying case study

Due to a fundamental shift in focus and limited scope of a masters thesis, less explicit references will be made to the original research project. Still, as it serves as the foundation for this thesis a brief introduction is due.

A cruise ship is a passenger vessel that, unlike a ferry, can spend two to fourteen days at sea visiting various destinations where passengers can tour for half a day. For the past years, cruise developers have

engaged in a race of building ever larger ships. Those biggest vessels have become floating resorts offering extensive dining, recreation and entertainment with sleeping accommodation for thousands of guests at a time. On board skating rings, daring sundeck water slides and exotic destinations are most likely to be linked to ‘cruise experience’. My interest on experience was directed towards more mundane elements such as corridors, crowds, crew, and basic services that can be found on almost any vessel.

Perceived, experienced safety is not the same as actual safety; it is subjective, situational and negotiable. Its impacts how people act, feel and make decisions. With this topic selection, we turned another key industry terms upside down: Safety by design is currently almost exclusively spoken about in terms of ship stability, fire safety and evacuation plans. While it is absolutely true that ships must be fortified against accidents and other hazards, our interest lay in the majority of time when nothing drastic happens. As such, more minute cares and even unfounded believes become of interest.

A significant challenge related to this project lay in collecting and organizing missing and fragmented information. Readily available, non-confidential passenger data

was mostly limited to average demographics, which is precious little to work on. None of us were naval architects or marine engineers, or had a strong hobbyist background, and only one had been on a cruise before. Our first task as a Triad was to define a shared topic area, but we started right when industry experts were leaving for their summer holidays which postponed interviews we had planned for. Our chosen topic proved challenging then even for our advisory team of senior industry experts and professors of marine engineering. We had to develop a way to discuss our topic at a time when we were not sure ourselves what it meant.

Being able to go on a one week cruise in the Mediterranean at the end of August marked the turning point. Not only was there finally more substantial data to work on, but confidence to proceed with collective (Ahola, et al., 2012), as well as individual analyzes. Still, the move from vague hunches to well formulated, design driving insights seemed like a tall hurdle to take.

The central themes and arguments of this exploration as well as final recommendations are presented in more depth in Appendix A for the benefit of the original client and contractor of this thesis.

## Thesis aim

Now, as a written dissemination of the process, I have re-examined my process from the moment an initial design interest was set to the moment I knew what would be worth designing for. As such, I seek to provide a reflection of the principles I relied on in organizing my research.

In order to learn about my mistakes and successes, I saw a need to go beyond ‘what I did’ to ‘why I did’ and ‘how does it all fit together’. Therefore my first question is:

Q1) What part do methods play in the overall aim of running design relevant research?

And in relation to each research instance:

Q2) What kind of perspective does this method(ology) ultimately offer?

Q3) What underlying core principles direct the application of this particular method(ology)?

Table 2: An overview of the process covered in this thesis, and the answers given to Q2 and Q3. Each box lists a name for the methodology, adopted emphasis, as well as proposed principles. A short case description is given to introduce each chapter.

## Three approaches for gathering data

<p><b>Benchmarking and Reference Seeking</b></p> <p><i>relatively best experiences as a direction</i></p> <ul style="list-style-type: none"> <li>+ identifying criteria for references</li> <li>+ bringing in new ideas and perspectives</li> <li>+ balancing power</li> <li>+ facing complexity and uncertainty</li> </ul>	<p><b>Semi-Structured Interview</b></p> <p><i>building up a sensitivity to others</i></p> <ul style="list-style-type: none"> <li>+ engaging the right participants</li> <li>+ establishing and expanding focus</li> <li>+ sensitizing and contextuality</li> <li>+ assuming and assigning roles</li> <li>+ from listening to understanding</li> </ul>	<p><b>Observation and Context Studying</b></p> <p><i>a detached, immersed witness</i></p> <ul style="list-style-type: none"> <li>+ raising contextual awareness</li> <li>+ brief nature of immersion</li> <li>+ establishing and expanding focus</li> <li>+ between observation and interpretation</li> <li>+ from voyeurism to understanding</li> </ul>
<p>Case 1: Comparing visitor experiences across industries</p>	<p>Case 2: Small chats and appointed meetings on board</p>	<p>Case 3: Studying how safety becomes communicated</p>

## Three aspects of building insights

<p><b>Interpretation</b></p> <p><i>tentative structures of understanding</i></p> <ul style="list-style-type: none"> <li>+ immersion and vividness for learning</li> <li>+ bottom-up organizing for surprises</li> <li>+ tracing interconnections and evolution</li> <li>+ evaluating importance</li> <li>+ local and social nature of findings</li> <li>+ turning discovery to familiarity</li> </ul>	<p><b>Synthesis</b></p> <p><i>emerging design directions</i></p> <ul style="list-style-type: none"> <li>+ opportunities as seeds of change</li> <li>+ relating findings</li> <li>+ accepting uncertainty and risk</li> <li>+ considering constraints</li> <li>+ building upon an agenda</li> </ul>	<p><b>Communicating results</b></p> <p><i>bridging research and action</i></p> <ul style="list-style-type: none"> <li>+ persuading and collaborating</li> <li>+ anticipating and overcoming conflicts</li> <li>+ representing others' aspirations</li> <li>+ accumulating learning</li> </ul>
<p>Case 4: Debrief sessions</p>	<p>Case 5: Coming up with suitable design briefs</p>	<p>Case 6: A storage-room workshop</p>

Whereas the first questions is an overall aim statement of making research beneficial, tying each method to a goal, the latter two provide a way of looking more closely at individual research efforts.

I built upon my own experiences first, drawing further conclusions based on literature, covering new ground and learning. I started with familiar articles and books first, as well as reading recommendations given in supervision and provided in attended lectures. Shifting through references I looked for further sources of relevance, and authors of interest. Searching databases and journals online provided further materials to answer my questions as I was writing.

The boundaries became method and methodology soon became blurred as I moved from practical steps to underlying principles. At the same time, it became necessary to leave most cruise related considerations out to retain coherence. An original listing of ten methods, or research instances, were bound together, until I had six major chapters left.

It is perhaps useful to remember that Q1 and Q2 are intertwined by definition: my conception of core criteria impacts any stated 'ultimate' aim, and vice versa. My intent is not to propose any universal truth or format for methodology. All in all, my interest lies in explicating a research type that is able to support a context aware, human centered take to early front-end development. Within this frame, two key challenges are identified: turning assumptions and ignorance into informance, and translating gathered insights to actionable arguments for design.

## Six Tools and a Process

This work is divided into four parts:

- 1) Introducing Research For Design
- 2) Three Approaches for Gathering Data
- 3) Three Aspects of Producing Insights
- 4) Discussion

Part 1 locates this thesis in the wider context of research for design by i.a. discussing its historical development and relevance for business, providing first answers for Q1. Part 2 and 3 cover three method(ologies) each. Together, and without assuming any definite, linear progress they form a process description after the moment that an initial research focus or design interest has been set, and the moment that designers know what would be worthwhile to design for.

All six chapters follow a set structure: First, a brief introduction of origins is outlined. As a second, an essential, condensed and crystallized description aiming to capture which particular school of thought is endorsed (Q2). As to the remaining chapter, a set of emphases and constraints that are likely to come up during the application of the approach in question organized under subheadings (Q3). An overview of these is given in Table 2 (p.5). A short case description of my research on perceived safety precedes each chapter.

As it turns out, method is something of an arbitrary gauge for research. After all, there is much more going on. However, for all other forces engaged it provides a good reference point of what is expected to happen, and on which a significant body of literature does exist. In the final discussion section then, I aim to provide a more consolidated view of methods as a part of an organism called design research as I have come to see it (Q1).

## Contribution

Within design, non-designers are no longer necessary seen as passive respondents, but active contributors to what should constitute as good design. Design practice itself has diversified. Emphasis on 'process' and 'strategy' signifies a shift towards business consulting, and towards increasingly intangible contributions as the application cases for design diversify.

Design increasingly relies on research activities to support exploration and

decision making. There seems to be an increasing interest in design research, and a strong drive to develop design research to answering, and surpassing existing human needs. At the same time, a real gap between research and practice persists. In addressing more complex issues of societal importance, stakes are being raised. Furthermore, it can no longer be assumed that useful methods are derived from one's own domain only.

A reliance on 'methods' as building blocks of design activity, especially for explaining design research, has become disputed. With increasing attention paid to flexible adaptation, limitations of prescriptive, codified steps have become of interest: How do research methods behave in real life? How do they really support design activities?

My contribution to this discussion lies in following the roots of a number of methods deeper than it is typically possible to do in any design research project. I offer my own reflection, built upon practical experiences and related literature. Despite being set in a particular context to reach certain ends and therefore unlikely to be exactly replicated in another project, the discussed methods and process steps are something of basic building blocks to field involved, human centered research for design.

Furthermore, there are many fields in which design research is a truly novel approach, cruise industry being one of them. Using it as an example, it is suggested that the more theoretical oriented tone in this thesis can be read with very practice oriented demands in mind.

The way the cruise industry is structured makes design informing, people oriented research challenging: Companies involved in the construction and operation of vessels

range from the smallest workshops to global corporations. There is often a substantial distance between the places where details of cruise ships are conceived, and the reality in which, and by whom they are used.

This is not intended as a critique but as an observation on the environment cruise professionals are working in. Despite continuous growth in cruises taken, the industry and its representative companies are facing tight competition and demands for change, many of which seem to have little initial relevance or connections to passengers, or potential passengers. It simply becomes easier to follow other paths than people inspired innovation. Yet, in the end it is people who engage in leisure cruising.

I do not see design research as a discount research of any kind, but its flexibility and relatively small scale investment compared to potential impact on design and professionals engaged with it do seem worthwhile to consider. It is beyond the reach, scope, and focus of this thesis to provide evidence on the ways in which research for design could be applied however. For that, further research and projects are needed.

Finally, a master's thesis is essentially a demonstration of skills. It is also a path to learning. I relied extensively on my previous experiences when preparing and conducting research during this process. This written portion of work enabled me to extensively reflect on the foundations I had laid my work on. As such, this thesis contributes not only to a wider discussion on the nature of research for design, or Cruise and Ferry Experience program, but also my own professional maturing.



# 1

## Introducing Research for Design

In this part, design research is discussed from various perspectives: first, by pointing to a wider field of design research and placing this thesis into that frame; second, by reviewing historical emergence and underlying ideological and sociocultural drivers regarding design research; third, by discussing its current corporate, business oriented relevance, and finally, by suggesting evaluation criteria for this particular thesis.

## A Variety of Approaches

Design research as an umbrella term refers to a varied range of activities within a multifaceted range of design disciplines. Two definitions offered by Bayazit are of interest for this thesis:

*“Design research is concerned with the physical embodiment of man-made things, how these things perform their jobs, and how they work. [...] Design research is a systematic search and acquisition of knowledge related to design and design activity.”*  
(Bayazit, 2004, p.16)

As to the latter, Frayling notes that design research with a big R is a “professional practice”. He then continues to discuss prevalent stereotypical views of artists, designers and scientists, proposing that representation in popular culture strips the scientist of creative experimentation while critical, rational reflection present in art and design is obscured. Subsequently he coins the term *research for design*. (Frayling, 1993)

In this thesis, research for design is taken as a contribution to front-end development. In these early stages of defining criterion, relevant questions center keenly on “why?” and “how?” (see e.g. Donahue, 2003). Once answers to these have been found, it is much easier to come up with multiple, well-informed suggestions for “what?”. Research

for design is then taken as a strategy that takes ‘hidden’ intuition into ‘explicit’ directions:

*“[...] a Research for Design approach that is focused on helping designers make sense of the communities they serve and the challenges they encounter by providing them with novel perspectives and worthwhile ‘insights’ ”*  
(Jones, Leitner, Teinaki, 2012)

How this is achieved however, resists fixed labels and categorizations. Overall, design research has been referred to as being paradoxical: empirical and imaginative at the same time (McDaniel Johnson, 2003, p.39).

Another significant drive for variety lies in the multitude of possible, intended audiences within design. A model to discuss these has been proposed by researchers in the University of Umeå (Figure 1). Despite having evolved under the particular discipline of interaction design in an academic setting, it quite nicely captures different possible emphases and resources.

To shortly introduce each end of the triangle, design practice deals with particular briefs and client induced constraints not unlike any other commercial design project. Design exploration asks ‘what if’ questions, aiming to provoke and extend the realm of

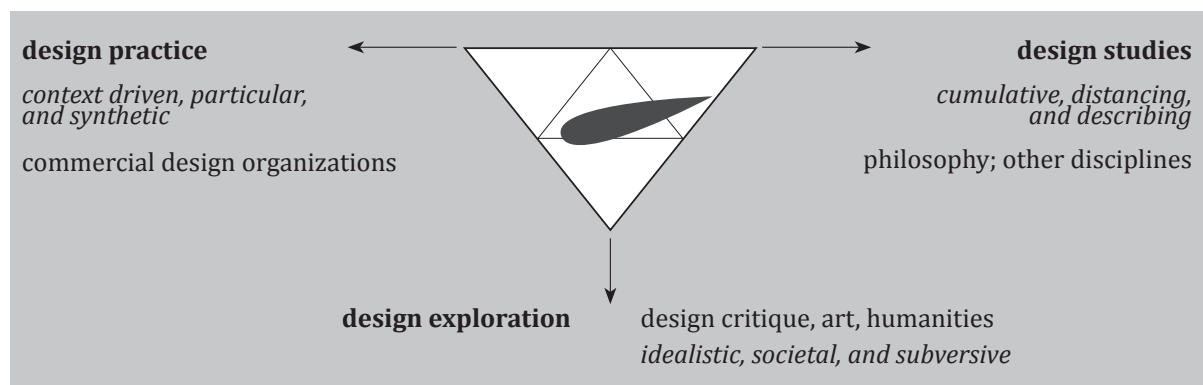


Figure 1. Representing spheres of influence in design research, as proposed by Fallman (2008). The black area is an addition, marking the placement of my research on perceived safety

what is possible, whereas design studies builds on a more formally scholastic community. Each branch is seen as potentially conducive to design research. Neither are they mutually exclusive. They do however impact evaluation criteria and expectations placed on research by weight of convention and appropriate media of communication. Fallman, et al. see moving between the ends as a key to developing a solid and dynamic

research program: shifting perspectives and bridging discords between the different heritages and stakeholders. (Fallman, 2008)

What is suggested here is that research for design comfortably, or uncomfortably, straddles multiple spheres of influence. The strength and inherent challenges linked to research for design then lie in the fact that it has an ear and eye for a variety of other fields that built on vastly different traditions.

## History: Emergence and Drivers

*Why do we design? For humans, against commercialism, for commercialism, for the real world, for utility, for beauty, for war, for ourselves, for pleasure, for the environment, for a better society. Why do we research? To find answers to our questions and problems, to create, and for the love of the process and the hunger of an inquisitive mind.*

Beyond periodically varying emphases within design, three factors seem highly salient to discuss in relation to the ideological and sociocultural development of design research: a shift in the roles of designers and non-designers as sources of creativity and ideas, a more holistic understanding of humans interacting with design, as well as an increased diversity of possible applications for design.

Relating a history of design research, Bayazit has traced the emergence of the design methods movement in the 1960s. Preliminary steps to 'scientizing' design were taken already years before, in the visions proposed by De Stijl in 1920s, or in the legacy of Bauhaus. Interest in research was given further impetus by World War II and subsequent Cold War. Interestingly enough, studies were not only aimed at technological systems but creativity and ergonomics as well: new kinds of societal problems and reconstruction efforts were seen to be solvable with a rational mind. The first generation of design methods in the 1960s

brought a wave of notable conferences and regular publications by organized research groups, such as 'Conference on Design Methods' in Oxford in 1963, or a 'Design Methods Group (DMG) Newsletter' started in Berkeley in 1967. Design as a 'science of planning' culminated in Europe in the educational program at the 'Hochschule für Gestaltung' in Ulm (Koskinen, et al., 2011, p.16). (Bayazit, 2004, pp.17-23)

However, internal conflicts and failed efforts combined with an oversimplification of design processes into abstract models led to a backlash (Bayazit, 2004. pp.21-22). For some this has meant 'returning to the arts', whereas others turned to the second generation of design methods: user participation and the study of user requirements were seen as a way to appropriate design to real world issues (*ibid*). Such ideas were strongly influenced by political and ideological movements of the 1970s. Increased attention to philosophy, behavioral and social sciences in the face of a cultural and societal revolution also played a role; Koskinen, et al. (2011) refer to architect Andrea Branzi on the coming of a second modernity as a turning point for design:

*"[...] the 1960s witnessed major changes in society. Western economies became consumer driven and an ecological crisis influenced it, higher education democratized, and pop culture merged with youth culture. Media*

*became global, taste became democratized, and there was an upheaval in politics as traditional loyalties started to crack” (Koskinen, et al., 2011. pp.10-11)*

Diversity of markets, global competition and uncertainty have since then become markers for a ‘new economy’, forcing companies as well as designers to serve increasingly critical consumers (Cagan and Vogel, 2001, pp.41-42).

As entertainment and leisure use became increasingly relevant and prevalent, on par with the design of better tools and work processes, cognition based view on humans became prominently challenged: emotions (Norman, 2005) and pleasure (Jordan, 2000) were promoted as valuable dimensions beyond usability. User experience models since then have aimed to balance both sides of the coin; cognition as well as ‘softer’ aspects of human beings (see e.g. Forlizzi and Ford, 2000).

An orientation to design for people is not new by any means. The definition of what it means has not been a constant however. In the early era of industrial mass production humans had become cogs in machine directed systems. Slowly but surely, people have since then progressed upstream in the design process.

At first, styling linked design to the seeking of a form that would make new, technological tools appealing to an increasingly affluent mass audience (Cagan and Vogel, 2001, p.37-41). In 1955, Henry Dreyfuss introduced diligent anthropometric measurements personified by Joe and Josephine, two endearingly frail and frightful persons designers should take heed not to harm (Dreyfuss, 2004, first in print in 1955). Ireland and Plowman recount how desperate the first efforts to ‘go into the field’ to gather first hand experience were without proper foundations to built upon in 1980s; perhaps it is less of a surprise then that a number of social scientists were hired, and soon became influential members

of design communities (Ireland, 2003, pp.23-24; Plowman, 2003. pp.30-32).

For example, looking at how Eisenhardt describes theory building from particular case studies, the impact of certain branches of social sciences on design research seems clear (Eisenhardt, 1989). Before the turn of the millennium, Beyer and Holzblatt offered one of the popular design oriented field work guides that came to be called ‘contextual inquiry’; their ethnography inspired work promoted detailed field work and partnership with informants in a practice oriented, design driving perspective (Beyer and Holtzblatt, 1998).

Koskinen, et al. (2011) proclaim that the core revelation in 1990s was that “everyone has expertise of some kind and, hence, can inspire design”, and that this idea became the basis of wide-spread use of user-centered design. In this view, creativity and design skills are not seen as an inherent quality in a separate species called designers but each and every human - designers simply have the benefit of a formal, supportive education (Cross, 2007). ‘Users’ are not passive, uneducated receivers of design intent, but active constructors of meaning and narratives (e.g. Crilly, 2008, Forlizzi and Ford, 2000).

For sure, enabling technology is deskillng not only design but for example music, journalism, and entertainment media. Whether or not users should then be regarded as innovators has been met with vehement arguments both for and against (see e.g. Hippel, 2006 and Verganti, 2009). Others bring up connectivity and visibility of i.a. social media as significantly increasing consumers’ leverage towards corporate actions (see e.g. Laurel, 2003). What this modern multiplicity, diversity and geographical distance imply however is that a rich range of opportunities, as well as a need, for design research does exist (Koskinen, et al. 2011).

Tensions between design and science, rationality, predetermination, and open-

ended, expressive and often art inspired approaches have continued to be debated amongst design researchers since the 1960s (*ibid*, pp.22-30; Grocott, 2003; see e.g. Jones, 1982).

Pluralism is reflected also in the divergence of designers' titles: product, interior and graphic design stand side by side with usability, interaction, experience, social design, and others. With local manufacture closing down and services increasing, industrial designers are developing new capabilities. Objects take on multiple, pervasive lives across a range of mediating channels (Laurel, 2003, p.19); services and products overlap and the success of front-end designers depends increasingly on other corporate functions (Snelders, 2012).

The role of close interdisciplinary mingling has increased. Some of the strongest assurances for it can be seen in service design (Stickdorn and Schneider, 2012). As Borja de Mozota has noted, designers do not revolve around their own, separate 'planet' anymore, but have turned to defining themselves by their skills towards peers from other disciplines (de Mozota, 2011).

To conclude, Keinonen (2009), as well as Koskinen, et al. (2011) note that methods located in design practice have come back into vogue in masses. Still, many do decline the existence of a universal process, for example by adopting the title of 'toolbox' rather than 'research manual' (see e.g. Koskinen, et al., 2011; Stickdorn and Schneider, 2010): No single method can in itself explain the path

from 'nothing' to design. Contextualization and situational orientation is a close runner-up to universal rules, leading to a reconsideration of methods, designers' understanding of them, and guarantees of success (see e.g. Lee, 2012).

Experience and context have taken center stage: Renewals in human-computer interaction are sought from non-task oriented, social, learning oriented domains. Multifaceted, messy, local meanings and related practices are studied in order to wrap designs around them. At the same time, opportunity seeking is pitted over previously dominant problem-deterministic, optimization emphasizing mindsets. (IDEO, 2009; Ylirisku, et al., 2009; Harrison, Tatar and Senger, 2007; Sleeswijk Visser, et al., 2005, Donahue, 2003).

It seems more than likely that today designers repeatedly face a multitude of varying, hitherto unfamiliar contexts and people that appear physically as well as ideologically remote to them. This can mean that the importance of accumulated expertise in one specific area of design decreases proportionally as the need for continued learning and transition increases.

Laurel proposes that an entailed 'how' of design research can be both learned and taught, even if a research case is always "intimately bound up in its context". However, design research is also asked to provide a deeper discussion on the 'why' of design. (Laurel, 2003)

## Design Research in Business

A final step to understanding the relevance of design research today lies in discussing its relevance to business by discussing some of the roles it could play.

Research for design can be here seen as a structured, flexible activity for exploring, informing and critically reflecting on where an organization should, or should not direct

its resources. In particular, the relevance of offerings for intended users and contexts is considered. As such, it is complementary to activities engaged by other corporate functions as well. Like these other pursuits however, it requires long-term commitment in order to succeed.

Mine was an open ended investigation;

our shared topic of study looked beyond current industry standards. Many have placed the roots of breakthrough, disruptive, or radical innovation in this kind of open ended research (Cagan and Vogel 2001; Rhea, 2003; Verganti, 2006). Such endeavors by definitions involve risk (Rhea, 2003); especially as many addressed problems are 'wicked', meaning that these problems are impossible to be solved by any single intervention without complications, if ever (Koskinen, et al., 2011, p 42; Cross, 2007; Rittel and Webber, 1973).

Rhea reminds that successful innovation is based both on internal and external sources, or capabilities (Rhea, 2003, p.146). External sources need not exclusively rely on 'users' by any means (Verganti, 2006); on the other hand, research-designers and field workers act very much as research tools themselves, gaining valuable skills in the process (Koskinen, et. al, 2011, p.154). Still, two boundaries exist in planning for innovation: What one is willing to do with others, and what recipients of innovation are ready to accept. At the same time, time changes conditions and capabilities, internally and externally.

As to my research case, I had a multidisciplinary team to benefit from and contribute to, and an advisory group of senior industry and academia representatives listening in and offering feedback on my findings. It seems plain that we had a favorable 'organizational setting' despite acting as junior researchers.

However, politics and organizational pressure can limit as much as enable research. Design research can make management uneasy (Rhea, 2003). Other authors have noted that design research with commercial requirements is tied to its usefulness for subsequent development; user centered arguments might be insufficient if no links can be traced to profits gained (Keinonen and Jääskö, 2004, p.83; Snelders, 2011).

Still, understanding user experience beyond usability factors and basic

demographics has become dominant argument across various domains of products and services that are operated, bought, and discussed by a number of people with shared aspirations as well as different mindsets (see e.g. Cagan and Vogel, 2001; Norman, 2005; Stickdorn and Schneider, 2011). E.g. cruise ships are not built into a vacuum, and cruise passengers are not 'only passengers', although that role might be of primary interest to developers and researchers. It does seem useful to remember this if design research is taken as an dance to persuade as well as be persuaded (Laurel, 2003, pp.16-17).

A 'people first' attitude adopted in this thesis: it simply calls for desirability in terms of relevance and worth to users to be determined early on in development (IDEO, 2009; Cocton, 2006). It is expected that the notion of desirability becomes more sophisticated, and more representative of what a set of people might think as specific channels of communication are be opened up with users and other stakeholders: all contributions which organizations can use to differentiate and direct their offerings (Mattelmäki, 2006, p.25-28). The process might then be structured to be exploratory, people oriented, and self-aware in order to consciously work towards surprising, but acceptable and recognizable outcomes.

Design research at the 'fuzzy front end' is future oriented; because our future is unpredictable many possibilities are explored (Rhea, 2003). This divergence leads to multiple possible outcomes and variations. The same could then apply for research produced insights and opportunity areas for design as multiple perspectives are adopted in iteration. In this area, design research can have close ties with concept development.

As will be argued in time, field studies, like future studies, offer insights of tentative nature: they should be updated, revised, tested and discarded as new or contradictory are identified. In an uncertain environment

an iterative, adaptive, test early approach might be the best to support and provide for it (Cross, 2007; Kokkonen et al, 2005, p.11-13, Tuulenmäki, 2004). Still: experiential, often qualitatively described 'soft' data, and impressions created out of details might be far better at capturing weak signals early and building understanding than aggregate, fact-oriented, often quantitatively represented 'hard' data (Mintzberg, Ahlstrand, Lampel, 2009).

The accumulated expertise of a development team and readily available information on one hand, and expenses linked to rigorous inquiries on the other make research a question of investment. Hyysalo notes that there is no plausible reason to study users if readily available data and a development team's accumulated expertise are sufficient for a task. Having noted that, even expertise can be biased or prejudiced; it can certainly be badly communicated, or unorganized. (Hyysalo, 2009, pp.78-92)

To reflect on this, one concern, e.g. for the cruise industry, does lie in the fragmented and tacit nature of domain specific information. Many design oriented research practices have a significant benefit of forcing knowledge to be documented and externalized into a form that is easy to share within and beyond the research team. At the same time, design research drives for a purposeful accumulation of new tacit knowledge, and an overcoming of 'common assumptions' and biases by putting developers out in the field (see e.g. Ireland, 2003; Beyer and Holtzblatt, 1998)

A question that still needs answering is whether research for design is restricted to an operational, production oriented level. Keinonen and Jääskö (2004) discuss multiple uses for concept development beyond preparing for product development: seeking of radically new solutions, mapping of alternative possibilities as a form of strategic anticipation and preparation, as well as influencing market expectations.

Additionally, concepting is seen to foster creativity, i.a. by making room for mistakes. (2004, pp.10-47) An informed decision not to follow up on a product line might be as valuable as finding a previously undiscovered market niche. If learning takes place, the value of experimentation lies as much in failure as success.

It should perhaps be noted then, that concentrating on the number of products or services realized based on research is at least partly misled: critical reinterpretations might be even more necessary in facilitating discussions about the built world as we know it (Koskinen, et al., 2011). Hence a shift of understanding can be seen as an essential outcome of research for design.

Aarts and Diederiks describe how it took quite many years of learning by hindsight , daily practices and management changes to establish a solid design research program for Philips; finally, hard work manifested in the continued use of HomeLabs, a home-like, physical simulation environment for studying future ambient technology by observing current use and prototypes (Aarts and Diederiks, 2006). In regard to this kind of evolution, Burdick (Laurel, 2003, p.82) notes that all designers research and explore, yet only those who go beyond the specified outcome to study a 'larger set of questions' conduct design research.

Over time, individual projects accumulate insights, answers and new paths of investigation. In a practice based setting this core demand has been translated as 'strategic knowledge about design' (Grocott, 2003), while others have pursued an agenda for well-grounded and disseminated 'research programs' (Cross, 2007; Koskinen, et al., 2011). With this in mind design research can be seen as a long-term means for design to transcend case-by-case 'satisfying' (Cross, 2007, on Simon, 1969); be it conducted by an individual practitioner, a design consultancy, an organization, or design as a discipline.

A notable difference between Philips and other companies is not whether they engage

in research or not – this would render any arguments moot, as every company is likely run research of some sort – but that results are actively disseminated. As such, Philips has been argued to actively define itself as a company others should pay attention to (Verganti, 2009).

Finally, Mintzberg, et al. (2009, citing Wright, et al. 1992) identify several core features for ‘strategy’ beyond “plans to attain outcomes consistent with the organization’s

mission and goals”: it is as much of a future *plan* than a *pattern* left in taking action, it can share *deliberate* as well as *emergent* traits, it entails marking a defined market *position* as well as having *perspective*, and can take the form of a *ploy* aimed to hoodwink competitors. (Mintzberg, et al. 2009, pp.9-16). As will hopefully be seen, research for design can contribute to these by having developers become more sensitive to relevant, change directing conditions.

## Evaluation Criteria

An common, defining trait of design research is that it seeks to promote salient insights and interpretations based on real observations without aiming to institute universal laws (Koskinen, et al., 2011, p.166-167). The diversity of projects, contexts of application, and experimental attitude entailed by research for design make evaluation seem rather arbitrary at first: any single method referred to by the same name can be applied with varying emphases, and even contradicting objectives (see e.g. Boehner, et al., 2007 on probes). It seems necessary therefore to outline a set of criteria against which the process discussed in this thesis can be set against - to provide alternative lenses through which its success can be understood in practice.

Discussing ‘innovative’, generative design research methods Keinonen suggests three ways of conceptualizing method: As an *instrument*, a consistent tool, operational efficiency and economy matters most. As *competence*, the influence of context and skills of applier are acknowledged. Here learning is less transactional than ‘lived out’ through flexible adaptation. Enriching, or expanding individual and communal capabilities garners appreciation. As an *agenda*, methods are first seen through what they stand for rather than what they generate in the short term. Determining the value of a method questions adherence

to a sought ideology, and ability to create a following (Keinonen, 2009)

As to this thesis, a competence based framing seems most apparent. It could be in itself a quite powerful notion because it argues for our ability to make sense of uncontrollable appearing surprises and changes by being learning and organizing action (see e.g. Mintzberg, Ahlstrand, Lampel, 2006).

This is not to state that instrumental based understanding would be irrelevant: Beyond utilitarian gain, such as maximizing informational value with limited resources, it gives a shared, concise starting point to discuss any method. However, standardization calls for stable circumstances. The notion of competence also opens up a wider range of benefit for discussion: By adapting existing methods design researchers decide what is relevant in that situation, and how to best approach it - as well as becoming sensitized not only to outcomes of, but interaction through methods. (Lee, 2012, Boehner, et al., 2007) However, such a competence based mindset might need to be consciously sought out in order to become truly effective.

Still, one cause this thesis aligns with is to see how designers and organizations can open up to the world in which they act while retaining a sense of personal direction; reaching towards a more egalitarian,



mutually benefiting co-presence. At the same time, it is acknowledged that by staking research as a multidisciplinary, change inducing, and business invested process, multiple ideologies and interests are likely to become layered over. E.g. Keinonen (2010) argues that a human centered design process does not automatically result in a single, particular moral business or development approach to addressing peoples' fundamental needs.

Ylirisku and Buur (2007) place another kind of requirement on any method aiming to inform or inspire design: to bridge understanding of what is with intended design interventions and the future. This seems like a natural call for to make within design, especially in the area of front end development. In this thesis, the latter three methodology chapters address this need.

As to the types of gathered data, almost all materials gathered during my original project were of a qualitative nature, although a number of literature sources are based on quantitative studies. This choice was made due to a limited availability of suitable statistics, and low chances for creating such on our own. Most importantly however, the choice was one of effective representation: Qualitative data oriented research often relies on finding the appropriate questions and emphases before statistical relevance can be established (IDEO, 2009; Hirsijärvi and Hurme, 2009; Kuniavsky, 2003; Silverman, 1993). E.g. in mapping out the idea of perceived safety in the domain of leisure cruising for the first time, applicable criteria and possible manifestations needed

to be identified.

Still, small sample sizes set high requirements as to the selection of data sources and informants. Implications of this carry over to determining representativeness, and relevance of outcomes (IDEO, 2009; Kuniavsky, 2003).

As to reliability and validity, it is necessary to note that need and applicability of traditional, purely scientific-rational-cognitive notions of reliability and validity are debated even in a wider context of qualitative research (Hirsijärvi and Hurme, 2009; Silverman, 1993). In kind, it is acknowledged that design research in particular tends to produce varied and fragmented data gathered over relatively short periods of time (Ylirisku and Buur, 2007; Sleeswijk Visser, et al., 2005).

Full objectivity and reproducibility of results can be traded for the non-aggregate, indicative and particular as these matter more at this defining stage; just as uniqueness can subsequently drive business proposals, and design (Koskinen, et al., 2011, Hyysalo, 2009; Cagan and Vogel, 2002). Also, research of this kind touches on cultural content that is notoriously difficult to relocate to anywhere else anyways (Lee, 2012; Laurel, 2003). Research results can not be arbitrary or made up, but both studied people's and the researcher's identity, tools, motives and placement do direct outcomes. The process itself is social and interpretative (Ylirisku, et al., 2009). Turned around, this implied multiplicity and change can be seen to make design research necessary and rewarding in the first place.

## Towards Methods

To summarize, our understanding of being human in a society, of consumer behavior, and the role of 'non-designers' in development has changed, reflected in designerly activities. Organizations seek for new ways of differentiating their offerings.

Designers collaborate more not only with non-designers, but other professional disciplines. Design research is in increasing demand. Open-ended approaches are adopted allow studied phenomena and people to guide research interests; to

introduce unprecedented perspectives.

There are more design methods to choose from than ever, building up their own category of design language. They have been influenced by other domains, social sciences perhaps most notably when interest has turned to people and their actions. At the same time, design needs to satisfy business demands.

Having clear-cut method guidelines to follow reduces cognitive strain and required attention, especially as application cases are turning out to be rather varied, complex

and messy. However, oversimplification of methods, if not standardization, can reduce sensitiveness to original intentions. If fundamental principles are lost, methods can start to act out in unexpected ways - for the better or the worse.

Instead of seeing methods as standard tools, attention is turned to how their core principles direct decisions. In this view, methods are being actively evaluated and shaped by designers in order to make research work in ways that is intended.



# 2

## Three Approaches for Gathering Data

The path from data gathering through interpretation to action taking is seemingly progressive from point A to B. All stages of research act like a school of fish in movement however: Each fish swims close to others, keeping a steady distance. They swim as much in parallel as following another, so that if one fish changes direction, eventually all others have to adjust their course as well.

## *Case 1: Comparing Visitor Experiences across Industries*

Soon after framing perceived safety as our Triad's research area, a 'cross-industry benchmark' exercise was decided upon. As cruise passengers were hard to find, the goal was to explore user experiences in other instances. A diverse set of environments and activities were thought of: hospitals, cycling, amusement parks, hotels, school buses, etc.

While assumed potential to learn about perceived safety served as the main criterion, affinity to cruising in one form or another was considered: transportation, tourism, leisure, and entertainment became mental jumping boards for coming up with comparison targets. Both criteria were decided upon in a brief negotiation with team members at the very start of the session.

Each team member listed proposals first in silence, then together. Final items were listed. These were divided again and each member used half a day for researching her due before coming together to present and discuss findings. Personal experiences, online discussions and research articles were used as sources.

When results were shared, it turned out that each team member had a different way of framing results. This came as a surprise. While it added to my ideas about ways of working, topical findings were less ideally comparable. The recorded outcome of this small exercise remained a loose set of half-analyzed notes on slides. As such,

they had little outward relevance for the shared objectives of the project. In this case, synthesis was a personal step to take.

This kind of small exercise acknowledged the power of inspiration by seeing beyond traditional domain boundaries. However, when checking industry related literature and discussing the matter with a cruise developer, no affirmation was found of cross-sectoral benchmarking being used, at least not explicitly acknowledged.

While definitely less rigorous than benchmarking as it is usually understood, this exercise allowed me to quickly sort out interesting reference points from apparently less relevant ones. However, the exercise did feel more like a checked-off test rather than success. I had fuel for discussion, but no comfort of fully appropriated data. It might have been more useful then to treat this benchmark less as a solution indicating, and more as a focus creating exercise.

The best gain for me lay in recognizing that no absolute answers awaited for facilitating an experience of safety: the question was not which of the alternative approaches was more correct, but which one would be most intriguing once matched to a particular, to-be-chosen design situation. Only later, after having been to the field, did I have the confidence of answering my next question: Which are the high impact spaces and activities regarding cruise passengers' experience?

# Benchmarking and Reference Seeking

A classic benchmark definition would be that it is a management tool for adopting best practices in order to attain a leading position over competitors. (Camp, 1989).

Other comparative, self-improvement approaches have been proposed as well. Still, benchmarking as an overall term is perhaps the one best known - even if underlying fundamentals have been less clearly shaped out with a multitude of practical steps to be taken and frameworks being favored for presentation. Many of these in turn have been set in the domain of e.g. total quality management, process development, or organizational learning. (Moriarty and Smallman, 2009)

Nowadays, the idea of relying on familiar tools to replicate previous successes regardless of market changes seems outright curious. Camp recounts how Xerox Corporation was among the companies to recognize and explicitly benefit from 'benchmarking' under that name: What first started as a single, internal investigation into national differences in manufacturing cost in 1979 was by 1983 a corporation-wide acknowledged approach for learning from others by comparing in order to remain competitive (*ibid*; Camp, 1989).

Much of this effort was of Japanese origin: reflected in the nation's history, social values, and formalized by companies such as Toyota - a whole corporate culture that is said to be built around the idea of 'constant improvement'. In this view, quality

management is an in-built function each and everyone in the company, as well as carefully selected partners, are responsible for. (see e.g. Liker, 2004)

In design application, referring to benchmarking typically indicates reference seeking: Designers are educated by, and extensively work with precedents. References are examined to learn about and discuss possible designs through existing solutions: to compare priorities, to trigger new ideas, to identify key qualities, and to share vision (Pasman, 2003, p.52; Keinonen and Jääskö, 2004, pp.52-53).

*"[...] the relation between the old concept or theory and the new situation is a symbolic one. The old concept is taken as a 'program' for the exploration of the new" (ibid, p.52)*

It is clear then that benchmarking as designers and other professionals apply it share common ideals, but are distinctly varied in requirements and process. Time investment can vary from days to several months. Benchmarking typically deals with aspects of corporate performance, whereas reference seeking can take inspiration from e.g. ants. Crucial differences exist in objectives, as well as perspective. Yet the shared area between measurement orientation and intuitive recognition seems especially potent when user experience is of interest, and when truly novel design directions are sought for.

## Relatively Best Experiences as a Direction

A core assumption made by benchmarking is that references can be drawn in the first place. There are at least two entities which to compare, of which one can be addressed as more desirable (Moriarty and Smallman, 2009).

A benchmark can refer to performance measures, products and services, processes, or strategies. These can be of internal or external nature, depending on whether the other comparison point resides in the same organization or not. External benchmarking can be competitive, functional or generic:

- target direct competitors
- engage players that share similar but superior elements without standing on competitive ground, or
- companies displaying best practices thought to be beneficial regardless of industry or market position.

(Moriarty and Smallman, 2009; Wöber, 2001, p.7; Andersen, 1999)

Each approach has its own objectives, gains and limitations, and can be used in various stages of benchmarking (*ibid*).

For designers few explicit, established taxonomy overviews exist as listed above. E.g. Pasman discusses form-creating designers in particular, and how they actively shift through references that categorize products by aesthetic and tangible qualities: Function, form and meaning act as typologies for organizing product types. They provide problem-independent but design relevant knowledge for that builds on social, cultural, language set conventions that are sought for a fit with set design requirements. (Pasman, 2003)

In this case, a personal level of connecting is of more interest: an immediate form recognition and appeal is being connected with an organized, mindful system that is informed by professional knowledge.

Reference seeking can almost be defined

as the twin of benchmarking: more intimate than its counterpart that often talks in organizational scales. Salient references are manifested in an intuitive 'pull' towards a metaphor or vision: one that stands out from other alternatives, appears comprehensive, and is easy to convey as it sticks with the people of interest (Pasman, 2003, p.53 on Schön, 1963; Mintzberg, Ahlstrand, Lampel, 2009, pp.141-142). Benchmarking often requires extensive documentation: data-proven evaluations and precise plans as external memory lists of all stages and concerns to be made note of in order to proceed to action (Moriarty and Smallman, 2009, pp.490-491; Mintzberg, Ahlstrand, Lampel, 2009, p.60; Camp, 1989, pp.49-50).

Regardless of the application case, little point exist in mere comparisons if avenues for self-improvement are not identified. In other words, benchmarking and reference seeking drive change, as much it they are driven by changes in the market. Despite absolute appearing measures used to indicate e.g. market position or productiveness, benchmarking delivers measurements of relative distances, a "performance gap". Identified best practices then become a way of describing a direction, or goal, to head at. (Camp, 1989)

Referring to 'best' also calls for an identification of perspective - best for whom and why? In addition, set directions have expiration dates. Results are always of tentative, even retrospective nature; especially when benchmarking is conducted as a once-off experiment rather than a continuous practice (*ibid*).

It is also clear that any process aiming for this necessitates choice. What is desirable is outlined - and if impacts are truly evaluated after implementation, true beneficiaries rather than assumed ones can be indicated.

While glorious visions are given to beating one's competition, Camp's writing does argument that a fundamental goal of

benchmarking is to better satisfy customer requirements (*ibid*, pp.29-30). Since then, researchers have provided far more solid arguments for customer orientation as a key to superior performance and sustainable profitability (see e.g. Hyysalo, 2009, pp.8-29; Gilbert and Veloutsou, 2006; Kim and Mauborgne, 2004).

Still, calling benchmarking an user-oriented activity in research for design sets requirements of perspective. Customer data and market research are often biased towards buying decisions and negative feedback of affected nature (Hyysalo, 2009, p.18-19):

*“things such as how much their competitor’s product cost, who buys them, where their customers live, and what aspects get emphasized in advertising [...] is valuable information that helps executives make strategic decisions about the general direction of the company and its products. However, it doesn’t do a whole lot for understanding which parts of a product people actually use, what they like about it, or what keeps them coming back” (Kuniavsky, 2003, p.419)*

Here ‘people’ refers not only to ‘users’ as buyers and consumers of products: the definition can be too narrow when considering e.g. alternative payment and ownership models, or staff-customer interaction in service creation.

Thus, in the following discussion benchmarking is approached primarily as a qualitative activity centering on user experience. Reference seeking is not mentioned separately but seen as another layer to benchmarking. Its benefit is identified especially as an intuitive ability to first spot intriguing and salient comparison points beyond the ‘usual suspects’.

It is argued that benchmarking is about learning to understand differences in one’s own and others’ ways of acting in the world; of pinpointing at least a number of the

crucial circumstances and actions that have served to create a favorable environment. As a process, it aims to increase competitive advantage by understanding the very same mechanism better. As a debate, it can produce shared criteria and vision for development. In short, it is about seeing one’s own path and future sparked by practices presented by others.

### **Identifying criteria for references**

Successful benchmarking requires the identification of one’s own situation and key questions. Based on it, a scale is created on which metrics drawn from comparisons are to be placed. (Camp, 1989, pp.41-53)

To give an example: User experience related data is personal, highly situational, influenced by accumulated experience, immediate environment, and projected meaning influenced by social as well as cultural factors (Hyysalo, 2009, pp.29-54; Battarbee, 2004; Forlizzi and Ford, 2000). Experiences are time-sensitive, as details are lost and opinions influenced by the passage of time (Gilbert and Veloutsou, 2006; Kahneman and Riis, 2005). Finally, experiences can be found almost anywhere depending on research focus and definition. This would make understanding drivers of such situations, qualities of environments, and meanings on a subjective-cultural continuum of interest for reference seeking.

As Gilbert and Veloutsou (2006) propose, cross-industry referencing is something consumers already intuitively engage in. For official benchmarking, cross-industry measures that are comparable are more difficult to identify for the research team (*ibid*) and implications for required organizational change greater (Wöber, 2001). However, e.g. cruise passengers can also be restaurant goers, airplane passengers, hotel visitors, etc. They have habits and preferences for communication, entertainment, socializing and relaxing, making certain sector boundaries seem like artificial constructs

in the face of personal, “day-to-day history” that shapes intuitively formed expectations (Gilbert and Velotsou, 2006, pp.298-299).

How, where, and how much data is then to be accumulated is a case-by-case question. It depends on missing information, choice of benchmarking type and available resources. Camp outlines a practical principle: convenient samples with direct yields precede and lead to more complex, effort-requiring ones. (Camp, 1989, pp.57-78).

### **Bringing in new ideas and perspectives**

Accumulation of internal and competition oriented information is essential to business; from highly localized, daily operations management to long-term improvement of efficiency (Wöber, 2001, pp.6-9). Such internally focused forms of benchmarking have been criticized however for limiting learning; for reducing the chance of leading to breakthrough solutions as domain specific paradigms and working assumptions are not challenged (*ibid*; Gilbert and Velotsou, 2006, pp.304-305; Andersen, 1999).

Similarly, it has been argued that in order to produce new competitive design directions it is necessary to go beyond the “low hanging fruit” of already-thought of, everyday interpretations (Rhea, 2003, p.148); bringing in experts from other fields as interpreters to provide original insights (*ibid*; Verganti, 2009); in order to redefine current rules and ideals underpinning one’s industry (Kim and Mauborgne, 2004).

In the cross-disciplinary view it becomes easier to argue for benchmarking as a blue-ocean kind of strategy that “alters the boundaries of an existing industry”, rather than red-ocean strategy where companies out-compete each other by market saturation induced convergence. Kim and Mauborgne give the example of Cirque du Soleil directors mixing familiar components from theater, ballet, and Broadway, among

other changes, to reframe what circus-going means. (Kim and Mauborgne, 2004)

That said, Vorhies and Morgan argue that benchmarking serves not only imitation or reverse-engineering: Benchmarking raises internal awareness and acumen. As few companies find themselves in same particular situations with shared capabilities, experimentation and divergence define paving one’s own way towards identified goals. (Vorhies and Morgan, 2005, pp.88-89) Other authors have highlighted a transfer of the ‘why’, motivations and insights, rather than copying ‘what’ others have done (Camp, 1989; Kuniavsky, 2003).

### **Balancing Power**

Entering new areas takes courage; being too risk averse can prevent original thinking (Rhea, 2003). Such tugs-of-war between requirements and choices highlights how rational logic as well as intuition can balance each other out in producing reliable, as well worth-while insights.

Despite its apparent competitive edge benchmarking is seen to be a positive process (Camp, 1989). Yet Camp and Andersen (1999) are not the only ones to state that benchmarking entails a healthy amount of critical self-awareness:

*“The final outcome of competitive research is a deeper understanding of what makes a good user experience, admiration for your competitor’s ability to solve problems, pride in your own product, and a plan that allows you to use this knowledge to your advantage” (Kuniavsky, 2003, p.434)*

This does come as a surprise, since it seems that results could equally well be used to bickering and pointing fingers. Camp (1989) explicitly notes that benchmarking is not to be used as the basis for directing resources; how far this ideal has been taken up in subsequent adaptations is unclear. This is



not the only potential tension related power however: another relates to requirements set by implicit values.

On an imaginary line depicting value requirements in research for design, where one end is defined by high user involvement and user-led innovation, and the other by performance-driven development teams, benchmarking stands closer to the latter. From its conception on benchmarking has been hailed to drive organizational advantage - as compared to participatory design practices that often have as much ethical as practical reasons for involving 'non-designers' in the process.

That said, partnerships with other companies have been promoted as a powerful way of gaining insights (Camp, 1989, pp.100-102). This requires overcoming of mistrust and quarrels, often by two-way sharing of insights - as compared to only-one-wins deals, or systemic industry espionage in most extreme cases (Moriarty and Smallman, 2009, p.486, on Zairi, 1997; Andersen, 1999, p.290).

Benchmarking for user experience, or customer satisfaction for that matter, enters the stage at an contested point then. The two sets of value requirements, business interest and consumer aspirations, need to be in harmony rather than treated as trade-offs: increasing efficiency by driving down internal costs at the same time increasing value for buyers (Kim and Mauborgne, 2004).

That said, working towards insights on desirability from users point of view is necessary, but not a stand alone requirement. It might not even be the most relevant one regarding financial concerns or certain aspects of 'backstage', operational concerns. Sooner rather than later, all three need to come together in order to build success (Hyysalo, 2009, on Cooper, 2003).

### **Facing uncertainty and complexity**

Wöber notes that the dominant voice of benchmarking is set by management oriented guides (Wöber, 2001). Scientific objectivity,

logical decision making, leadership, quantified metrics and performance assessment are prominently featured as complexity and size of project grows (Moriarty and Smallman, 2009, pp.490-491).

However, knowing what one does not know, or does not know how to do, are not the only challenge to be overcome. It seems that benchmarking literature is built upon an assumption that good knowledge is available on one's own situation, or that it can be gathered with relative ease - or the right incentives.

E.g. the drive for partnerships has been initially argued as an only route to high quality, up-to-date and accurate information (Camp, 1989). Still, by the time data is available it can be outdated, and misleading when separated from original pursuits (Moriarty and Smallman, 2009, pp.494-495); real comparability of items needs to be asserted, ready samples do not necessarily come in ready packages, almost always extrapolation or deeper interpretation is needed (Camp, 1989).

Successful benchmarking does seem to require domain specific expertise (Camp, 1989, pp.44-45). If many judgment calls need to be made on the way, a tolerance for uncertainty is likely to be needed. Furthermore, a neat appearing process might be less achievable, even if actionable, beneficial outcomes will be produced.

Measures are means to ends, rather than ends in themselves (Andersen, 1993). Dividing a system into neat parts and then only looking at such sections is practical; yet changes need to be studied from the perspective of 'significant wholes' unless it can be shown that selected parts are not dynamically interconnected (Senge and Kofman, 2001, p.14; Merton and Kendall, 1946, p.549).

If complex phenomena are encountered, causal links can be either unknown or unknowable, or dependent of the co-presence of events rather than simple, linear effects (Hammersley, 2008, pp.69-89;

Kofman and Senge, 1993; Rittel and Webber, 1973). There can be simply too many variables and chances to predict everything:

*“We have discussed the simplest possible pattern of results, but more complex patterns are possible. [...] We acknowledge that the scheme [a concept on the workings of subjective well-being] makes the study of well-being even more complicated than it was, but suggest that the complexity is real and that it is useful to admit it” (Kahneman and Riis, 2005)*

While the above citation does not refer to a benchmarking practice, it seems like a useful reminder for reference seeking and benchmarking: There is real complexity to be considered. Just as Kahneman’s and Riis’ metaphorical, simplified model on human cognition, benchmarking and reference seeking, confront developers with messy, uncertain conditions at the same time as seeking to provide a structured way of thinking about them.

## *Case 2: Small chats and appointed meetings on board*

### **...with cruise crew**

Two groups of relevant professional-to-professional sources were identified: cruise industry representatives, and on board employees. Most of the first group we were introduced to by our contacts in LOURA and Cruise and Ferry Experience Program, and discussed with on an informal, brief exchanges as well as in connection to presentations.

As to the second group, we arranged for a formal research permit on board via MSC as well as initial on board contacts. Once there, we negotiated for meetings with management level staff, as well as directly engaged line workers in short discussions. As the hierarchy on board is strict, and a cruise ship acts as a semi-independent unit under land control, it was found highly beneficial to have been granted a priori, formal introductions - especially to gain access to middle management without compromising their responsibilities.

Formal introductions and connections played one part in engaging experts, the rest relied on face-to-face meetings. On board, the appearance of three young women as student researchers might have helped as much in opening doors as well as impacted the answers we were given to some extent.

In any case, mentioning 'safety' was a sure way to lock the discussion. It took the tone from casual to guarded, and led to a recital of emergency procedures. Due to this, the term was exchanged to 'comfort', 'personal fears' and 'unexpected situations': exploring the focus on non-emergency situations. Interviews contained surprise questions, to which personal, rather than official responses were sought. Similarly, my own surprise on hearing something was an equally important indicator of a new perspective being stated.

Perhaps the most memorable interview on board was a walk-along tour with the safety officer and two cadets. The objective was to see the 'ship within ship', aka non-passenger areas, while learning a staff take on safety. At first, neither the interview or walk seemed to provide anything of particular interest; this was a slow, tentative introduction. As we did enter the staff areas the discussion started to flow more freely. Still, the interview discussion I led with the safety officer felt like a negotiation under the surface: a subtle dance of influencing and interrogation on both sides of what were to be the contents of that interview, what perspectives and reasoning the other was referring to. As such, this impression supports the notion of interviewing as something else than a mere question-answer exchange.

Whereas a list of open-ended questions was covered in meetings appointed as interviews, only one or two of the same questions were asked of those staff members who were addressed in passing.

Naturally, talking to experts gave factual insights. However, one main yield lay in understanding how these experts related their own role to others in the field, social structure and organizational, if not domain specific culture. E.g. on board, we sought out employees from various levels and departments, and cross-checked their experiences. Found attitudes were taken as indicators of what makes a work community tick - and by extension, what could be taken into consideration when producing design proposal.

### **...with passengers**

As to passengers, some fifteen passengers in total were approached and engaged in either short discussions, or a separately

arranged interviews by our Triad. With a limited number of participants, and the two other Triad members having a more specific need to run formal interviews, my exchanges with passengers took the form of casual chats. Still, having the same person participate in two interviews with different agendas was noticed to influence the answers participants gave, of what they seemed to be expected of them.

As we noted in hindsight, a great protocol for interviewing first time cruisers would have been the following: to meet before the cruise to map expectations, right on the first day to check changed impressions, share a day on the cruise to better learn to understand a person's perspective, meet again at the end of the trip for an in-depth session on experience, and close off by arranging a check-in after an extended period of time to learn what memories were retained. In this way, it would have been possible to trace changes in experience and to deepen findings. Of course, this would have required that having contacts already before starting out on the field trip.

Unfortunately for us, the majority of passengers did not speak English, German, Spanish or Chinese in which we could have interviewed them in. It became important then to scout for possible interviewees by marking destination tour goers organized into language groups.

Eating proved to be the another excellent opportunity to address close-by passengers, less apparently busy with entertainment, sunbathing, or other holiday pursuits. E.g. every dinner we shared a table with a young German couple. As I became more acquainted with them over the week however, it felt difficult to balance a social and a researcher's role.

While families were talked to in groups, couples were interviewed separate. This

pattern emerged by chance, and had perhaps more to do with situational factors than explicit plans. Like different employees views, it was interesting then to compare couples' responses after the sessions. More often than not, differences in personal attitudes became clear.

As the time seen as agreeable for interviewing snatched passenger was rather short, observing their reactions became almost as important as listening in on what they said. 'Acting out', such as mumbling, tensing up, and hesitance were important cues of self-censure as intimate topics, such as fears, were brought up.

The limitations of a problem seeking approach became clear with a prevalent pragmatic acceptance found in passengers: they took 'designed' inconveniences and annoyances in their stride, determined to make the best out of their holiday. In contrast, the research focus and designerly background made me increasingly sensitive towards the execution of services and ambience.

Of course, limitations to queries were also likely to be linked to cultural, social, and linguistic barriers, simple lack of trust, of me not being able to ask the right questions, or a lack of given tools for expression.

In this sense, a participatory workshop, or an appreciative inquiry approach might have produced more seeds for design directions. What these meetings did provide however, was a quick peek into the personality and everyday situations of these people: ranging from a seasoned photographer visiting European relatives, to a young, playful Italian girl seeking help in a gym. While my own experiences were more likely to direct insights and interpretation, it became easier to slip into the role of another.

# Semi-Structured Interviews

In exploring new directions, design informing interviews often favor in-depth sessions defined by open ended questions. Such qualitative interviews entail small sample sizes. At a stage where ‘nothing’ has been designed yet, it is possible to scope “the entire universe of possible answers, beliefs and ideas”. (IDEO, 2009, p.33)

While a survey offers a scale of possible answers for respondents, semi-structured interviews are built around set themes. (Hirsijärvi and Hurme, 2009) Non-directive, carefully formulated questions invite surprising responses. Originally outlined as ‘the focused interview’, exploration of subjective interpretations and meanings is central: interviewees have first-hand experience on topics of interest (Merton and Kendall, 1946).

Less structure does not refer to vagueness however: E.g. Kuniavsky lists instructions to seeding out distorting “misinterpretations, extrapolations, idealizations and simplifications” in an interview. (Kuniavsky, 2003, pp.119-127) While not the only way to run an interview, his writing suggests two points of interest.

First, discussing people’s deep-held dreams and aspirations is less about half-baked efforts or superficial questions than carefully planned, professional research that is engaged with the people met along the way (see e.g. Holstein and Gubrium, 1995). This raises standards for preparations and analysis quality.

As a second, interviews are social: interpersonal dynamics and research setting can hamper as well as enable discussions. To this end, hiring, engaging and role-taking for interviews become of special interest. Language and discourse itself can become highlighted as research interest or material (Hirsijärvi and Hurme, 2009).

Plenty of validated interviewing techniques are available (Hyysalo, 2009, pp. 136-141). Still, many of the designer created interview adaptations are not validated by ‘anything other’ than the practice of using them and seeing if they work or not; based on test run improvements (Kuniavsky, 2003) or simple, plain interest to hear what others have to say without particular references to research formulas being made (Anderson, 1994).

## Building up a sensitivity to others

*So if you're making a missile guidance system and you invite the North American Toaster Enthusiasts to discuss how it should be improved, you're going to get little feedback that will help you to make a product for the Army (and you'll probably end up with a missile that has a 30-second pop-up timer). (Kuniavsky, 2003, p.83)*

Two fallacies for interviewing are highlighted in Kuniavsky's quote even if it is exaggerated for effect: talking to the wrong people, and fishing for features. Similar pitfalls are seen in check-listing answers instead of enabling discussion (Beyer and Holtzblatt, 1998), as well as overwhelming or otherwise compromising interviewee's free expression by one's presence or tone or body language (IDEO, 2009, pp.42-45). Put together, these guides offer a study of what kind of mindset might be required.

Sometimes 'users' can become developers: lead users, who are highly engaged with a particular category or activity, can invest significant efforts in order to improve a product or technique (Hippel, 2005, pp.19-31). For the most time however, organizations and directly employed developers are fully responsible for the eloquence of products and services they offer.

Beyer and Holtzblatt suggest that people are very good at creating fixes; things that enable them to reach their goals regardless of how a system was designed (Beyer and Holtzblatt, 1998, pp.32-33). For example, cruise passengers might develop rules of thumb for finding the way to their cabin without entering similar appearing corridors. On one hand, such corrections are workarounds that are often less effective than having an integrated solution in the first place (*ibid*). On the other, they might represent "pragmatic rationality of daily life" we as researchers and designers have not yet come to understand: to see inefficiency

when it is not relevant, or evaluated based on wrong attributes (Anderson, 1994). In both cases, interviewing acts as a basis and support for design activities rather than substituting design activities.

Like open-ended interviews, semi-structured interviews entail at least partial relinquishing of control over what issues are going to be raised: researchers take the gamble that those that are brought up are relevant to both research and respondent (Hirsijärvi and Hurme, 2009). A core idea of interviewing then lies in appreciating others; acknowledging their expertise and views.

Still, a formulation of themes requires for researchers to have at least some insights and hypotheses regarding the topic (Hirsijärvi and Hurme, 2009; Merton and Kendall, 1946). Interviews serve to challenge, approve, and refine these. In this view, researchers explore, validate and select directions that are found to strike a chord.

Talking to people is perhaps the most straightforward way of seeing the world from their perspective (Hyysalo, 2009, p.127). Interviewees are not "passive filters towards some truths" however; instead interviews sessions have been suggested to form a relative positioning of perspectives, an 'active construction' in which both interviewer and interviewee take part. (Silverman, 1993, p.90, on Baker, 1982). Holstein and Gubrium propose 'the active interview' to describe how interviews can create knowledge, rather than how they are structured:

*"The objective is not to dictate interpretation but to provide an environment conducive to the production of the range and complexity of meanings that address relevant issues, and not be confined by predetermined agendas" (Holstein and Gubrium, 1995, p.17)*

An understanding and description of an interviewee *as later described in research* is emergent: It is based on relatively stable, but negotiable interpretations that interviewees can take up during the interview (*ibid*). Such an idea of 'situated narratives' argues that people actively take part in constructing their surrounding circumstances (Silverman, 1993, p.108).

Donahue has argued that by practicing research designers are shifting from the role of a "reactive problem solver" towards a "proactive leader, able to identify areas of contribution". His design case show that while he did in fact address 'a design problem', improving low-vision audience oriented printed media, his questions and subsequent solution emerged from a non-linear process contributing to an understanding of 'multiple facets' of everyday life based on 'juxtapositional observations': (Donahue, 2003, pp.165-166)

*"I was not just designing for the 'user'. I ways using design to address the concurrent situations that make up that individual's life, psychological and otherwise" (Donahue, 2003, p.169).*

If the interviewee is then to be seen as an active participant and the research discussion subject to numerous variables, it becomes impossible to argue findings as replicable or objectively true (Hirsijärvi and Hurme, 2009, pp.185-186; Holstein and Gubrium, 1995, p.9). In practice oriented design research such questions of ontology crop up less often however: successful and novel design directions can act as a posteriori confirmation; unique ideas are as central to such as recognizability of content in the first place (Koskinen, et al., 2011, Pasman, 2003).

Most importantly, designers can engage interviewees in a real discussion on what the latter find to be salient: E.g. baseline attitudes and values tend to be relatively stable. Simply by talking to others, design researchers become exposed to new ways of

thinking and seeing.

It can be concluded then, that instead of seeing interviewees as a subject to be studied, interviewees reach a level of empathy that allows them to imagine how others would act and feel in a situation. Conventional explanations can be discarded and new design questions stated (Anderson, 1994). If started early on in the process, designers can in this way reach a form of 'informed intuition' for what could work in the first place (IDEO, 2009, p.47).

### **Engaging the right participants**

*I have rarely, if ever, seen relevance in transcribing interviews run for my own design projects. Perhaps this emphasizes a 'quick win' type of direct interpretation, transcribing being either almost completely jumped over being abridged and embedded into other forms of processing. What concerns me more in terms of interviewing is having interesting people to talk to in the first place.*

When sample sizes are small, researchers should have a good reason for picking each particular participant rather than picking a random sample (Hirsijärvi and Hurme, 2009, p.85). Researchers might have an already predefined target, or user group in mind. Still, several ways of identifying roles exist.

Average users exist in spades, and represent typical ways of current behavior. In comparison, extreme users are rare but can more directly inspire new design directions. (IDEO, 2009, pp.40-41) 'Leading experts' in an area can be pointed out by peers, whereas 'lead-users' are early adopters, hackers and self-motivated contributors of improvements. 'Crucial users', or gatekeepers can easily dismiss an ill-fitting system, effectively stopping it's adoption. Besides any specified 'end users' a number of intermediate handlers encounter, manipulate and take a stand on a product. It is also recommended to note

that interview requests are more likely to be accepted by enthusiasts rather than those who are aversive towards a specified matter. (Hyysalo, 2009, pp.96-98)

In order to find and engage participants of a particular kind, researchers might go hang out in places of interest, contact representative organizations and communities, ask to be introduced, check registries, scout their extended personal networks, employ professional agencies, advertise their research, offer re-compensation, get on with interviewing right away, counter makeshift excuses and argument to potential candidates how they are of interest (Hirsijärvi and Hurme, 2009, pp.82-88; Mattelmäki, 2006, pp.69-71; Kuniavsky, 2003, pp.83-96). By considering such numerous avenues, it seems easy to argue the central role recruiting takes.

If screening has been successful, most participants have a deep personal take on the central topics of research. As such, each interview session has higher chances of yielding arresting insights.

### **Establishing and expanding focus**

Mattelmäki suggests that recruiting and focusing are directly interlinked:

*"The stricter the definition of the user group, the sharper the focus of the research"* (Mattelmäki, 2006, p.69)

Due to this, and to allow for a rich range of perspectives, some guides favor a balancing out of the scale of respondents: be it user type, motivation, societal status or gender (IDEO, 2009).

In semi-structured interviews focus is built into an interview plan as a set of central themes to be covered. Themes are derived by looking into phenomena of interest with the help of existing research questions. These act as a starting point for a more detailed discussion able to spark previously unrecognized areas of interest: The contents of each theme are further defined by interviewee's responses.

A number of questions can already be planned for although flexibility is essential to the interviewing process. (Hirsijärvi and Hurme, 2009, pp.54-55).

This impacts the way themes are brought into discussion: researchers sense out topics that arrest the interest of interviewees, be it in a forthcoming or withholding manner, as compared to those that elicit responses only because "the situation seems to call for it". As Merton and Kendall argue, this requires constant analytic attention on the interviewers part in order to spot critical items and conceptual connections. (Merton and Kendall, 1946 pp.549-554) Surprises, confusion and ignorance researchers experience themselves act as indicators that something beyond the original focus is being stated: such cues can be taken to direct interviewers' learning (Beyer and Holtzblatt, 1998, pp.62-64; Merton and Kendall, 1946, p.548-549)

On still another take on focus, Silverman (1993) reminds how adept people are in taking a number of possibly contradictory roles in response to situations they face. Multiple, even contrasting convictions can co-exist; they are used according to situation which means that requesting absolute choices can undermine representation of real complexity (Kunivasky, 2003). On the other hand,

*"people's current behavior better predicts their future behavior than do their predictions"* (Kuniavsky, 2003, p.120).

A key point then is to tie discussions to particular situations, and actual examples that are likely to produce insights for the research at hand: Generalized responses are often too shallow, evasive, or bland to build insights on. Merton and Kendall (1946, pp.548-549) argue that it is necessary to have interviewees outline critical stimuli applicable to themselves: the alternative would be to have too flexible, abstract notions of 'somebody somewhere sometime',



or mere guesses offered by the researchers at the end of a session.

### **Sensitizing and contextuality**

It is likely that even the right people selected for the job need some sensitizing: encouragement and direction for reflection (Holstein and Gubrium, 1995). This kind of sensitizing is typically built into the research structure itself: starting with warm-up questions slowly leading to deep dive before easing back to closing questions, and final a crucial moment of additional comments after the 'official' interview is done with (Hyysalo, 2009, pp.137-138).

'An interview' suggests, but does not necessitate a pre-arranged meeting with clear time limits. Still, sitting down in a bland room with ventilation humming, audio recorder running and a table in-between of interviewer and interviewee is not always the most inspiring environment to be in for either party.

In field research, locations and acted out situations create a stage for discussion - a context. Due to this, field interview results are seen to be more rich and detailed as described actions can be explained and observed at the same time (Beyer and Holtzblatt, 1998; Hyysalo, 2009). Reactions are spontaneous and experiences fresh while the debate engages reflection (Merton and Kendall, 1946). Visiting interviewees, or choosing a place that is natural for the participants can also build more rapport than expecting interviewees to come to you (IDEO, 2009, pp.46-47)

Contextuality blurs the line between observation and interviewing even when attention is directed differently, depending on which approach is emphasized. Still, it is acknowledged that interviewers work as much with body language as verbal descriptions (Hyysalo, 2009, pp.135-139); just as design related knowledge can be embodied as much as cognitive (Koskinen, et al, 2011).

In cases like cruise passengers, this is

both a blessing and a curse: Passengers are best observed on a cruise, but one must be able to go on one in order to reach them. Therefore relevant context can also be created: passengers could be asked to select holiday pictures, souvenirs, or similar to an on land interview; to think of favorite stories and anecdotes from previous cruises. Tying these into the discussion can spark memories, illuminate what these persons find meaningful and relevant, as well as point towards general, shared cultural meanings (Battarbee, 2004, p.28).

Finally, it is not only the interviewees who need sensitizing. After all, researchers are meant to be looking for new hunches and insights at least as much as confirmation for current hypotheses. As Gold notes:

*"Brief relationships with numerous informants expose [the researcher] to many inadequately understood universes of discourse that he cannot take time to master. These frustratingly brief encounters with informants also contribute to mistaken perceptions which set up communication barriers the field worker may not even be aware of until too late."* (Gold, 1958, p.221).

The concern here is not that people interviewed would be unable to convey their aspirations, but that researchers can be thrown into the mix as hopelessly clueless.

Mattelmäki proposes several ways of 'tuning-in' before contacting possible informants: gathering personal experience, reading of literature, online material and magazines, observation, test runs of observation and interviews, etc. A central trait of such activities then, is that investigation concentrates on users, experiences and central situations rather than listing existing products. (Mattelmäki, 2006, pp.66-69).

### **Assuming and assigning of roles**

Beyer and Holtzblatt argue that certain roles that interviewers take up are at least as

effective as an interview guide in affecting the outcome of an interview. Such relationship models are sticky. They naturally guide interviewees to take up a counter-role. A partnership model where the researcher is an apprentice, and the interviewee an master is seen as most conducive to collaborative, open discussion. A scientist to subject, guest to host, expert to novice, or even parent to child are in comparison counter-effective. (Beyer and Holtzblatt, 1998, pp.42-46) Jääskö and Keinonen (2004, pp.100-103) also list roles as derived from various approaches: user as designers, designers as users, user as patient, and user as muse.

In any case, researchers must build trust. Confidentiality is often essential to interviewing (Hirsijärvi and Hurme, 2009, p.43). Birth names or similar identifying personal details are often omitted in later research and publications to provide anonymity to participants.

Such generalized terms used to describe the people involved can be revealing in itself (Ylirisku, et al. 2009, pp.1137-1138): Researcher, designer, colleague, informant, participant, stakeholder, user, collaborator, passenger, non-passenger, would-be-passenger, visitor, guest, repeat customer, crew member, service staff, professional, specialist, hobbyist, expert. All names relate a role in the interaction between person and research, or person and object, person and organization.

Many of them do however, reveal little otherwise about the motivation of interviewees: how participants really see themselves in relation to a service (Hyysalo, 2009). In other instances, it has been suggested that researchers do not label people, but characterize behavior (Goulding, 2002, p.152). This is seen to reduce the risk of nailing participants to a certain model, rather than acknowledging that people can adapt to a wide variety of roles under different circumstances.

The fact that a person has agreed to participate most likely indicates that they are

willing to help. Many are likely to be flattered by the close attention given to their ideas and interests. It is easily understandable then that an interviewee might be hesitant to critique a particular service or product when it's developers or related staff are known to be present (Kuniavsky, 2003). In order to reduce the influence of researchers personal opinions, interviewers are instructed to balance the line between empathetic listening and downright detachment towards what is being said (Hirsijärvi and Hurme, 2009; Kuniavsky, 2003; Merton and Kendall, 1946).

That said, here interviewing has been studied as a one-on-one discussion, although that is by no means dictated as the only possible choice: dyad and group interviews impact the social setting and facilitation of an interview. In such cases findings tend to relate to collective views formed by debates among participants, rather than a discussion between interviewer and interviewee. (Hirsijärvi and Hurme, 2009, p.61-62; IDEO, 2009, pp.44-45).

### **From listening to understanding**

Interviewing is as much about understanding as listening. It has also been indicated that each single quote or passage can offer multiple interpretations.

E.g. Silverman discusses a case where researchers treat a comment made by an interviewee both as a factual statement, and a narrative that reflects particular sociocultural tendencies (Silverman, 1993, on Glassner and Loughlin, 1987, p.100). This represents two alternative ways of analyzing interview data: On one hand, aiming for accurate content on what people define as their everyday practice. On the other, understanding a way of thinking, a "cultural particular" (Silverman, 1993, pp.108-114). This indicates that interpretation does not merely have alternative interpretations but that such findings can be constructed on various levels. Furthermore, working

beyond the 'face value' of statements towards structures as much as drivers of such statements is seen to increase the intensity and relative importance of interpretative activity (Anderson, 1993).

Kuniavsky (2003, p.205) encourages design researchers to look out for "underlying attitudes". Beyer and Holtzblatt seek to "externalize the unarticulated knowledge behind intuition" (Beyer and Holtzblatt, 1998, p.36). Such calls can either seek to spot unmet, latent needs, or simply to sense out what is being either implied or not voiced. Especially their cultural model represents efforts to make discussable influences that are "pervasive and inescapable, yet invisible and intangible".

That said, even apparently convincing descriptions can be misleading. Within social sciences as well as design research, the discrepancy between what people think they do and actually do has been well recorded.

Most habitual tasks are difficult to recollect while summaries of them tend to gloss over important details and cues for action (Beyer and Holtzblatt, 1998). What is said might represent 'official rules' (Hyysalo, 2009; Beyer and Holtzblatt, 1998) or strong, personal convictions that are blind to one's own actions (IDEO, 2009, pp.47). It is equally important to spot missing pieces and in-built research biases

as understanding what was said out loud: Interviewees might simply skip over things they find too intimate to share, or do not find the interviewer to be interested in (Hyysalo, 2009, pp.136-141; Silverman, 1993, pp.101-103). Political, and social aspirations, i.e. drivers of high importance, can be a part of a game of appearances (van Maanen, 1974). An interviewee's body language might be more revealing than a voiced answer (Kuniavsky, 2003).

Despite these pitfalls, few omissions are made consciously, or with particular, malignant intent (IDEO, 2009, pp.47). Such glitches do not necessarily present a problem of facilitation - as long as i.a. planned questions are considered and tested (Hirsijärvi and Hurme, 2006; Kuniavsky, 2003) - or missing capabilities in an interviewee, but are enlightening in themselves when noted (Silverman, 1993, pp.91-114; van Maanen, 1974).

It would therefore seem helpful to make explicit note of what kind of 'knowledge' an extract or quote represents, and to cross-check responses when in doubt. That said, for design researchers and organizations that have vested interests themselves, the matter might as well be one of facing occasionally uncomfortable views of "*what customers want to tell you*" rather than "*what you want to know*" (Stickdorn and Schneider, 2011).



Figure 2. Examples of observation images taken during field research in 31.08. - 07.09.2013

### *Case 3: Studying how safety becomes communicated*

As was soon found out through discussions and interviews with passengers, those experiences of vulnerability we were on the lookout for were best described as fleeting moments of anxiety. Concerns voiced by people appeared to be quite subjective.

This fragmentation highlighted difficulties for interviewing and participant observation. How could I gain any insights, rather than vague recounts then? It felt inappropriate to shadow a passenger for a whole day, although I never actually went out of my way to ask for it.

In response, I started documenting as much of the surrounding environment as possible: empty spaces, and the same spaces occupied by people going about their activities. In addition, I focused on things that could in any possible way influence people's safety experience, not only dedicated safety equipment (Figure 2). My focus on this was intentionally loose, as my aim was to hit upon undiscovered opportunities.

It was important that observation be more or less continuous. Observing was not a separate task, although I reserved time for concentrated efforts with set objectives. Several tools for documentation were used. A widelens camera proved essential for mimicking the human eye's ability to utilize peripheral information. It captured a more realistic appearing view of vastly open views count. A small pocket camera recorded details and narrow passages.

My field notes alternated between rather cryptic, abridged questions, single words, notes and sketches, and more detailed plans for the next day. Daily debrief sessions, which will be discussed later recorded findings in sentences that were more clear on a later reading. In that sense, those post-its acted as a second, shared field journal for our Triad. Audio tapes and a couple of video clips were also recorded but remained largely untouched afterward. The audio

tapes proved to be of too poor quality, while a compiled video would have required significant efforts in order to offer a useful perspective. I was unaccustomed to using video as a tool, and had not planned any specific agenda for collecting materials.

Quite soon after starting out, some themes for the third category started to emerge in my mind: e.g. 'human scale', 'barriers and boundaries'. These groupings were further developed after the field trip. After uploading the final images on my laptop I created a set of folders I named after these tentative themes. Sorting through these images and writing about observation for the field report led to new insights.

I never went through all the thousands of images our combined team had taken but stopped the exercise when no new groupings seemed to appear. The final outcome of this that stage was a set of collages organized under nine themes. In itself, they did not indicate any design direction. Instead, they offered a richer understanding of alternatives within each category, indicating acceptable parameters and relatable variables.

Personally, I found observation to be both invigorating and inspiring. What the above description accompanied by the wisdom of hindsight does not cover however, was how uncertainty and multiple options existed at each step of the process. I prepared for observation by rereading observation guides, planning in time and acquiring equipment, but particular points of interest beyond the overall research focus became defined only once on board. Deciding to go with even an inkling of an idea helped to get if there was anything worth pursuing.

However, artifact observation without passenger insights did feel lacking. Here the further, hypothesis developing interviews could have substantiated results significantly.

# Observation and context studying

Observation can be used in a simple, actionable sense to refer to activities where researchers go to watch, listen and sense in person what is happening in a place or community of interest: to observe people in their 'native environment'.

It also stands as an abbreviation for ethnographic observation, an approach developed within anthropology. First anthropological studies were aimed describing faraway, exotic tribes discovered by colonialists in the 19th century. Dourish argues that ethnography introduced a shift in the narrative, to understand "the member's point of view". Given a permission to mingle, prominent ethnographers of the post-war 'Chicago School' transferred interests towards urban niche communities (Silverman, 1993, p.53). (Dourish, 2006) Concepts of culture and communities were central point of interest for these studies.

The political agenda of participatory design, and a disillusionment with market studies in the 1960s then pushed designers out and into the field to study the context of everyday life (Ireland, 2003).

A more recent adaptation to removed, 'passive observation' is 'participant observation'. It entails living alongside

studied people, sharing similar experiences. Active reflection and studious documentation of hypotheses is required. With it an immersed and embodied as much as cognitive understanding of relevant situations is sought (Plowman, 2003).

'Artifact and material culture collection' is another visual and qualitative approach often used in organizational ethnography (Plowman, 2003). Through it, design researchers produce hypotheses by reading objects for traces of design intent, marketing and targeted segments, and realized user action and interpretation. In this view, objects are seen as collections of affordances that direct behavior, as well as parts of larger networks of meaning and intent. (Hyysalo, 2004)

Artifact collection is actually not a form of observation; however, conducted in context it shares many of the same principles, and is complementary to participant observation.

Due to historical variance as well as a high number of adaptations. 'observation' has become a diffuse term. It is likely that further specification is required when discussing it, especially when outcomes and requirements for research are in question.

## Perspective: A detached, immersed observer

An significant, if long-standing question within sociology lies whether researchers should be immersed in or detached from the studied individuals or community (Plowman, 2003). The question does not only relate to how reliable results could be best achieved, or how the researcher might influence results, but to ethical concerns over the relationship between researcher and people contributing to the research.

Gold, a sociologist, discusses four roles ranging from a completely detached, hidden observer, to a completely immersed, clandestine participant. In the two other intermediate roles informants are aware that they are being studied. In a sense, each of the four roles can be viewed as a tool to be selected based on the objectives of research. (Gold, 1958)

Each of the above described roles has its benefits and drawbacks. Most significantly, differences lie in which senses are involved, and whether one-way interpretation or direct communication take place. Here an immersed, participant observer is of particular interest.

Hyysalo argues that observation often helps to overcome vagueness and assumptions, while possibly pointing out new opportunities (Hyysalo, 2009, p.106). It addresses several of the shortcomings outlined earlier in connection to interviewing related to the ability and willingness of giving accounts.

As an activity, ethnographic observation has been argued to be quintessentially an interpretative, and analysis driving rather than reporting, and 'impressionistic' practice: an oversight or reduction for which design ethnography has been reprimanded for. In this expanded view, observation is seen as an analytic endeavor to take a perspective on the social and cultural realities a set of people align themselves with, and to describe that view (Dourish, 2006; Anderson, 1993).

In contrast, designers are far more often interested in individual users even if typical industrial designs are mass-produced for wider audiences: Such individuals are seen to direct requirements and inspire new ideas. Furthermore, while objects can evoke evoke highly subjective meanings through memories and associations, shared cultural content is likely to be interpreted in relatively similar ways (Battarbee, 2004, p.30). This description is quite reminiscent of the argument that by addressing a design question designers do not seek an 'absolute' rule even if they do learn certain aspects of it (Cross, 2007).

As a result, observations tend to levitate between subjective and collective, assumed and validated meanings and intentions; as interpreted through observed interactions.

This raises the idea that an observer is detached and analytic, carefully recording observations at the same time as being highly invested in learning, considering, and wondering about a person, community, or context of interest; and the role objects serve in in such settings. The objective of documentation is to move beyond mere description in an attempt to understand why behavior takes place, under what conditions (see e.g. Anderson, 1993).

Observation creates raw data, and inklings of interpretation. Observing accumulates information on what people do - whereas interviewing accumulates information on what they think they do. However, in light of the presented debate it could be wryly noted that observing creates information on what researchers assume people do: Interpretations and ideas come in spades. Not all of them are adequate or even correct, even though an convincing illusion as much as realistic impressions are created by intuitive explanations (see e.g. Kahneman and Riis, 2005).

## Raising contextual awareness

Underpinning the need to go and see how people act and products are used 'in field' lies the idea of desirability being defined by context:

*"The products of design [...] engage humans through their utility as well as their cultural location - the "situatedness" through which designed artifacts recursively derive their meaning and are simultaneously the object of interpretation" (Plowman, 2003)*

Some authors propose the idea of dramaturgical 'stages' to make sense of the central roles and values people hold, and tools related that touch on a product or service of interest (see e.g. Ylirisku and Buur, 2007; p.19; Goulding, 2002, p.27; Anderson, 1994).

Field oriented designers are interested in how people address, deal with, and live with design objects; and eager gain first hand experiences on these (Koskinen, et al., 2011, pp.69-70). Tapping into contextual data and real life based user representations is therefore seen to create real engagement in project teams (IDEO, 2009; Jääskö and Keinonen, 2004; Beyer and Holtzblatt, 1998).

Photographs and artifacts can be gathered as 'evidence', as research materials to be studied and worked over. They can act as reminders and communicators of a particular atmosphere, situation or personality in later stages of design (Jääskö and Keinonen, 2004, p.96-100). It should perhaps be noted then that taking observational images, or shooting videos with this intent, requires at least some consideration and appropriation (see e.g. Ylirisku and Buur, 2007).

## Brief nature of immersion

Ethnography is often represented by the literature it has produced, whereas designers can build up all sorts of evidence to be used in later stages of research without ever

producing a coherent body of exclusively written, formal accounts: In order to get on with design, design researchers and organizational ethnographers spend only a fleeting moment of time in field in comparison to theory building social scientists (Ylirisku and Buur, 2007; Plowman, 2003);

*"Design ethnography is characterized by a fair, rather than exhaustive, understanding of the participants' practice [...] A formal description [...] - explaining the past - may not have value once the product has been conceived and brought to market" (Ylirisku and Buur, 2007, p.19).*

Whereas ethnography seeks to understand studied communities and phenomena set around them, design seeks to transform observed situations (Battarbee, 2006, p.66 on Dourish and Button, 1996; Silverman, 1993, p.196-203; Gubrium, 1988). For design intentions, ethnographic raw data is only as interesting as how well it conveys a understanding of experiences (Dourish, 2006) reached by intertwined interpretations (Ylirisku and Buur, 2007); and by extension, based on it's ability to spark original, well grounded ideas (Beyer and Holtzblatt, 1998).

On the other hand, concerns of coverage and ability to built statements persist: Short meetings with people are like snapshots. Observing the adoption of products and use of locations as they move from mint condition to worn, well-loved or rejected, and readopted is seen to require sensitiveness to time and changing roles people take (IDEO, 2009; Plowman, 2003; Kuniavsky, 2003, p.393-394). In kind, the feel of a location where observation was conducted can change significantly based on when observation was conducted.

That said, it has been argued that findings from ethnographic studies overall are situated in their nature rather than abstracted to a general level: *"tentatively asserted, full of reservation and qualifying*



*detail*" (Van Maanen, 1979, p.114; also Koskinen, et al, 2011, p.81, on Geertz, 1983).

### **Establishing and expanding focus**

Having a focus leads to "seeing more", as contradictory as it may first sound (Beyer and Holtzblatt, 1998). Observation creates a lot of data. In order to retain in-depth insights, focus concentrates efforts on research relevant data (Beyer and Holtzblatt, 1998; Silverman, 1993).

Multidisciplinary teams and explicitly stated roles have the potential to cover a range of perspectives faster than single researcher ever could (Eisenhardt, 1989; Beyer and Holtzblatt, 1998, Hyysalo, 2009). Educational upbringing, interests and previous experience will inherently influence the things that observers pay attention to. Without any internal coordination teams are likely to run the risk of missing out on, or acquiring facts that are superfluous for the research case.

A "grid", or grouping of things to watch out for is a powerful way to create focus, e.g. tracking fears and comforting aspects that passengers experience. Yet observing with preset, or even tentative topical groupings contains the risk of dismissing anything that does not fit in neatly into assumed categories (Silverman, 1993, on Atkinson, 1992, p.37-39).

In order to retain room for discovery, and remain sensitive to biases during observation, several researchers and practitioners highlight the need for 'a beginners mind' (IDEO, 2009; Beyer and Holtzblatt, 1998). Extensive critical debate has sharpened the definition of what would serve as a 'non-predefined' mindset - as research is started on a topic of interest anyways (Kelle, 2007, p.215). In short, there is a difference in being uninformed, and in accepting "uncritically the conventional wisdom of our day" (Silverman, 1993, pp.4): attention is placed on surprises and irrational appearing behavior (IDEO, 2009),

or 'negative cases' (Hammersley, 2008) in developing hypotheses, or 'unfocus' when starting categorization of findings (Sapsford and Jupp, 2006).

Furthermore, not only are "data collection, hypothesis construction and theory-building" interwoven, but research focus is progressive (Silverman, 1993, on Hammersley and Atkinson, 1983, p.46). In other words, researchers themselves are often surprised by what they end up reporting on. Eisenhardt refers to this as "controlled opportunism" in discussing theory seeking case study research (Eisenhardt, 1989).

### **Between observation and interpretation**

Silverman (1993), a social scientist, sternly criticizes the study of assumed 'meanings' in stead of traceable 'practices' during observation. In part, this refers to the danger of not paying minute attention to what is happening. Instead, observations are filed away under 'commonsensical or psychological' explanations. Silverman places this kind of lackadaisical work fitting to fuel coffee table reflections rather than professional discussions. (Silverman, 24-31, 145) Leaving out a lengthier discussion on schools of thought in social sciences and their transfer to design research, Silverman's critique adequately points out a significant difference between observation and interpretation.

An observation is a selected note that is more or less irrefutable, like "her voice wavered and she cast her eyes down before answering". An interpretation offers an explanation as to why something has happened: What caused her to react in this manner? Was she happy, or sad? Was she contemplating her answer, or did she see something happening behind your back? Without more observations it is rather impossible to answer to these questions.

IDEO (2009) field workers continuously advice against summaries, generalizations

and direct interpretations as these would likely smooth over significant details. Only once the structure of practices is laid down, can interpretations be pitted against each other in order to find the most salient ones: field work can be expensive in terms of time, energy, and money. In an ideal situation raw data can be kept collected in a proverbial separate bin a this should allow researchers to return to it in order to revise their interpretations if need arises.

On the other hand, it is natural for us to continuously make sense of what we see. Beyer and Holtzblatt (1998), like Van Maanen (1979) two decades earlier, caution interviewers to relate their interpretations to an observed interviewee immediately in order to make them more accurate and verified. Silverman (1993, pp.146-147) suggests marking each observation's origin, or nature into field notes. Still another option would be to directly state subjective, "inspirational data" as a research objective (see e.g. Gaver and Dunne, Pacenti, 1999 on cultural probes).

Of course, any such advice is likely to be discarded if such practices do not appear as practical to researchers, and do not become habitual, automated activities.

### **From voyeurism to understanding**

At it's most resonant, Gold's writing describes how going 'into the field' can make researchers vulnerable in a very personal way. They become exposed to contradictory values, and can become subjects of evaluation themselves. The underlying directive appears to be that while observation should lead to a deeper understanding of somebody else than ourselves, keeping a professional distance helps to overcome complications. Gold refers to this as intimate content, rather than intimate form of interaction. (Gold, 1948)

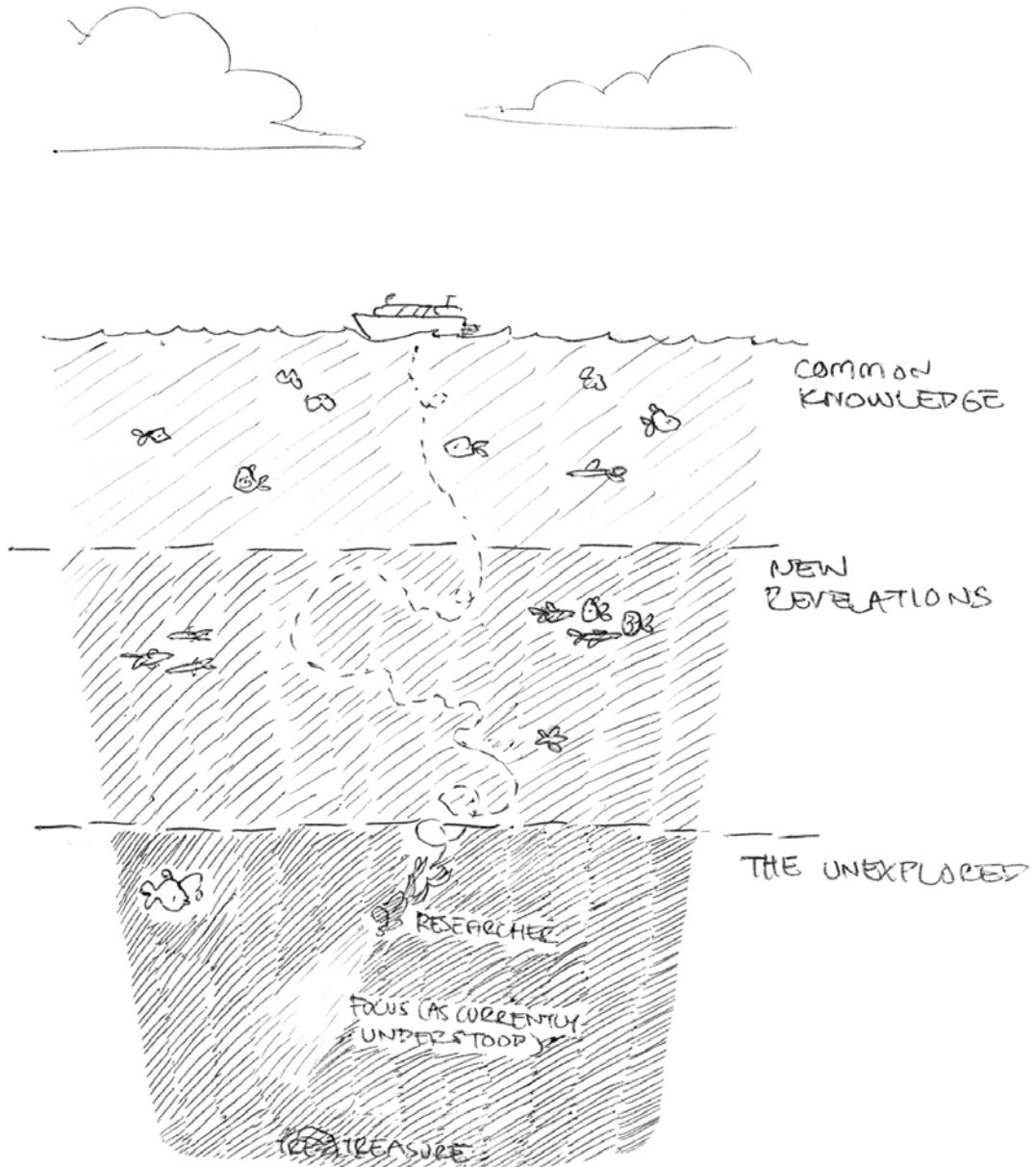
While observation can be used to become familiar with a setting, it can be driven to produce interpretation of much more revealing kinds. However, this is not to be

mistaken with an voyeuristic alienation of observed people (Anderson, 1994). E.g. Silverman recounts another anthropologists efforts to 'segment' a tribe in Thailand turned to studying when ethnicity was recalled in everyday life. Finding listings of possible, ethnic, tribe defining qualities less than useful he turned to studying how and when such labels are used, and to what ends, in everyday situations. The consequence was to that

*"[...] apparent differences between the Lue and ourselves were considerably reduced. Only an ethnocentric Westerner might have assumed otherwise, behaving like a tourist craving for out-of-the-way sights" (Silverman, 1993, pp.198-197, on Moerman, 1974)*

A modern counterpart of tourist-anthropologist could be likened to a doctor-designer asking "Now, let us see what is wrong with you"; bound on countering known disease symptoms rather than ensuring the overall, continued well-being of patients (Keinonen, 2010, pp.21-22).

On the other hand, it is not too inconceivable that the field researcher does indeed find the informant to be "an almost intolerable bigot" (Gold, 1958, p.218). Handling the situation with professional discipline, or moving to another informant are not sufficient however if the whole intended target group raises controversial feelings. Perhaps Chicago School's favored outsiders, such as 'prostitutes, gamblers, and mentally ill', provide a truer challenge to empathy than, say, designing for skilled snowboarders. However, not only the powerful and attention commanding, but those deprived of social capital need to be included by observers who seek to record multiple perspectives within communities (IDEO, 2009).



# 3

## Three Aspects of Producing Insights

In the three previous chapters, benchmarking and reference seeking have sparked a debate on current knowledge and desirable directions. Interviews and observations have brought people and contexts of interest to the fore. Questions have been open-ended, producing multicolored, fragmented pieces of data as well as raising new questions. Some principles of interpretation have already been discussed over: Making sense of data is as much an embedded, iterative activity, as a next stage of research. Still, the overarching nature of insight building has remained untouched, and requires further study.

*hazards on individual scale*

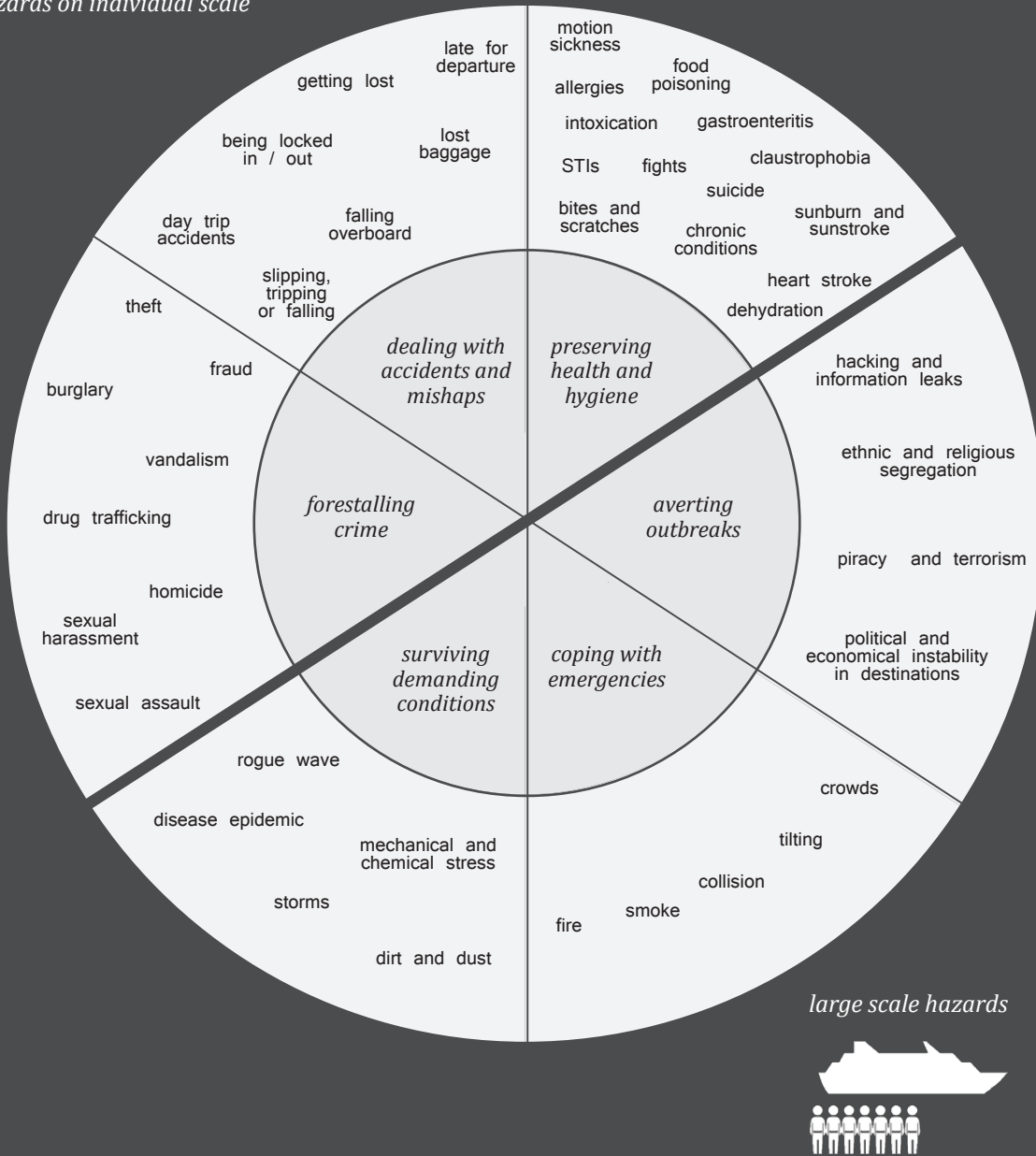


Figure 3: An early mapping out of what might be counted as danger in leisure cruising in the first place

### Using visuals instead of lists

This visual representation (Figure 3) was made with the intent of showing that cruise ship safety deals with more than large scale emergency cases. It emerged in the process of collecting a list of potential hazards: there seemed to be some sort of underlying

pattern to the items, a chance to group them. As a visual form, a wheel or pie chart, took shape it felt easier to fill in further pieces. Titles and items became iterated over, and I asked four others to check whether the mapping and its contents made sense.

## Case 4: Debrief Sessions

Heini Salovuori, a fellow Triad member, and I took lead in planning out shared activities for our field research trip. Proposed procedures were set down as a part of our 'field kit', a detailed plan and resource: a certain degree of explicitness was seen as essential as we did not have the chance for go over the plan with the whole team present in one place before the actual trip. Even when each of us had our own research objectives, the aim was to make the most of the research team by enabling and facilitating collaboration.

As we discussed our field research experiences, including week-long stays in field and a shorter test-run conducted on a seminar trip to Stockholm, we concluded that daily debrief sessions would be essential for recording any of our findings in an efficient, accurate and timely manner. A ready template with four questions offered by IDEO (2012) was chosen as it was familiar and had a firm people orientation. Slight rephrasing was made to appropriate situation-specific wordings:

- 1) *Things that the informants said or did that surprised you or most memorable quotes*
- 2) *Things that matter most to the informants*
- 3) *Topics or questions to be explored further*

*SUMMARY) Main themes or learnings that stood out of this research  
(adapted from IDEO, 2009)*

The idea of a debrief session is to have team members come together, to share and pre-analyze their findings within a set time limit (*ibid*). The questions were printed on copies of A3 with for fields to stack post-its on. The usage of post-its allowed each of our four members to write down answers in silence, and only then to have a shared discussion. Full, descriptive sentences were asked for as

they would provide for our documentation.

Both initially set time limits and step-by-step answering of questions were adjusted several times: Intentionally, once we had held our first debrief session together, and gradually, as everybody became accustomed to the process. One person was always responsible for keeping time and checking progress. This also became more and more of an informal role as the week went on.

In the end, we held five debrief sessions in the span of eight days of which six were full days spend on board. We would discuss the day's activities over breakfast and agree on a meet-up time for the debrief. Often we found ourselves around a small table for playing cards in the ship's library; a quiet, sunlit space often vacant from staff or passengers (Figure 4).

Collected notes were not bound to observations but contained interpretations and suggestions as well. In this, it favored vivid impressions and personal questions over a cautious, analytic proceeding. It would have been possible to drill in the need to mark up the source and nature of each finding; or as was done in this case, to accept its reflexive, mixed nature. Clearly, we were favoring speed and getting things done in time during a very intensive field week. However, significant benefit was found in probing and counter-checking experiences collectively, between team members who had engaged in partly same, partly different instances of research.

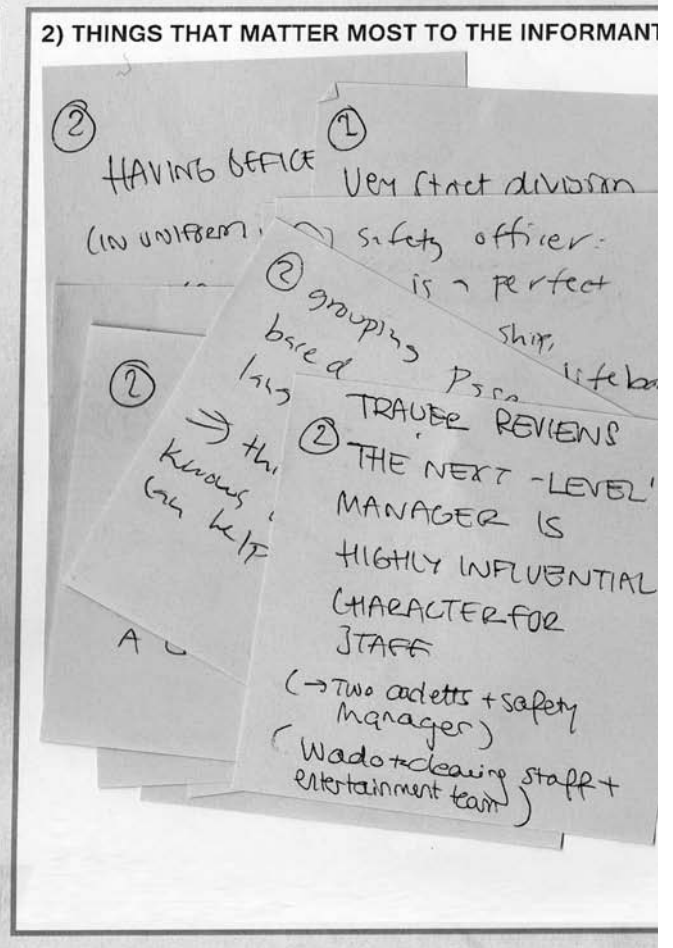
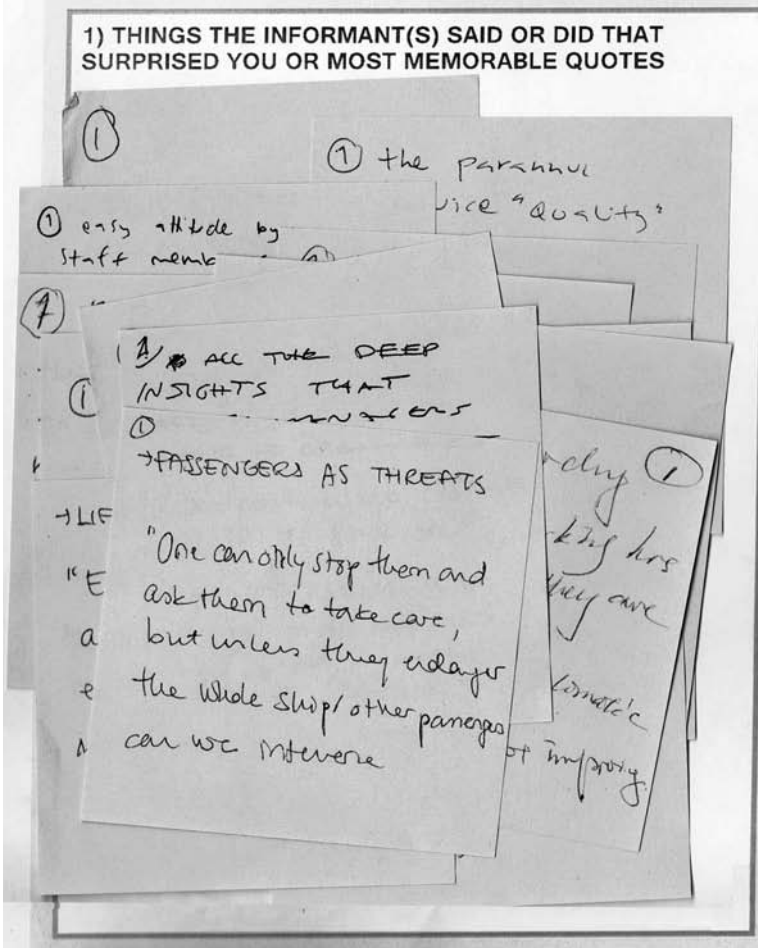
Personal reflections played a significant part in this exercise. We were studying ourselves as cruise guests. Though, this had as much to do with the lack of passengers with whom we would have shared a common language with, as explicit choice. Before mid-week, we did realize how unusually critical and attentive we were being in our judgment of service quality: understanding this helped me to differentiate more between the roles of researcher, designer, and cruise guest.

Debrief discussions significantly helped collective learning, keeping everyone up to speed. It offered an efficient, structured session that automatically documented findings over the week. It produced a lot of data that was later reviewed in writing our cruise report (Ahola, et al., 2012)

I believe however, that the most important documentation entered our minds: During the week, the notes proceeded from details towards more overarching observations. Furthermore, individual post-its now act as reminders, as references to particular situations and accounts heard on board - they are filled with nuances of meaning and stories that are likely to be 'read into' by persons who have not participated in the sessions.



Figure 4: discussing findings (right and top), and a half a debrief sheet (below)



# Interpretation

The intermediate produce of data gathering is raw data. It simply is, representing pieces of patchwork rather than an overarching idea of what is going on. Active efforts are needed in order to elicit results of significance out of it - just as there are challenges related to reconstructing interpretative activity.

With scientific rationality being discarded as a formula for design, a terminology of design thinking and a variety of practice-appropriated frameworks have come to enjoy wide-spread success: analysis has been replaced by synthesis, understood as a creation of new design directions and ideas. For all other benefits gained, preparation and making sense of data has remained swept under the rug, leaving designers with less tools to discuss and understand an essential aspect of research (see e.g. Kolko, 2010; IDEO, 2009, pp.79-101)

Furthermore, interpretation can be a very abstract process dealing with practical information (IDEO, 2009, p.79). It can be a disciplined yet personal and informal act of “focused curiosity” (Koskinen, et al., 2011, p.74). It can be a highly formalized activity, yet with the actual thought-work hidden behind tangible outputs (Kolko, 2010). As a case-dependent activity interpretation eludes description (Eisenhardt, 1989). It seems likely that quality criteria and objectives for interpretation vary from project to project - or project setting.

A central question in this chapter is

what was learned in data gathering. Two activities are central to it: description, as a working over of what was said and seen via various means; and sensemaking, as an active probing and creation of alternative interpretations. The proverbial other shoe for insight building only drops in the next chapter, where selected findings are crystallized into implications rather than interpretations.

Koskinen, et al. (2011) bring out two, overarching and overlapping approaches for making sense of field based information: The first one leans towards the social sciences, using “*analytic induction, grounded theory and thick description in symbolic anthropology*”. The other one relies on purpose-selected, design practice developed frameworks such as service path descriptions, personas, and prototypes. Ylirisku and Buur make a similar distinction, calling the two approaches ‘grounded’ and ‘framed’.

A ‘grounded’, social science informed approach is of more interest for this thesis given the materials used and thoughts followed. Still, the reality is more likely to be a mix between the two - between convenience and design appropriated models, and principles passed on from social sciences. No particular analytic or formalized approach is endorsed here: therefore a short overview on three levels, or tiers is in order before continuing:



## Some overarching approaches

In *reflection-in-action*, a classic rendition of a form of learning by doing, design challenges are addressed and ideas developed as an interplay of 'design moves' and effected changes: as sketched out, perceived and discussed by the designer (Schön, 1983).

Via *ethnomethodology* a social scientist seeks to uncover the social, situational, 'local consciousness' created by people by building upon detailed observation (Lee, 2012; Anderson, 1993; Silverman, 1993).

In *user-inspired design*, researchers speculate over the goals and values relevant to studied people based on what was conveyed by people studied. When pursuing *empathetic design*, design researchers seek to become more capable of experiencing as another person would: to be able to comprehend studied people on emotional, rational, physical, or any other relevant levels (IDEO, 2009).

Many *contextual design* research projects are, or could be constructed as case studies (Koskinen, et al, 2011; Yin, 1981). *Grounded theory* (Goulding, 1998) and a number of *case studies* (Eisenhardt, 1989) seek to build new theory. As generalizations are drawn bottom-up from data, solid research materials are called for. A label of e.g. grounded theory demands strict following of a defined, overall analytic procedure (Hirsijärvi and Hurme, 2009, pp.164-166).

### ...that can build upon

No set rules apply to *within-case analysis*, although vivid immersion into data in order to first identify "unique patterns" takes place (Eisenhardt, 1989, p.540)

In *inductive analysis*, a small, first sample of data is compared against a tentative hypothesis. As long as data disproves an explanation the hypothesis is extended or revised, possibly requiring a new sample. As more accurate explanations emerge, the volume of data samples is increased. By

a consistent, iterative approach inductive analysts aim to either create a theory on why something happens, or how an event came to be. Universal theories are sought in scientific spirit but any theory is tentative in its nature. (Hammersley, 2008, pp. 69-89)

*Reflexive analysis* assumes an ability of many to encounter similar feelings in visiting a location or partaking in an action. It works through compassion as much as prejudices in building hypotheses. Reactions to situations in the field are carefully noted and thoroughly reflected upon: first, as to what others might have experienced, and as a second, cross-referencing how this adds to or undermines other observations, existing preconceptions and formed explanations. (Sapsford and Jupp 2006)

Numerous *practice-oriented models*, such as personas, customer journey maps and flow charts also exist. They enable design researchers to purposefully gather data to cover succinct perspectives one overview, or a system at a time. (Ylirisku, et al., 2009; Beyer and Holtzblatt, 1998). They don't require years of training to be utilized, and they take interpretation beyond theoretical texts set in the social sciences. (Koskinen, et al., 2011, pp.74-79) They map out actions and roles: they provide narratives that go beyond merely subjective accounts without losing a feeling of personality (Sleeswijk Visser, et. al, 2005). Often highly visual, they communicate important aspects of studied contexts as much as facilitate discussions. (Sleeswijk Visser, et al., 2005; Keinonen and Jääskö, 2004). Despite their usefulness, they are not essential or well-suited for every project. As pre-set frameworks they can make blind to other possible ways to structure findings (IDEO, 2009; Ylirisku and Buur, 2007; Keinonen and Jääskö, 2004).

### ... while building conclusions through

*Inference* is an act of "finding useful explanations [...] from observed facts" (Richardson and Kramer, 2006, p.499). Three

kinds of reasoning are identified. *Deduction* follows known theory in order to prove or disprove a claim. (*ibid*, p.499-500) As already indicated, *induction* proceeds from particular cases towards generalizations (Hammersley, 2008; Goulding, 2002).

*Abduction* is a kind of reasoning undertaken with the relatively humble, pragmatic aim of finding the best fit to describe local meanings. An explanation can be offered from outside given premises: abduction is associative (Kolko, 2010; Richardson and Kramer, 2006). It stakes actionability over universal truth (Kelle, 2007) In simpler words, abduction is about relying on the explanation that makes the most sense (Kolko, 2010). It is a guess, or an informed decision inspired by field reality. Existing theories enter the stage once

research dives into a more clearly selected area (Goulding, 2006, p.42, pp.71-72).

Furthermore, abduction acknowledges that complex phenomena can rarely be fully elaborated. They could be constantly worked over (Kelle, 2007). It is also likely, that building upon other experiences it can produce results out of more fragmented pieces of data than induction.

Induction and abduction are of particular interest here as they can introduce new, if tentative principles. Inductive or abductive reasoning is not necessarily true, but once proposed they can be elaborated and tested upon: a certain degree of informed opportunism is necessary to balance the ideals of original thinking and grounded insights.

## Perspective: Tentative Structures of Understanding

Interpretation goes beyond “systematic description of data” (Koskinen, et. al, pp.74-75). As an activity, interpretation entails not one step, but numerous steps towards less individual bound articulation (*ibid*, p.93). Interpretation offers new ways of thinking about data: making sense of what is being described.

An ultimate goal of interpretation is then an uncovering of high-level “new structures” (Ylirisku and Buur, 2007). These can be arguments that are expected to be fundamental, or central to activities. By transcending individual observations they can be arguments that future designs, or organizations could be based upon. Interpretations can also be critical reviews of current assumptions; offering a new perspective or way of thinking (*ibid*, p.139).

Ylirisku and Buur define interpretation in

design as much as an empathic as an analytic activity despite different requirements set by each:

*“The challenge is, on one hand, the conceptual and analytic study of patterns and relationships, and on the other hand the empathic reading and construction of images and stories of meaningful life.” (Ylirisku and Buur, 2007, p.95)*

First, a general definition of ‘analyzing’ is in order to follow up on indicated differences

*“1. to separate (a material or abstract entity) into constituent parts or elements; determine the elements or essential features of (opposed to synthesize): to analyze an argument.*

*2. to examine critically, so as to bring out the essential elements or give the essence of: to*

*analyze a poem.*

3. *to examine carefully and in detail so as to identify causes, key factors, possible results, etc.” (LLC, 2012)*

As a relatively widely used term, analysis could relate to complex, mathematical processing as much as thoughtful reading. It relies on picked apart, observable aspects. However:

*“To use an example of Russell Ackoff’s, we will never understand why standard cars have seats for four or five if we look at the physical properties of its elements. Human beings create teleological systems, systems with purpose. To understand the car design, we need to see how it fits into a society of families who travel together” (Kofman and Senge, 1993, p.13)*

Interpretation then becomes a matter of identifying and understanding essential meanings and motivations as much as observable, sequenced behavior of, e.g. families on the move.

Ylirisku and Buur describe interpretation as a dynamic process of exploring, relating and creating that depends on studied people and documentation, the research team and context of the research project: even single events can, and are being reinterpreted given what we think we know about the situation and persons involved in it, and what we aim to make out of it all. (Ylirisku and Buur, 2007; Gubrium, 1988)

Learning, just as working over materials takes time. Degrees of discomfort are likely to arise out of dealing with conflicting thoughts (Ylirisku and Buur, 2007, p.192). Goulding refers to a feeling of being cut loose while following a process of intense reflection, and long periods of nothing making sense at all (Goulding, 2002, p.158, on Glaser, 1978). Both leisurely floating meditation and pressure-induced doubt in the midst of uncertainty can be needed to provoke original thinking (Kelle, 2007,

pp.219-222, on Peirce 1929, 1931-1935), and to keep up motivation (IDEO, 2009, p.13) for interpretation: it can be a rather passionate, as well as an defeating affair. It could be argued that a degree of objective detachment alongside with intense interest is required to compare and develop alternate explanations.

Findings need not be replicable, only relatable to given current understanding of the studied context: As much of the collected data is qualitative, visual, written and otherwise recorded materials can be worked over to form a kind of narrative that

*“we may not have thought about it quite this or teased out the relationships and tracked the steps [present in studied phenomenon]. Nonetheless we can recognize the plausibility (and insightfulness) of the description. What is being described is a world we know in ways we know it” (Anderson, 1994, p.14)*

Furthermore, by externalizing findings researchers can actively debate over assumptions and explanations based on actual, gathered data. At the same time, interpretations could be turned visible to a wider group of stakeholders (Kolko, 2010; Ylirisku and Buur, 2007; Silverman, 1993)

Concluding on the earlier overview, key differences in approaches exist in demands for overall objectivity, a priori assumptions, and adding of existing knowledge. Still, both design frameworks and social science practices of interest here utilize a contextually informed, bottom-up, pattern seeking process. They rely on framing, a switching of tentative structures of understanding in an iterative “process of perceiving and making sense of social reality” (Ylirisku, et al., 2009, p.1132, on Schön and Rein, 1994). Researchers essentially engage in a match-making process of finding a suitable way of describing a situation, *as it is seen to be of interest*; in most cases, how far it can take subsequent designs.

## Immersion and vividness for learning

*“when the customer data is understood and internalized, team members will find it natural to design solutions that respond to the primary issues it raises”*  
(Beyer and Holzblatt, 1998, p.275)

Immersion into the research topic is not a step in itself, but a constant descent: convenience and tuning-in define first stages, followed by more carefully selected, detailed cases and cross-references with existing knowledge (Sapsford and Jupp, 2006; Mattelmäki, 2006).

In larger projects, raw, unprocessed data can become as bountiful that “death by data asphyxiation” starts to loom over researchers (Eisenhardt, 1989, p.540, on Pettigrew, 1988). Yin (1981, p.64) refers to the same issue as a fatiguing lack of coherent structure, Ylirisku and Buur (2007) as a lack of iterative focus. On the other hand, data that is to be worked over can be fragmented and highly subjective (Sleeswijk Visser, et al., 2005).

Contextual design entails a requirement for a holistic study - even if the ‘whole’ is as much a question of scale, relationships and interdependencies (Troncon, 2011; Ylirisku, et al., 2009; Sleeswijk Visser, et al., 2005; Kofman and Senge, 1993; Anderson, 1994) Yet it is argued that researchers need to avoid summaries during description, as well to understand the difference between observation and interpretation (IDEO, 2009, Silverman, 1993). It turns out that a clear, high level perspective and rich details make up for quite a powerful combination.

Particularities and details keep interest and empathy aloft while interpretations build upon data rather than overwriting or missing it (Sleeswijk, et al., 2005; Anderson, 1994; Merton and Kendall, 1946). Stories “framed around real people and their lives” are seen as a strong, memorable accounts (IDEO, 2009, p.92-93). Qualitative, small sample data thrives especially much on

these, as statistical indicators are not present to point out relevance - even if this sometimes means that more confident proposals can only be reached by cross-checking responses (Silverman, 1993). Finally, details and nuances tend to fade and become harder to recall with certainty if not recorded soon (Beyer and Holtzblatt, 1998; Kuniavsky, 2003; IDEO, 2009).

Research is often conducted in teams. In order to maintain efficiency, research tasks are divided amongst team members. Yet findings need to be made vivid and memorable for the whole team. Instead of writing formal documents, intensive workshops and finding sharing sessions are organized (IDEO, 2009; Sleeswijk Visser, et al., 2005, Beyer and Holtzblatt, 1998): they concentrate efforts and reduce reliance on time-consuming, passed on documents as sole conveyors of information; just as researchers might be disproportionately focused on the fruits of their own efforts (Ylirisku, et al., 2009).

It is acknowledged that first-hand immersion of any kind produces a subtle richness that is person-bound (Koskinen, et al., 2011, p.74). The relatively simple act of contextual immersion and testing of activities can create physical, embodied knowledge relevant to designers without a need for elaborated forms of analysis (Hyysalo, 2009; Jääskö and Keinonen, 2004; Plowman, 2003; Dreyfuss, 1955). Viewed this way, researchers themselves are walking repositories of valuable documentation. However, externalizing this knowledge makes it tangible and reviewable: familiar and new stakeholders beyond the research team can be invited to take part in the interpretation (Kolko, 2010; Keinonen, et al., 2004b, pp.70-74; Beyer and Holtzblatt, 1998).

Pasman (2003, pp.32-33) notes how difficult it was to deal with textual descriptions only, pointing out the importance of visual analysis on context. Ylirisku and Buur (2007) propose the

benefits of working with video and images: Profiles of encountered people can be given vivid identity without divulging the identity of participants by drawing over and reorganizing materials - a working over that can direct interpretation in itself (see e.g. Ylirisku and Buur, 2007, pp.80-81).

Where interpretation is conducted matters lest learning be taken as a matter of information-transaction (Kofman and Senge, 1993). Dedicated walls where notes, gathered artifacts and images are pinned upon engage visuospatial, embodied memories of where to find particular pieces of information (IDEO, 2009, p.13; Keinonen, et al., 2004b, p.74). Kolko (2010) notes how all such efforts actually help to reduce cognitive strain: once externalized, interesting details can be physically moved, and connecting themes teased out.

### **Bottom-up organizing for surprises**

In an open-ended approach, researchers set out not knowing exactly what they will find. Because of this they will continue to test hypotheses found on the way. Gathered data will be allowed to suggest a natural way of structuring itself - i.a. by grouping findings bottom-up: without preset frames of reference can make surprising connections visible. (Jääskö and Keinonen, 2004, p.96-98; Beyer and Holtzblatt, 1998)

In practice, Yin (1981, p.60) differentiates "note-taking" from narrative-writing": the previous documents individual meetings and events, while the latter organizes all forms of gathered data under flexible, evolving topics. Central themes, connections and disconnections between items are sought (IDEO, 2009, p.98-99). Perceived patterns act as kernels of interpretation that are ultimately worked over to a consolidated view about communities of interest (Beyer and Holtzblatt, 1998; also Silverman, 1993, pp.197-199)

A lot of gathered data is subsequently found to be irrelevant (Beyer and Holtzblatt,

1998; Silverman, 1993), or new directions of research require that new sets of data are gathered (Hammersley, 2008). The challenge is that it is difficult to know what is relevant at first: No hard-set rules apply as to where grouping initially starts (Sapsford and Yup, 2006, p.250).

Beyer and Holtzblatt propose affinity diagrams for interpreting all data in one session: writing observations, organizing them piece-by-piece up into groups that turn into larger, overarching themes marked by descriptive headings, complimented by already generated ideas in-between; ending in a slightly chaotic team session marked by stages of silence and negotiation, and a wall fully covered with post-it notes. The authors suggest that finishing this in one intensive session forces a development team to discovery with a fresh set of eyes, rather than allowing assumptions to be confirmed by slow progress (Beyer and Holtzblatt, 1998).

Any grouping is essentially a form of summary. However, Mattelmäki warns of waning groups into generalizations. Interest and relevance to local context need be retained, otherwise investigation is seen to lose its edge. (Mattelmäki, 2006, p.116) A significant implication of this is that outcomes of interpretation do need not be purely replicable - simply relatable to, and intriguing in the light of given knowledge and context. (Ylirisku and Buur, 2007, pp.115-116). Put another way, original thinking can be coupled with humble conviction (Rhea, 2003).

### **Tracing interconnections and evolution**

In data gathering, a dynamic context with interdependent, as-of-yet-ill-defined actors is encountered. A mere listings of items might turn to represent, e.g. experience, habitual events, or discussions as static and given rather than relatively stable or fluid, and chance induced (Sapsford and Jupp, 2006, p.14-16; Hirsijärvi and Hurme, 2007). Tracing interconnections and evolution is

another way of 'listening in' on data.

Stickdorn and Schneider (2011) emphasize the importance of tracing a number of varying customers' experiences as they evolve over time, shaped by a number of alternative service encounters. Anderson (1994, on Eldridge, Bekerian and Barnard, 1992) mentions a 'natural viscosity of events' in passing, an intuitive skill for measuring time based on familiar references. It seems then that time has as much emotional, memory and aspiration enriched nature of an experience (Sleeswijk Visser, et. al, 2009) as an absolute indicator. Whichever notion is referred to, it is clear that actions and products exist in time as much as in space.

Visual representation can be used to communicate social networks, events and systems in almost a glance, rather than relying on extensive written descriptions (see e.g. Beyer and Holtzblatt, 1998). Even when simplified, they provide sensitivity to connections that checklists can rarely provide. Tangible prototypes and even quickly set up 'stages' allow actions to be reproduced, relived, and worked over (see e.g. Ylirisku and Buur, 2007; Laurel, 2003b; Buchenau and Suri, 2000).

### **Evaluating importance**

Research focus, selected methods, and design interest define and direct attention towards case-relevant findings. What studied people find relevant also directs researchers' interest.

There are several frameworks and theories that can be used as lenses when studying peoples' and products' actions in an environment. User experience (Appendix A) is only one of these. On the other hand, e.g. Koskinen, et al, (2011) argue that theory can not inform design because design decisions are value loaded.

There are several aspects to designs that can not be decided to be true or false, but on which distinct tendencies can be

developed on how 'good' or 'bad', how fitting they seem to people using those designs (Ylirisku, et al, 2009; Battarbee, 2004, p.25; Rittel and Webber, 1973). Troncon (2011) proposes that artifacts are 'strategies' that reach beyond what their actual mechanisms do, implicating that design requirements need not be limited to physically-functional attributes.

Central to these debates is the idea of products, services, and behaviors as shells, or tools, or expression of human attachment and action; and of meaning as a fluid, negotiated, situational state (Gubrium, 1988):

*"Artifacts seldom fulfil needs, but allow and enable people to take the necessary action to satisfy their needs"* (Keinonen, 2010, p.19)

Cockton describes this as a matter of 'no intrinsic qualities', no absolute list covering what is worthwhile to design for in every case imaginable: In his terms, qualities of offerings are defined by intended use and physical usability, and contextual fit on a more abstract level during the expected lifetime. On the highest level stands offered value, or worth in less loaded terms. Worth determines how enduring experiences will be, how well human motivations are supported - whether lasting impact on individuals' or communities' engagement can be traced. (Cocton, 2006, 2004)

What emerges from these arguments is perhaps a more human, multidimensional appreciation of desirability beyond single-minded statements of 'more money', 'pure efficiency', or 'pleasure only' (*ibid*; Anderson, 1994):

*"By tuning in to this plurality, design can take up the opportunities offered by the play of rationalities and hence design 'solutions' which go with the grain of local logics rather than against them"* (Anderson, 1994, p.29)

## Local and social nature of findings

A clear implication of this is that once dealing with experience, culture, and like concepts interpretation happens on both ends: in everyday action and design researchers' debates.

Sensemaking is a natural process for people to engage in (Kolko, 2010, Ylirisku and Buur, 2007). Certain simplifications are necessary in order to create actionable interpretations. However, thinking of meaning as something to be picked apart, each slice frozen into a package to be shipped and bought belies the multifaceted, complex nature of meanings, and points to users as passive recipients (Crilly, 2008; Plowman, 2003; Kuniavsky, 2003).

Despite labeling the applicability of findings as local, phenomena rarely arise as closed systems: they are diffuse, interlinked with other systems, riddled by chance-induced but likelihood bound co-presence of multiple events (Hammersley, 2008, pp.69-89; Kofman and Senge, 1993; Rittel and Webber, 1973).

For example, in a study of heritage site visitors Goulding proceeds from age as a defining criteria to "sets of behavioral patterns" that recall the situational nature of findings:

*"It is important to note that although these three categories have been identified as the basis for differentiation, they are neither mutually inclusive nor mutually exclusive. They are not meant to be constant labels applied to individuals, but should be considered in the context of pertinent life circumstances" (Goulding, 2002, p.143-144)*

Just as the categories are loose enough to cover a range of intensity, they give a primarily local account of motivations: an individuals sensitivity to certain experiences can in turn be swayed by environmental factors (Goulding, 2002).

In other words, produced framings by

definition do not cover all aspects of the situation, but after exploration and tweaking around they have been found to be a sufficient, if not an excellent fit to describe a central portion of the studied phenomena.

## Turning discovery to familiarity

It has already been proposed that it is not only the research material that is worked over, but the researchers own way of seeing the world (Kofman and Senge, 1993). The relevance of data only becomes apparent in hindsight (Ylirisku and Buur, 2006, p.1132). This process is harder to see, because a person's current understanding of the world is always more vivid, more impressive, replacing any a priori understanding of available choices. What was known before research can be lost because any successful interpretation of framed circumstances comes to appear self-evident (Hammersley, 2008, on Turner, 1953; Anderson, 1994). This signals an end to interpretation - as seems likely to explain a 'Why didn't I think of it!' reaction to well-timed, successful innovation.

Once themes are identified, they become "difficult to escape": as groupings 'harden' contradictory evidence is discarded easier, spotting of supportive evidence is fastened (Silverman, 1993, p.39; Mintzberg, Alhstrand, Lampel, 2009, p.159, on Makridakis, 1990). Such cognitive biases, and dramatic appeal of anecdotes retold can cause researchers to be blind to counter-intuitive insights (Silverman, 1993, pp.108-114). On the other hand, designers coping with short project times can benefit from digging deeper into early on identified, intriguing appearing findings (Ylirisku and Buur, 2007, p.116)

That said, especially if studied contexts and people are substantially foreign to researchers, each new piece of information can push to see the situation in a new light. Ensuring traceability of sources is one cumbersome, but valid way of working around multiple alternative interpretations:

Workshops, models and other explicit statements of findings ensure that original findings become documented, just as they are re-organized.

In the interest of understanding interpretation however, customer journey maps and other reformulations of data are like filled out self-documentation packages: as outcoming artifacts of research, they can offer intriguing insights while hiding essential, intermediate steps of interpretation (Lee, 2012, p.68):

*“piecing together of data, of making the invisible obvious, of recognizing significance from insignificance, [...] and of attributing consequence to antecedents” (Goulding, 2002, p.21, on Morse, 1994, p.18)*

It seems likely then that certain aspects of interpretation can never be truly explicated, at least in any simple or concise way. A significant implication can however be raised: The gap between what was known before, and what is given as the outcome of research acts an indicator of what was learned (Mattelmäki, 2006, p.66; Sleeswijk Visser, et al., 2005). Did research enrich and reinforce current assumptions, or did fundamental shifts in understanding take place?



## *Case 5: Coming Up with Suitable Design Briefs*

My view on synthesis has evolved since the original case project as I have looked at how the whole process of research influences outcomes.

During my research on perceived safety I had too inconsistent and broad of a research focus, and no decided domain of design through which to express findings in a more designerly manner. My personal goal at that time was to continue with conceptual design, but in a manner that would allow for industry representatives or other students to pick up where I would leave the work. Understandably, this all caught up with me in trying to see whether I had gained anything of relevance by my research - any notion of relevance begs the questions how and for whom.

Whereas debrief sessions had formed a collective effort towards interpreting possible passenger experiences, another round of organizing findings was necessary to draw conclusions more relevant for my own design interests. As I found out regarding synthesis, the best 'method' to move through interpretation onwards was almost too obvious: to start out by sitting down and collecting structured answers to my own research questions.

This required an acceptance of limited knowledge, and a finding of missing pieces as much as solid patterns. Sufficient satisfaction with the answers was taken as a sign of moving on. The resulting, condensed document covered major findings under three topics: Critical areas for passenger experience, staff hierarchy and existing requirements, and an overview of how perceived safety might become communicated in passenger areas.

However, I felt that I had more loose ends than fleshed out design insights, and even less of coherent design directions. E.g. tentative

design directions could be categorized under service, product and interior design, all entailing a different approach for any project to follow.

As a next step, I started ideating design directions by picking up findings I found most intriguing or relevant. Perhaps it was a lingering uncertainty, or the nature of my materials that had me pick ideas that could be immediately put into development; I did certainly notice that I was molding my choices according to what I saw the industry prevalent culture to be like, at least as how I had come to experience it.

In the end, I had three design directions I felt most comfortable with. They were projects I would like to work on myself, that corresponded with my data and insights, and that could possibly enrich, or diversify cruise experience as much as address a more or less negative aspect of possible current experiences. These became outlined as, and written into project briefs (Appendix A).

I believe that the idea of user research as problem seeking was quite deeply ingrained in me when I was looking at my research materials. This entailed a more flat, on-off kind of thinking about experience rather than a final acceptance of its situational, multidimensional and layered nature.

It does seem easier to look for tangible events that are immediately identified as something 'bad' and to build upon assumed universal rules; rather than exploring ways in which ambivalent circumstances could be turned to great ones by working around as much as with current conditions. Of course, sometimes problems can be directly take up as opportunities; my critique here refers more to the practice of killing ideas based on an assumed, immediate 'correctness'.

# Synthesis

Synthesis is the act of drawing what is known into a coherent whole - not as an exhaustive summary but as a direction for design (Koskinen, et al., 2011, p.76; IDEO, 2009, p.83). In interpretation, a structured understanding of studied contexts and people has been created. For the most, few of the previously presented methodologies do even presume ability to predict future events (IDEO, 2009; Hammersley, 2008), except in the role of self-fulfilling prophecies perhaps when successfully acted upon (Cooperrider and Srivastva, 1987). Nor do they easily lend themselves to generalization, an aim that tends to be avoided anyways in selecting participants for research, or producing designs (Koskinen, et al., 2011).

Interpretations on wicked matters do not directly indicate possible, feasible solutions:

*“With arrogant confidence, the early systems analysts pronounced themselves ready to take on anyone’s perceived problem, diagnostically to discover its hidden character, and then, having exposed its true nature, skillfully to excise its root causes. Two decades of experience have worn the self-assurances thin”* (Rittel and Webber, 1973, p.159)

Blossoming from an implied ‘crisis of confidence’ for a number of professions concerned with planning, the core of design activities was outlined as one of ‘finding the right problem’, ‘identifying a desirable condition’, and bridging the gap

between these two step-by-step through thoughts, discourse, and action (Cross, 2007; Schön, 1983; Jones, 1982; Rittel and Webber, 1973).

More recently, an alternative interpretation has risen in popularity: A mapping out of opportunity areas that do not in themselves lead to *one* solution. Instead key capabilities, barriers and values of people acting in specific contexts are spun into arguments of what to design for: to support construction of meaning rather than define actions (Lee, 2012; IDEO, 2009; Keinonen, 2010; Ylirisku, et al., 2009; Harrison, Tatar and Senger, 2007; Cockton, 2006; Sleeswijk Visser, et al., 2005; Donahue, 2003; Anderson, 1994).

Again, an earlier parallel can be found from social sciences, action research in organizational context in particular. Cooperrider and Srivastva (1987) provide a passionate description on the negative aspects of problem-solution seeking taken too far: researchers closed off in a circle of correcting assumed deviations, issues that are seen to be measurable and solvable; assigning problems on people in a detached manner, unable to generate debates of new foundations to build upon in the long term, or to enrich the ideas of what organizational life is about.

*“through our assumptions and choice of method we largely create the world we later discover”* (Cooperrider and Srivastva, 1987)

## Emerging Design Directions

Synthesis produces proposals that are wrapped around what people would love - and what designers and organizations are at least willing to work for. Hence, a whole lot of additional knowledge, organizational culture, other investments, personal values and professional views are engaged in deciding what to do about reached insights.

As this thesis is primarily concerned with early, conceptual design oriented research, an undeniable requirement for any produced insights is that they pave the way for something new. The process so far has been structured in way to allow researchers to be surprised by interacting with the world outside the design studio, and for prevalent assumptions to be critically reflected upon. Interest in these defining stages has lien on understanding the dynamic forces of the studied phenomena as far as is permissible in the scope of a research project. In synthesis attention is turned towards implications: researchers form a view of what is relevant.

In Minardo Scott's (2010) terms, synthesis is about taking research value beyond *"rough notes and a set of tapes"*. However, as Beyer and Holtzblatt note in a perhaps wry tone:

*"Any set of facts can be taken multiple ways, used to inform different kinds of decisions"* (Beyer and Holtzblatt, 1998, p.273)

Produced data in itself is non-directional (Kuniavsky, 2003, p.503); its impact resides in being seen, evaluated, and acted upon. Something significant happens then in the moment that attention is turned to future events and design interventions:

*"Synthesis is a creative mash of common sense and research and stresses design opportunities rather than theory"* (Koskinen, et al., 2011, p.76)

At the center of synthesis then stands the

question of what counts as a desirable direction: For the people and contexts studied, and for the organization aiming to benefit from acting on opportunities. Research and interpretation should have provided a better sense of the former. It seems likely that a clear sense of the latter is also needed in order to conclude with synthesis.

In practice, research focus might have already been framed for the benefit of the organization: e.g. to find out why a number of specified stores draw in more, or less, customers than others. Carried out research in this case can have significant, in-built contextual and political framings from day one on (Silverman, 1993, pp.8-9).

An open-ended, people oriented investigation can produce highly diverse outcomes: As a first, it might uncover questions and directions that an organization would have never even thought of otherwise. On the other hand, identified and desirable opportunities tend to highlight performance gaps (Camp, 1989); ignite a 'stretch' between an organizations "resources and aspirations" (Mintzberg, Ahlstrand, Lampel, 2009, pp.220-223, on Hamel and Prahalad, 1993). Such insights do not simply impact new designs but development processes (Kuniavsky, 2003, pp.505-506).

As a third, user research can produce relevant knowledge for diverse activities: new product characterizations, marketing efforts, formulation of business models and revenue channels, maintenance and other post-sales services - just as users and customers will eventually benefit from being better served in whatever they originally set out to do (Hyysalo, 2009, p.16).

Furthermore, Camp notes that various categories of opportunities exist, some of which will seem most natural or obvious. In order to benefit in full from the conducted research, he suggests checking and formulating findings for each category - and

audience. (Camp, 1989, p.141-143) This idea is reminiscent of Hyysalo's listing of the various uses for user related insights. Still, the notion of opportunity in itself can be understood in various ways.

There seems to be a clear challenge in handling such multiplicity, addressing relevant audiences, as well as appropriating resources: As an activity, synthesis deals with finding ways of turning insights into actionable statements, and to making these identified opportunity areas stand. In relating findings to design interests, other sets of data can be added, and available expertise tapped into.

### **Opportunities as seeds for change**

Cagan and Vogel (2002) discuss opportunities as gaps in what is currently offered in studied markets. In design terms, an opportunity can take the form of a design brief: a project starter that sets down key criteria, at the same time as provoking reflection and understanding. Opportunities can also be framed as metaphors that are illustrative without suggesting any particular solutions yet (Keinonen, et al., 2004b, pp.52-53). IDEO's researchers suggest looking at interpreted materials and reached insights and formulating questions starting "How might we...": Such reformulations turn statements about the present into anticipatory, grounded research questions for development (IDEO, 2009).

Opportunities as strategic intent create direction and set goals. In more pragmatic terms, they outline a job that is to be done: produced plans become real by further efforts only. Discussing opportunities underlines a realistic but positive attitude towards the world, and one's role in acting in it. There might be an overall trick involved in thinking of surprises and opportunities rather than negative cases and problems. The involved line of thinking is not too far from e.g. blue ocean strategy that pushes for increased customer value and reduced

costs at the same time (Kim and Mauborgne, 2004).

Opportunities might be framed to look further, beyond current conditions: Rhea (2003) admonishes research teams to form a clear, as honest and coherent as possible view of what the future might be like based on conducted research. Opportunities can be visionary also in the sense that they provide a memorable, and credible direction that is compelling on a personal level (see e.g. Mintzberg, Ahlstrand, Lampel, 2009, pp.141-142) - being compelling is unlikely to be completely misplaced in any case.

### **Relating findings**

How far findings are synthesized depends on the scale and objectives of a research project. By and large, synthesis can align with concept development - and in many cases, the two are one and the same, involving working with e.g. sketches, scenarios, and prototypes; but it could also aim to make research findings available as any other platform that can be handed across various parties involved in development (Minardo Scott, 2010).

Just as interpretation, synthesis can be taken as social interaction where thoughts and hunches are pushed 'outside' to be visible, testable and discussable. Materials might include pens, papers, stacks of post-its and other universal tools of ideation combined with spread out research documents. Other authors applaud theatre-inspired, bodily enacted and 'real-life' surprise sensitive approaches (Ylirisku and Buur, 2007; Buchenau and Suri, 2000; McDaniel Johnson, 2003; Laurel, 2003, pp.49-54). As ideas are acted out and made more tangible, and discussable, less idealistic polish can be added over.

As many opportunity areas as possible that would be desirable for studied people are sought at first. Interpretations are extended and build upon, acted out, explored, and clarified. While originality of proposals is sought after, postponing judgment and

building upon others suggestions are some of the basic principles in order to get good coverage of all possible ideas first. After that, or in smaller iterative steps, the process becomes reductive: options are prioritized, promising choices picked, and fit with organizational, or personal, development portfolios checked. All this to allow opportunities to grow as much as as they are 'found'. (IDEO, 2009; Kokkonen, et al., 2005; Keinonen, et al., 2004b; Rhea, 2003).

Concepting, launching prototypes, starting out small, etc. are beneficial as they make future discussable in an engaging way (see e.g. Stickdorn and Schneider, 2011; Kokkonen, et al., 2005; Keinonen and Jääskö, 2004). They are about learning as much of doing, inviting further opportunities to be identified. They allow developers to match designs, or technology, and studied use contexts to produce more powerful, novel combinations. Created meanings and constellations can be debated over. Different time-scales and development categories can be identified.

Camp (1989, pp. 151-155) reminds that opportunities are not static, just as one's own organization and its environment are in more or less constant motion. Cagan and Vogel (2002, p.184) propone that predictions need to take into account whether the ideas that matter to people are waning or emerging. While goals are set, their premises and central arguments need revision if, and when known conditions change (Mintzberg, Ahlstrand and Lampel, 2009). Managing timing of innovation and organizational changes is beyond the scope of what is to be covered here; suffice to say that opportunities might have expiration dates, just as new opportunities can open up (Kokkonen, et al., 2005). Furthermore, short term actions are likely to differ from measures taken in long-term interest.

By being related to expressive forms, opportunities become more sophisticated, and communicative; details that were

retained in interpretation find immediate use while practice and research become more entwined, more mutually conductive.

It is perhaps necessary to note that it might be misleading to assume that all design researchers were designers intent on producing tangible outputs. Designers act upon research through design because it is their chosen medium: social scientists, engineers and marketing act in their own roles, if such clear-cut differences and roles are to be set down in the first place.

That said, relating findings makes them easier to grasp but it calls for active work: researchers and developers might not only come up with a desirable direction but also on the actual levers turned in order to reach that goal, a scale of action to be estimated and allowed for, and timeframes in which various kinds of results are to be reached (see e.g. Kokkonen, et al., 2005; Keinonen, et al., 2004b, p.58)

### **Accepting uncertainty and risk**

As much effort as has been placed on rigorous research and intensive sense-making, it is more than likely that gaps in knowledge persist as the time comes to draw conclusions. The very nature of findings carries degrees of uncertainty as well.

In requesting a decision on what to do, evaluative criteria are being activated. This, if anything is the point of divergence and choice: As outlined before, the question mostly boils down to where one wants to go. Which criteria are agreed upon as relevant, and which opportunities seem most alluring? Is there enough power and organizational back-up to make also bold, risk-involving decisions? (Rhea, 2003; Keinonen, et al., 2004b; Tuulenmäki, 2004)

Keinonen, et al. (2004b, pp.59-60) suggest that quantified evaluation methods are ill suited and for evaluating early concept work; outcomes can i.a. reside on guesses, or propone mediocre options. Kuniavsky (2003, p.496) warns that numbers tend to

be taken as absolute measures rather than as “presentation of ideas”, a more appropriate definition of research outcomes of interest here. Cross (2007) also questions the merits of rational appearing documentation: decisions regarding scoring tend to be subtly adjusted in an act of self-interested selection. That said, quantitative methods can be used to their full potential once critical, qualitative factors have become clear, and once other kinds of validation needs step in (Camp, 1989, p.138; IDEO, 2009, p.33).

Hence, an expert evaluation approach is argued for in drawing out findings and recommendations (Keinonen, et al., 2004b, pp.60-62). If data does not cover something, and if multiple competing explanations exist, participants agree together which is the most salient explanation (Beyer and Holtzblatt, 1998; IDEO, 2009). It seems clear then that the products of synthesis need not be universally agreed upon: they are opinionated, informed articulations about the world. In kind, the mix of involved individuals and represented roles is likely to reflect on outcomes (Ylirisku and Buur, 2007).

There is also a point to be made in accepting a tentative nature of findings: Learning does not stop once opportunities are outlined (Rhea, 2003). Nor is it given that exhaustive definitions must precede action (Mintzberg, Ahlstrand and Lampel, 2009). From this view opportunities require flexibility for testing as much as set, crystallized identities. It might even be impossible - or at least insensible - to say anything more definite about presented options before they are tested out (Tuulenmäki, 2004). In such cases, responsibility to carry on synthesis shifts even more towards those aiming to benefit from produced research. (IDEO, 2009; Koskinen, et al., 2011, pp.44-47; Hyysalo, 2009, pp.266-268, Kokkonen, et al., 2005).

### Considering constraints

It can take many tries to define a great opportunity (IDEO, 2009). Jones (1982),

an advocate of reframing design problems, reminds that wishful thinking, i.e. inability to recognize constraints, can be as harmful as an inability to think beyond them.

Cutting down possibilities by prioritizing options seems necessary once many potential areas have been identified: Rhea (2003) and Kokkonen, et al. (2005) remind that following too many simultaneous development projects, or building of inconsistent development portfolios will scatter and cannibalize efforts. Beyer and Holtzblatt (1998 p.282) place the same argument on an individual product level, drawing on the notion that a particular product with a “*coherent and clear*”, user supportive take is better than something with “*a little something for everybody*”.

Troncon (2011) addresses this question of limited resources by asking for a socially aware aesthetic for design. He points out that “*design is not omnipotent*”. However, it will impact people’s lives:

*“it must do this without embracing invention for innovation’s sake in pursuit of self-sufficiency and innovation, but must rather marry the knowledge of “responding” to what is ugly and beautiful here in the world. This type of design is in fact an “active philosophy” dedicated to making space for life” (Troncon, 2011, p.322)*

By studying human action and multifaceted contexts designers are seen to develop an informed sense of what could work or not (see e.g. IDEO, 2009). Yet as multiple, possible interpretations and opportunity areas are identified, disagreements can act as notable constraints: however, debates about different conclusions and their bases can be turned into a fruitful tool of developing hypotheses (see e.g. Ylirisku and Buur, 2007, pp.119-120).

Just as it has been suggested for designers to take part in research, it is argued that those whose work will be impacted by proposed changes be included in synthesis in one way or another (IDEO, 2009, Camp,

1989, pp.164-170). Kolko (2010) argues that synthesizing needs to be made visible in order for others see value in the process in any case; otherwise it runs the risk of being discredited by clients, scaled down in the project budget, diminishing allocated time.

### **Building upon an agenda**

Much emphasis has been placed here on the thoughts and actions of others, the desires of studied people and application needs of research contractors. However, one of the foremost gains of design research can be seen in becoming sensitized to a 'big context' beyond these (Koskinen, et al., 2011, pp.174-176):

*"As the design industry has grown increasingly professional, it has become less personal, less creative, and more risk averse. [...] Today we partner. We research. We collaborate. We align. And somewhere along the way, we design" (Rousseau, 2012)*

With the above comment Rousseau, a creative director at frog design, laments the lack of agenda within contemporary design. His subsequent call is for a culturally proactive, design legacy sensitive but future oriented pursuit that combines the interest of design office, client, and society - driven by personal and communal passion (*ibid*).

Rousseau's petition is in unison with Laurel's call for a "*larger set of questions*" for design research: not only to understand what others do but to understand why designers do what they do (Laurel, 2003, pp.16-19). In this view, subsequent interventions and creations do not matter as much as what they stand for: how much personal engagement they can spark, and how they relate design interventions to society and

a wider, physical environment. By framing, directing, emphasizing and dismissing opportunity areas design researchers enter a negotiation with data about what is to be seen as desirable:

*"what we do is both framed by and transformative of the context in which we do it" (Laurel, 2003, p.18)*

The idea of being persuasive, or taking a self-aware stand, have not traditionally been connected with research. It can either be dismissed with rational and arguable definitions of scientific quality within a chosen research type (Silverman, 1993), or as a learned, attitude-filled bias dividing research and practice (see e.g. Norman, 2011). Cooperrider and Srivastva build up a distinct counterargument to such separations by stating that ideas, theories, and therefore research have significant, revolutionary power. As such, he deems the future of communities, and society by large, too important to be ruled out of stated research implications by claiming research to be value-free and non-committed. (Cooperrider, 1987).

That said, engaging in human oriented research is not seen to guarantee, limit, or necessitate a specific type of moral approach on design or business (Keinonen, 2010). It seems to be a matter of debate, business viability and available routes as much as willingness to build such.

A "normative leap" from remarking on current a situation to arguing for a more preferable future state happens once designers develop the sense of *relevance* (Ylirisku, et al., 2009, pp.1138). In this view then, the strength of synthesis can depend on the transparency, argumentation, and alignment of various agendas.

## *Case 6: A Storage-room Workshop*

In order to disseminate our results from our field trip, we wanted to break to do something else than a slide presentation. Those had served us as a way to give updates about our progress but were not too engaging in any other way.

A decision was made that a maximum one hour workshop was to be held after a typical update with the Cruise and Ferry steering group. Heini Salovuori and I would concentrate on passengers' fears, whereas Liping Huang asked experts to discuss two different directions she was considering: three stands in total for participants to walk through. As it happened, we ended up hosting the workshop in a long, wide corridor like storage space. While spartan, the environment worked surprisingly well; perhaps even better than a conventional meeting room.

With seven group members present, we asked our participants to divide into three teams as they wished: self-organized groups were seen as a way to allow participants pick comfortable discussion partners.

One benefit with this group of participants was that they for the most knew what we had been doing previously, meaning that less time was spend on introducing backgrounds.

Heini and I followed roughly the same procedure: First, participants were asked to state their name and work responsibility into a running tape recorder that would be used to document the whole session. Then an interview quotation of passenger's

discussing their fears were presented alongside an image related to that fear. Two questions with a possible follow-up question were then presented:

*Have you ever encountered, or heard of this kind of fear before?*

*If yes, did it cause any countermeasures to be taken?*

*How could you address this particular fear in your own, everyday work?*

*If not applicable, who do you think would be in the best position to address it?*

With each group, two or three citations were discussed through, one at a time. A key aim was to let our cruise experts discuss the matter with each other as much as answering from their own personal viewpoint: not exactly a focus group but a stripped down version of it.

Apart from estimating what kind of information we had on our hands, we had the chance to add to it. Gauging attitudes was also critical, as it would signal how likely it was that action would be taken - if taken further, to point us to the people who could and would.

With this take we wanted to transfer baseline ideas about what our data dealt with through selected examples. Full coverage and our own recommendations would be delivered through the final theses.





# Communicating results

It would be clear by now that this final aspect of insight building is quite entwined in the previous two, just these insight building chapters are knit in with the earlier three on data gathering. Communication of findings happens not only on final statements. While the need for it increases towards the end of a project, intermediate results are worked over with various stakeholders and partners.

However, here we come to the final hurdle in bridging the gap between a need to learn about people and context, and actionable design insight:

*“The traditional folklore of the research and development is that there is a smooth, steady chain from pure, basic research, to more applied research, to advanced products, to commodity products. This nice logical progression is false, as a large number of studies of research and development have shown” (Norman, 2010, p.11)*

Norman points out that there is a real, and deep gulf between theoretical, complex phenomena scrutinizing research and high performance driven, commercial practice. He remarks that the reality of innovation lies in finite personal in-depth skills, variety of disciplinary interests and role-bound pursuits. Corporate product development is marked by disconnected teams, large organizations, and a plethora of switching constraints and demands that tend to change over longer periods of time.

Research communities tend to orbit around conferences and labs of various kinds; under no less stringent, but markedly different conditions. Based on these arguments Norman calls for ‘transitional developers’ that can connect *“between the abstractions of research and the practicalities of practice”*. (Norman, 2010).

Some authors have argued that design researchers’ efforts to communicate results have failed because synthesizing was made poorly, or not visible to clients, or that research topics were not interesting beyond the research team or single case (Norman, 2010; Minardo Scott, 2010; Kolko, 2010).

Grocott recounts encountered conflicts in establishing a culture of “blue-sky experience of pure speculation” in commercial design consulting: to be able to retain an open-ended, critical and fresh take to design by i.a. renegotiating project times and purpose of client meetings (2003).

Even regarding the underlying research project for this thesis, expectations towards outcomes and their communication were noted; highlighting contrasting conventions between consulting, and academic forms of research.

What such observations seem to highlight then is that a shared language, and willingness to negotiate needs to be found as much between studied people as those whose work might be impacted reached by findings.

## Bridging research and action

Ylirisku and Buur (2007, p.195) note how organizational structures result in ‘hand-overs’ of results in the first place. In smaller or self-employed projects, designers can directly implement research results without further transitions. However, this would significantly limit the number of projects relevant to developing design research itself. Following the idea that there will be ultimately others to take up the work where research ends, the aim of communicating results can be seen in paving way for action just as new forms of understanding are being formulated: of making interpretation and synthesis available to those able to benefit from, and contribute to it in meaningful ways.

A prevalent motivation of selected design research literature seems to lie in turning design and research into something more substantial and sustainable than a one-off consultation with a significantly limited time span for suggested actionability (see e.g. Koskinen, et al., 2011; Minardo Scott, 2010, Laurel, 2003a).

Kuniavsky argues that the role of research is less in producing “*interesting information*” and more in “*being seen as an indispensable tool*”. As such, communication becomes a matter of going beyond conveying individual findings or summarized results, but a user oriented mindset. (Kuniavsky, 2003, pp.503-505)

A still relatively common claim however is that it is the ‘receivers’ of research findings tend to be reluctant to change, resulting in a rejection of the intended message (e.g. Rhea, 2003). But if results are not claimed as universal truths, it seems less relevant to claim universal acceptance either. Furthermore:

*“I believe the widespread assumption that individuals are against change is flat wrong. People are against change when it doesn’t offer the prospect of new opportunity” (Hamel,*

*1998, pp.12-13 in Mintzberg, Ahlstrand and Lampel, 2009, p.222)*

This statement give much hope for well-produced research outcomes that are able to match identified consumer groups with interested content providers - or to combine professional, organizational and societal interests (Rousseau, 2012). That said, it seems valid that not every type of person or community is likely to welcome change at any given moment: constant change can tip over into chaos, rendering any long term plans irrelevant (Mintzberg, Ahlstrand and Lampel, 2009; Anderson, 1993).

As it turns out, selecting and making time to meet audiences and active partners even serendipitously, collecting scattered feedback, seeding out irrelevant concerns, sensing out misunderstandings and political interests, being able to bring new contacts ‘up to speed’, and so forth takes up time and effort: In cases where there is no clear, direct client a similar kind of matchmaking and engagement process could being entered as when first searching research participants in data gathering.

As a consequence, if design research aims to take up the role a ‘transitional developer’, a good deal of agility in communication seems to be required: Listening in on the expectations of audiences, as they are defined case-by-case, working with the audience in order to bridge ways towards practice, and being creative, efficient and distinct in ways of communicating results seem like a requirement placed:

In this take, insights are not only simply transferred by communication but created through planning, and facilitating for it. Furthermore, as insightful as research findings might be, their potential is seen to be only realized by being tested, revised, and expanded upon through action: by relevant lessons being integrated into existing forms of understanding.

## Persuading and collaborating

Keinonen sees that direct research participation of several stakeholders, each with their own roles and questions, is a smooth way of transferring user inspired results across academia and industry. As a bonus, invested participation assures research relevance more naturally (Keinonen, 2009).

This seems to highlight a form of 'practice collaboration' next to user collaboration. E.g. Verganti's writing takes the former to the level of a defining, corporate strategy: referring to design-driven, Italian companies he argues in favor of long-term partnerships with few, choice professionals and organizations. A key success factor of this model seems to lie in developing and disseminating results through cross-disciplinary networks and medias of prominence; of creating an aura of exclusivity and desirability. (Verganti, 2007).

This latter aspects seems to correlate with the usage of future scenarios and concept designs to build up positive public relations and interest in the company itself, as much as providing useful feedback (see e.g. Andersson, et al., 2004, pp.23-27). The benefit of such approaches lies in conveying subtle, and even abstract concepts by tapping into the power of visual and tangible communication (Koskinen, et al., 2011, p.8).

On the other hand, Beyer and Holtzblatt (1998) note that research teams can run the risk of creating a 'teaching process' rather than a 'learning process', riling up competent practitioners with apparently predetermined conclusions:

*"Merely telling someone that an aspect is important may not be enough; it has to be anchorable to some kind of personal experience" (Battarbee, 2004, p.63)*

E.g. Kuniavsky notes that relatively unofficial routes of communication can count as much as full-blown seminars in impact; whereas

time required for preparations is likely to differ (Kuniavsky, 2007, p.479). Beyer and Holtzblatt (1998, pp.200-204) suggest 'walking through' the collected findings as they are collected in a room, to let those engage as much as being listened to.

## Anticipating and overcoming conflicts

*"The best research is useless if it's misunderstood or ignored" (Kuniavsky, 2003, p.479)*

In any case, it would be presumptuous to expect everybody to care about the research process, to have time to hear a full explanation, or for results to be of a personally self-motivating or 'nice to hear' variety only. There will be those who have interest in the changes but no power to propone them, and parties who have all the influence but little interest in taking action.

Anticipating conflicts and directing communication according to audiences is likely to smooth out many painful hiccups in communication (see e.g. Kuniavsky, 2003). However, Horsten (2006) notes that 'the right people' to pick up ideas might respond from unexpected places; just as difficulties related to even making sense of one's own progress can arise:

*"Should it be a slick success story, showing how brilliant our vision was and how we marched with military precision to achieve this aim? A tale of a solid plan that would inevitably lead to success? Or should it be a true story? That we just started out, utterly naïve, completely missed the point, changed plan at least three times, stumbled on an invention and ended up with a very nice concept, but not at all what we had envisioned?" (Horsten, 2006, pp.59)*

Horsten argues that pre-established plans simply are not the best way to define innovation seeking research. *Vision*, as a direction and conviction, is an essential motivator both for design researchers

and those following their work however. (*ibid*, pp.59-60) In kind, Camp postpones that oneself should have a solid, thought out proposal on what needs to be done when approaching clients (Camp, 1989): at least as a starting point for future oriented discussion (Koskinen et al., 2011; Ylirisku and Buur, 2007). Within this thesis, such vision and initial proposals are seen to be outlined through synthesis.

Still, researcher might be need to set down sobering recommendations that undermine current, fundamental assumptions or ways of working. There are implicit, and acknowledged limits to what participating professionals can do in such cases:

*"If advanced design activities are not linked directly to senior-most management (usually the only people in a large organization willing and capable to accept risk-taking), the only opportunities that will move forward will be safe, close-in, easy to execute ideas" (Rhea, 2003; p151)*

Kuniavsky reminds that research outcomes might also end up in a cross-fire between conflicting interests of organizational factions (Kuniavsky, 2003, pp.501-502). Barring outright politics and power games (see e.g. Mintzberg, Ahlstrand and Lampel, pp.241-273), Stickdorn and Schneider (2011) promote interest in the customer as a universal language able to cross disciplinary borders: in Beyer and Holtzblatt's (1998) view, realistic representations of users introduce an external judge to development teams that might otherwise combust internally due to territorial bickering.

To conclude, Kuniavsky addresses an essential point when discussing the engagement of specialists - any person, professional or hobbyist, who has a deep insight on the studied matter:

*"[...] outsiders come in with an entirely different set of assumptions and information, so their conclusions can be much different*

*from yours. This does not mean that they are right and you are wrong, or vice versa, but the perspective they bring enriches yours" (Kuniavsky, 2003, p.455)*

### **Representing others' aspirations**

A balancing act between description, interpretation and normative stances takes place when portraying studied people and environments to new audiences: design researchers contribute to organizational opinion on how users, consumers, or studied stakeholders are to be seen and acted towards.

Ylirisku and Buur discuss several times how reorganization materials includes a careful balancing of staying true to what was originally conveyed by research participants, and offering a concise, engaging point of view. A general guideline is that studied situations, people and behavior are let to speak for themselves. A key difference is seen in intention: to facilitate interpretation, or to sell an idea. E.g. background music generally interferes with audiences own interpretations but can make clips highly memorable. (Ylirisku and Buur, 2007)

Kuniavsky follows similar lines: The perspective of studied people needs to be conveyed in order for research to be effective; otherwise those developers and decision makers who would benefit from research findings tend to revert to their own, familiar, and personal reference points. At the same time, audiences often need to be eased into the subject, while only few major points can be made in any single instance. (Kuniavsky, 2007, pp.494-495) In kind, Minardo Scott (2010) accompanies both points. She also presents a case where intriguing user data was not lacking at all - a less confusing entry into data, a relevant handle or surface to build upon was missing.

As to having results validated by research participants themselves, e.g. Yin (1981, p.64) comments that respondents seem to feel uneasy when faced with interpretations

of their own responses but ready to accept aggregate sets of the same data. It is perhaps useful to remember at this stage however that interpreted, synthesized research results and concept proposals are not the same as fully developed, market appropriated offerings. Still,

*"if a system conflicts with its customers' self-image, or doesn't account for the constraints they are under, or undercuts the values important to them, it will not succeed" (Beyer and Holtzblatt, 1998, p.108)*

Goulding (2002, pp.151-152) argues that the way research is conducted and thought about determines 'ownership' of results: if interpretation and abstraction rank high, research outcomes can hardly be described to be flowing directly, and only out of the mouths of studied people.

As is understandable, framing findings beyond what can be honestly be delivered - what the data is representative of - would be beneath solid research practices. Each choice and practical circumstance of run research shapes outcomes: Kuniavsky (2003, pp.482-483) notes that being prepared to answer questions, outline limitations, and able to argument choices makes research more, rather than less credible.

Social scientist can demand that as much of the original transcripts be provided in order for *readers* to form their own opinion on the validity of results (see e.g. Silverman, 1993). Designers tend to state that it is too much to expect from stakeholders to wade through the fragmented, multimodal pickings of research; just as too little credit, or room for growth, is given to design research professionals' capabilities in framing solid statements (Minardo Scott, 2010).

Hand-overs of projects and changing roles raise questions on whether knowledge can travel unchallenged and unchanged through organizational hierarchies in the first place - and how such changes should be regarded. In this sense, communication

of findings revolves as much around trust, collaboration and force of arguments, as conventional notions of research validity or reliability. In retaining the voice of studied people, or a permeating feel of a place, or nature of an experience, research findings are tied to their origins - at least to an extent that is seen as essential and useful.

### **Accumulating learning**

So far it has been assumed that insights are passed from person to person, mediated through the materials produced in research, and applied later in diverse activities. However, communication could also be approached from the point of transferring insights from project to project. Searching for impact in the long term, lessons are seen to accumulate towards drawing out a professional career, organizational profile, or a whole discipline (see e.g. Koskinen, et al., 2011; Cross, 2007).

The reach of any individual research project is narrowed down in order to reach coherence and depth. Results are accepted as tentative, non-statistical and exploratory, set between multiple audiences and interests. Some insights and opportunity areas might be of interest yet have no immediate, apparent use - but given speculation and maturation in creating further knowledge, could turn to provoke new directions (see e.g. Koskinen, et al., 2011 on prototyping in design research; Gaver, Dunne, Pacenti, 1999 on working over cultural probes).

As such, patterning well-managed single projects into curated programs seems like a sensible argument. Ability to garner attention by building up momentum would support it: Koskinen, et al. (2011) note that research programs can act as frames of reference, determining where cutting edge thinking is expected to be found in a particular area of topic.

Another driver for research programs would be the tendency of development to require long-term efforts: Certain aspects

of people's behavior tend to change slower than the speed by which companies produce stuff, just as disruptive technologies can take a long time before they are suitable for e.g. commercialization. In both cases, it is acknowledged that studied matters tend to be highly complex, novel, controversial or impractical as of yet - otherwise they would already be made active use of (Kuniavsky, 2003).

Camp argues that research dissemination can result in a temporary peak of activity before ebbing away:

*"There will be a tendency to believe that one major practice change can be made - one high hurdle can be overcome, and then everyone involved can settle back into prior levels of productivity and achievement" (Camp, 1989, p.156)*

On the other hand, it can take much time and added effort before an organization hits upon a 'supernova' kind of insight, and is able to recognize it as one:

*"There is critical difference between doing 'random experiments' and exposing oneself to the chance to be surprised by the marketplace and so to learn" (Mintzberg, Ahlstrand, Lampel, 2009, p.215)*

Finally, Koskinen, et al. note that building programs tends to be more about creating the right kind of conditions and being patient than planning everything ahead: having a diverse body of knowledge and skills gathered into communities supported by even modest, but existing infrastructure. (Koskinen, et al., 2011, pp.169-171)



# 4

## Discussion

*Applying research for design is to me like learning to paint: at first it is difficult to achieve any resemblance or recognizable shape, then one starts to get that right: to see shades and a full spectrum of hues where only clumps of color existed, light in shadows and shadow in shadows, mass and movement in shape... but after one has mastered life-like compositions that look real and 'true', the painter becomes bored, and starts to paint what he truly feels is the essential... experimentation starts already before... it is not difficult to learn to paint after all, it is difficult to learn to express something... by even a single line, or dots of color... that is true mastery.*

# Running Research for Design

The following research question was placed in the very beginning of this thesis:

Q1) What part do methods play in the overall aim of running design relevant research?

As to an overall experience, I have found that research for design...

...looks at current use in order to define future use

...takes multiple perspectives and follows multiple leads in order to create a whole; a synthesized pattern

...is able to tap into multiple spheres of influence, combining insights across traditional borders

...requires intensive and active work in order to create suitable structures for opportunities to emerge and be identified

...balances rationality, reason, common sense, emotions, and empathy; 'method', 'process' and 'progress', as well as 'intuition', 'chance', and 'iteration'

... looks at complex cases with limited ability to generalize results, at the same time as pursuing a set of larger questions

...seeks phenomena that could be likened to high risk ventures; at the same time, retains confidence of success

...directs observation, works best under

constraints, and goes deeper in order to see more

...perseveres in the face of challenges yet is ready to let go of a view that data counters; learns as much from mistakes as successes

...builds upon a diverse set of tools that must be selected as appropriate to a case; but the researcher is one of the tools and must similarly be able to evolve and reposition herself

...asks researchers to be professionally detached but highly motivated at the same time

...asks researchers to be as cunning as foxes and as innocent as a doves; engaging and trusting people as much as seeing through them

... asks to be constantly conscious of biases, while taking 'research influence' not only as a negative thing

...benefits from multidisciplinary teams, but is at higher risk to fail due to the same reason

...builds confidence and vision, at the same time as humbly embracing complexity, uncertainty, relativity, hunches, and ever-tentative answers

...persuades, as much is persuaded: is driven to understand the world, to be sensitive to how others make sense of it, only in order to create a distinct, glorious vision to be shared with the same people.



## Methods: Between Legacy and Context of Use

When I first started writing my thesis, I had about ten different ‘methods’ in my mind. They were direct references to research activities that had a start, a middle, and an end. They had more or less set goals. In this usage, methods had practical utility in conveying necessary steps, and rules for the research team to adhere to.

In this view, methods give structure to a process. They act as checklists of action over time. As relatively distinct, recognized terms and concepts they offer illustrative, shared ground for communication and planning.

Yet, one pitfall to representing methods in this way seems to lie in listing what was done - as practical, observable considerations without any reasoning driving these. This seems to be much easier to do with data gathering, or concept generation: ‘interviewing such and such persons for n length of time on topic x’. In building insights, a much messier, fragmented, non-linear, iterative reflection process is undergone. I realized that my own understanding of insight building was rather fuzzy: ‘moving post its around’ seemed like a rather irrelevant, non-instructive way of describing intent.

In this thesis I have sought to uncover criteria that seem to underpin method instructions and my way of applying them in practice: method principles as parallel requirements, or aims that I saw as essential identifiers of a method. I sought them out because I felt that I made tacit reference of such in practice. In particular, I needed to look at those aspects of research I had struggled with: experiences of ‘I don’t know what to do next’ or ‘I don’t know when I’ve finished with this stage’ seemed to point towards lacking or misplaced principles.

Reviewing my actions from this point of view has made it easier for me to distinguish

between relevant aims in different stages of a research process, as well as seeing overarching continuities within it. I have provided myself with a basic structure for each method(ology): something less project bound to both replicate and experiment with. It has been particularly useful for gaining an initial, more structured overview of insight building: matching my interest to learn to make research more relevant for design intent.

In studying where methods come from and how they are constructed, I have also come to see methods as something takes shape between ‘historical’, prevalent use of said methods, and contexts of application.

Legacy, be it passed as a method instruction, case description, research type definition, theory or domain, is enforced by rules and guides set in literature, and passed on in education and practice. At least for me, a sense of such lessons combined with my own practical experiences have formed a set of implicit heuristics that I can refer to in order to understand critical points, limitations and gains of particular methods - and cross over insights from similar ones.

Two kind of contexts exists: one that is studied, and one in which research is run in, e.g. an organizational setting or project type. Context impacts which methods are chosen in the first place, and how practical and beneficial they turn out to be. Faced conditions impacting outcomes might be well anticipated, learned in action, realized by hindsight, misinterpreted, or end up being never truly identified.

Together context and legacy direct attention and expectations. They facilitate design researchers learning. They set boundaries as to what is sought out, thereby adding to the selected research focus.

## The Elusive Researcher: From Novice to Contributor

A design researcher, or team, is then rather to be seen as an active agent than a mere

receptor and respondent of research education and context requirements: research is an interpretative, stance taking activity as much if not more than a process of 'gathering information'. Building insights and recognizing their relevance remains something that would be hard to explain as a mechanical, coded process only.

In this view, attention shifts from objective research methods to researchers' subjective and collective capabilities. This view emphasizes a conscious working over methods in order to learn: Reflecting on the process and its outcomes itself seems necessary to learn what works, and why. This could be especially useful in complex environments to make sense of results, or in highly familiar environments to break practitioners' routines and assimilated way of thinking.

A prevalent metaphor for design researchers' use of methods is an ever-broadening toolbox: a set of previous cases and familiar examples that can be referenced whenever a need for research arises. It feels tempting then to look at design research as a craft, where novices start by learning the tools, moving to a capable execution but hesitant expression, starting to build up

their personal toolbox and wearing some tools towards perfection; earning the title of master when starting to contribute to what is known, or challenging has been assumed so far.

Naturally, there is another side to this human element: In my research on perceived safety I only used some text books to freshen up my memory on them. I was mostly working with familiar methods after all, and my research topic felt complex enough as it was to start experimenting with completely new approaches. As I noticed during negotiating over, planning and implementing my research, I was balancing my own preferences and interests as much as any contextual demands, or learned principles.

As to user inspired design, design researchers need to find a role for themselves first in interacting with studied people, and later in mediating findings to interested organizations. This also reflects on the whole mentality of active vs. passive researcher. Personally, I see less benefit in working as an 'individualistic-artistic' interpreter, nor in being a 'servile facilitator and translator' only: seeking a balance between neutral researching and critical relating.

## Research Focus: Shaped by Learning and Outdoing

Research focus, a major contributant to successful research has not been given it's own, separate chapter in this thesis for two reasons: First, because I had a rather loose, or inconsistent sense of one in my own, practice-oriented project. Second, because I have come to understand focus as something created as much as planned for: at least two major forces that seem to direct research focus in practice are the aims of learning and outdoing.

The research type presented in this thesis has been placed among early research and design activities targeting complex, changing, or novel environments and communities. One's own uncertainty and

illiteracy is acknowledged. This serves as a reason to pick a flexible, small scale, probing type of qualitative research where depth and open-endedness are constantly balanced: stated in its simplest form, a primary agenda is to be able to learn. This in itself will cause research focus to be iterated over.

By aiming to create clear, even slightly exaggerated emphases for each presented methodology, I have given myself a way of linking research focus with practiced methods; of being more articulate at each step on what to pay attention to - and to identify when an activity has been brought to its full conclusion. If the actual contents of research can not be divined beforehand,

at least types of content can be estimated: methods add credibility and practical guidance to this process; in the best case, they act as a support for personal curiosity.

On the other hand, a mindset that allows for surprises and new areas of importance to emerge is emphasized. In these identifying and defining stages of research, novelty is mostly understood from the perspective of researchers and their audiences. A preliminary objective is to become aware of and to understand strong, prevalent conditions; whether these are disrupted or supported becomes a matter of design intent.

This idea leads to a second, major agenda next to learning: that of outdoing others. Just as design and business, research seeks to prove itself by providing something others, or at least those in the relevant vicinity, have not yet thought of. This supports an emphasis for being out for the 'big fish', major revelations and fast rewards. I have come to see this as a potential pitfall: After all, patience entails that results even mundane appearing events are paid attention to, and prevents that intermediate, preparatory steps are discarded based on mere convenience.

## Driving for Change: Self-interest and collaboration

In this thesis, the presented research process has been framed primarily as a front-end, concept development supporting activity. On the other hand, a dynamic, ill-understood and transforming business environment is painted out. As a result, research for design is placed somewhere between scrambling to keep up with enforced conditions, and proactively initiating change: in its barest form, to keep ones livelihood and business intact and prospering.

It is clear, that contextual, people oriented investigation is not the only source of 'design relevant insights'. Still, this kind of approach was seen as most beneficial in my research project. A user inspired emphasis further promotes the idea of people as seeds of change: be it in the role of researchers, consumers, staff, experts, clients, or team members.

That said, research participants are mainly seen to be of interest for two key reasons: for the identity or role they are seen to represent, and for the data and inspiration they are able to provide. This is not a particularly democratic take. It is a pragmatic as much as sensitive way of limiting effort and attention to those those persons and communities that would be best served by applying one's own interests.

That said, direct, personal interactions

have here been promoted as perhaps the most vivid way of changing assumptions and enriching perspectives - as long as a humble, self-aware, empathetic, interested mindset is adopted. People-oriented research for design relies on becoming more open towards others ideas, attitudes and needs. In this setting, design researchers act as invested, transitional mediators between people and business: by structuring their work and arguments around created insights, sharpening their motivation and vision, and communicating those to others.

It is also seen that any single persons' understanding and reach are finite: Conducting research for design in a people oriented manner facilitates collaboration. To serve this drive, methods can act as excuses for acting out: What would appear as peculiar under conventional social norms, e.g. paying minute attention to others actions, or asking personal questions of strangers, becomes permissible within the boundaries of acknowledged research.

It is through this kind of relatively fleeting but continuous moments of attention and debates that meaningful ideas can be sparked. A central challenge then lies in formulating and growing those ideas into complete proposals that are able to spark interest in many.

## Nature of Knowledge: Relative and Related

Complexity and uncertainty have most likely always been part of the pressure planning professionals and managers face. However, there seems to be an increasing, cross-domain interest of our way of responding to it - linking ontological questions with practical implications.

This thesis is built on fairly simple premises: The world is a complex place. Not all people are the same. Conditions and opportunities for design and business tend to change. Our knowledge is finite. The easiest way to overcome this is to seek out and learn from those people and contexts of interest.

The going gets more rough when the discussion turns to the nature and accountability of such insights.

The process of gathering and formulating results as it has been described in this thesis tends to be as much organic as controlled. Design research has been placed in a position between multiple audiences and domains with varying conventions and interests. Shorter project times are seen as an acceptable limitation, if not a gain: even tiny insights of useful and enlightening nature are better than mere assumptions. Yet it has been argued that research outcomes are of a tentative, non-statistical, exploratory and illustrative nature; that predictions are mostly self-realizing because they are acted upon. Produced data needs to be updated as time goes by, and revised when new discoveries are made.

Methods act as a measure of rigor and credibility: they offer a way of evaluating research processes in order to see whether outcomes can be trusted. However, the presented process nor the methods discussed in this thesis do not seek, and

therefore do not provide any universal truths. Their capability is not to ascertain whether people will like, buy, and act in certain ways with an imagined offering, or to proclaim in other ways what the future will look like with absolute certainty. Findings are non-generalizable and not even universally agreeable. It would therefore seem to be misplaced to evaluate outcomes based on such criteria.

This move towards a constructed, or situated view makes research conclusions more fragile and less self-assured. The less methods are formalized, the more evaluation revolves around personal, and professional expertise and even preferences.

Contextual and people oriented knowledge sought out by design researchers is both relative and related: Set under the conditions, choices and intentions in which research was run. By emphasizing open-endedness findings are not predetermined. Created interpretations and opportunity areas can therefore be diverse. In this view, the benefit of design research lies in having a richer range of options to choose from when defining what is to be done.

A main reason why options are narrowed down and formulated into design, or managerial implications, is because conceptualizing options gives them coherence: By relating options to actionable recommendations attention is narrowed down to those insights that are seen to matter most to particular people and businesses. However, this requires active work and studying of the application case as well: either as a part of stated research focus, or through collaboration with the client, and use of experience and design expertise.

# Limitations

The approach presented here is only one possible manifestation of 'research for design'. In this case, it leans especially towards user inspired design and social sciences. Several other disciplines and academic domains have been also built upon in this thesis, such as anthropology and design management. In many academic fields this kind of mixing of discourses at various levels would be not be permitted by principle: design research was born out of, and continually benefits from the combination of multiple heritages and audiences. As such, it highlights opportunities as well as challenges linked to disciplinary somersaults.

In this thesis, I have aimed to provide a detailed overview of what directed my actions when researching perceived safety; the final form of reflection is given in a more distanced, literature oriented reflection as this formed a completely new, second project for myself. I do not propose its contents as an exhaustive listing, nor would I venture to state generalizability for my findings. It is perhaps necessary to note that presented reflections were built up through gradual reflection, mostly in hindsight.

A short glossary, and within-text explanations have been provided in order to clarify how I understand specific terms

used. It is possible that some confusion persists. As to the methodologies, discussions on alternate choices and as such, critique towards selected ones has been partly passed over. In the mindset of 'ask for forgiveness later', there is little to apologize for if unorthodox interpretations have been drawn. Outright mistakes, misunderstandings and lack of crucial argumentation do however necessitate revision when noted.

The three presented data gathering approaches are conventional even if their interpretations might not be, and as such mostly disregard later additions and radical edge inherent in contemporary design research. However, as rudimentary tasks of almost any kind of related research I found it most important to start out with them.

Neither are there any design proposals to liven up the presentation in this case. As it is, my thesis can seem to lean more towards organizational ethnography than 'designerly' approaches. This limitations is mostly due to the permitted scope of a master thesis, and some classical mistakes made as a junior researcher. Due to this, the three design briefs presented in Appendix A emerged very late in the process, just as the overall findings have later been revised to a more succinct overview.

# Personal Note

I started my original project with full conviction of ending it with concept design. I was determined to have something worthwhile to design for, and to avoid venturing straight into domains of architecture or interior design. This intent was not necessarily born under the brightest stars: I had no experience of cruises, and relied too much on awaited findings to somehow direct design. In the end, I needed to make a decision on whether to produce mediocre-at-best design in limited time, or substantiate my own, tacit knowledge that was displayed by using a varied set of methods: to tell the time, or to build a better clock...

In the end, the time it took to produce this thesis would have sufficed well for design work - but I hope to have learned a better way to hammer that nail by persisting with the chosen approach: working on this thesis has helped me to resolve some questions that have been following me for several years of studying design with an emphasis on user studies and concept development: This research on passenger experience was not the first time I found myself grappling with the results of research, or their eloquent weaving into design directions. I had come to a point where I had basics covered and needed to find new ways of learning in order to improve: to make research more efficient, and relevant for design.

As it turns out, research of this kind is uncertain after all. There are as many soft

and hesitant answers that can be worked into fruition as hard and obvious ones.

If I would start the same project over again now, I would be more confident about my own voice and less worried about getting it to work right away. I hope I would be more smart about research focus. I would make more out of each research step having developed a clearer sense of intermediate, and final targets to be worked for.

As I kept learning through reading and writing, the final, presented principles tend to represent something that is already a bit beyond my original take: having them made visible was a key contribution for myself. This holds especially true on those three chapters on interpretation, synthesis and communication. I look forward to applying these new lessons: as well as integrating design outcomes more tightly to the process.

Finally, I am much indebted to, and grateful for having been able to work in a Triad. Whereas the production of this thesis has been mostly defined by solitary work, my original project was marked by tight collaboration with Heini and Liping. Discussions and debates molded views and refined insights - they were an essential, and enjoyable aspect of the project.

Markus drove my work on through his support and questions. His sparring led me to initially define the final direction of this thesis; a work which Turkka continued with his tutoring and encouragement.

Thank you all for your kind help.

# Appendix A

## Designing Cruise Ships: Safety as a Matter of the Mind

A significant shift in our understanding of humans underpins this body of work: We are less rational than we think we are, and we know less than we feel we do. Within development and business planning this has relevance to how positive safety experiences are designed and maintained. Here particular attention is paid to passenger areas and non-emergency situations (Figure A1).

The idea of irrationality and biases as constituents of natural behavior have become formally acknowledged: counting i.a. a 2002 Nobel price in Economics for prospect theory, or Herbert Simon's on administrative decision making (Mintzberg, Ahlberg and Lampel, 2009, p.157 on Kahneman and Tversky, 1974 and Simon, 1947). Within safety and risk management, behavioral psychology and social studies have been taken up i.a. in the contexts of transportation and urban neighborhoods (see e.g. Dallago, et al., 2009; De Young, et al., 2001) - but also on the level of national policies reflecting a 'Zeitgeist' of fear and uncertainty turning to precautionary action (Furedi, 2009). Within tourism, safety experiences have been studied from the perspective of decision making and destination image (see e.g. Sönmez and Graefe, 1998).

Arising out of such debates is the differentiation of actual, objective and risk oriented safety, and perceived, subjective take on safety (Schneier, 2008). The latter

implies that by being human, any passenger, crew member, policy developer or cruise ship developer can base their actions on a 'wrong' - but convincing - safety evaluation.

The question raised here is whether a subtle, everyday side to safety as passengers experience it has remained unexplored in the cruise industry. The expected benefit of such an exercise lie in rethinking design: how future cruise ships cater to passengers and crew. By extension, changes might lead to new forms of collaboration between cruise corporations, developers, organizations and interest groups.

In order to set a basic level to start out from, the aim here is to give tools for cruise industry experts to discuss safety as a human experience as much as a legal protocol.

### **A people oriented take on leisure cruising in general**

Cruise and Ferry Experience program at Aalto University, under which this Master thesis project was produced, aims to introduce an multidisciplinary, passenger experience sensitive streak to applied mechanics in cruise ship design: In relation to leisure cruising, a vessel can easily overshadow passengers, literally as well as figuratively in the minds of developers. Cruise ships are gargantuan systems which no single person or discipline can develop alone.



Figure A1: Not being physically or mentally harmed is a basic level expectancy of passengers going about their holiday pursuits. However, feelings of anxiety and confusion can undermine essential trust and comfort. For an in-depth study of passengers' safety experiences, see Salovuori (to be published), or Ahola, et al., (2012)



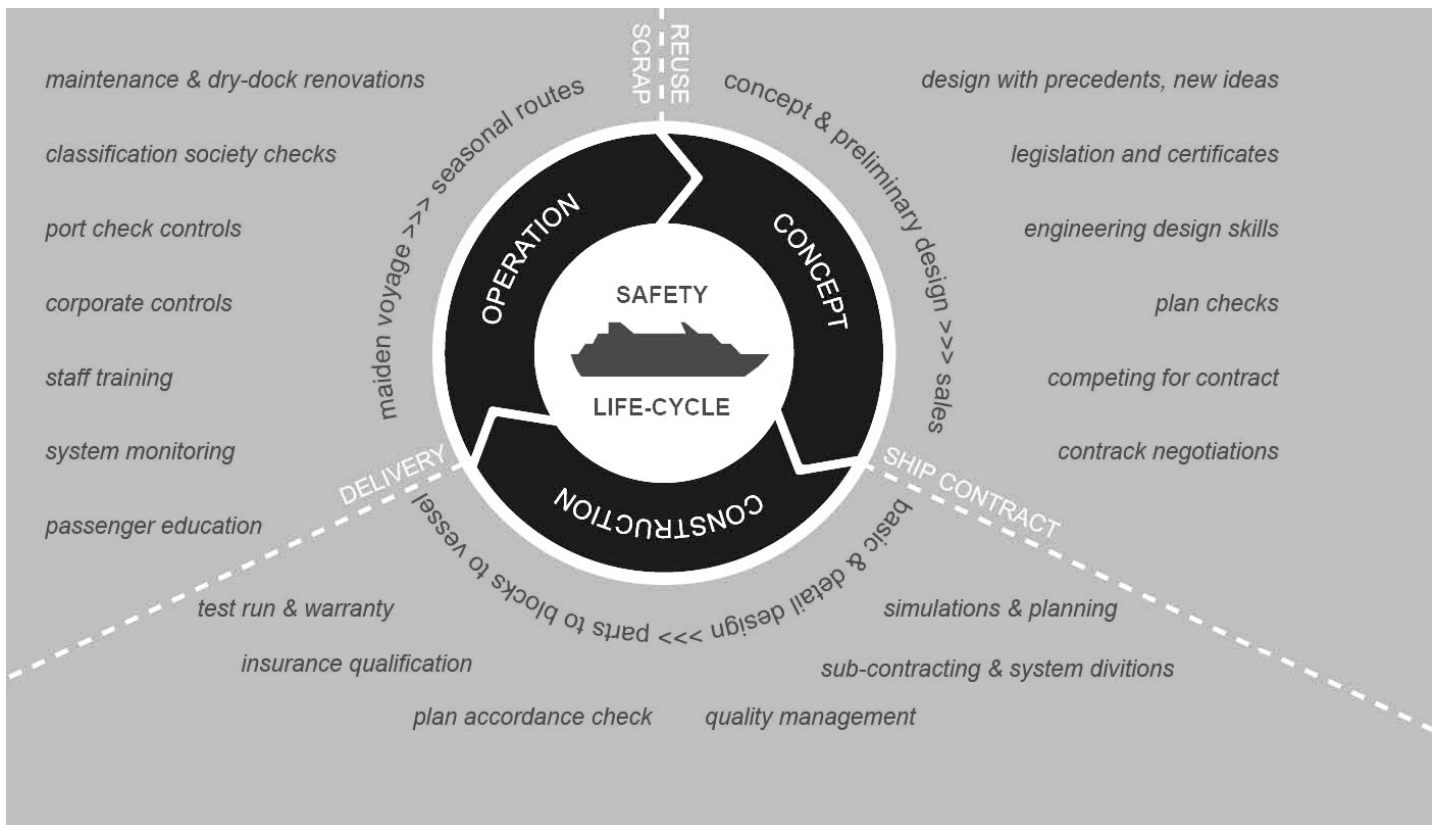


Figure A2. In-built, actual safety: a biography of a cruise ship. Laws and regulations set standards and liability for planning, construction and maintenance. Significant, financial investments are made and transferred once ownership is passed on in delivery. While relevant, safety is not the only interest of involved parties.

In the current system, many smaller companies partake in building and planning; to this end, clear responsibility areas are divided to each different party. The way from the drawing board to realized vessel is long and filled with intriguing technological, structural and material challenges. Once finished, ships pass into the ownership of cruise operators and go on to sail global seas. Only then do passengers populate the vessels.

In the cruise business, cruise operators stand in a central position to gather and disseminate data on passengers who visit their vessels. For understandable reasons however, there are limitations to how much structured information or more fuzzy insights such corporations are willing, or even able to disclose to external parties.

Mutually established partnerships with suppliers enable knowledge sharing. Planning consultancies actively seek ways to make unique contributions. IT oriented teams develop information systems that enable various kinds of automated data gathering. Still, the essential problem remains

that for cruise ship developers, be it a ship yard or cabin provider, the accumulation of primary insights on passengers can be a less obvious path to take. Technical and financial performance is of primary interest even in concept development, where design with precedents plays a significant role (Andersson, et al., 2004).

Perhaps the clearest sign of changing mindsets then is the case of Viking Line Grace. Current and potential passengers have been actively engaged via social media and events to take part in the specification of services for this Nordic ferry during development and new-building. In this kind of mindset, active interest is taken in what potential passengers say, think and dream about. (Molin, 2012)

### **From designing actual safety...**

The following section describes the cruise business environment in order to shape out the conventional notion of objective, risk oriented safety. as I have come to understand it during this thesis process.

# FIRE ZONE N.5

MVF

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## SPRINKLER SECTION S48

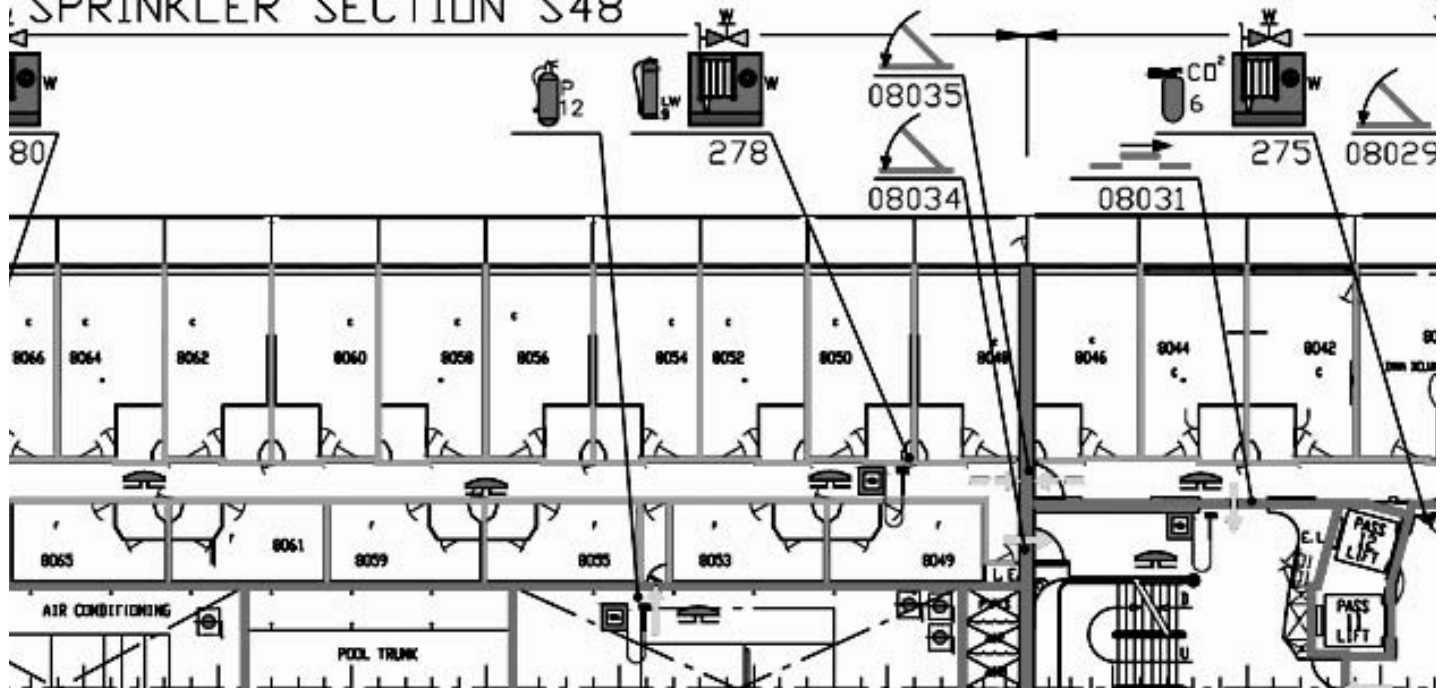


Figure A3: Detail of a fire control and safety blueprint (courtesy of Foreship Ltd.). Such mappings are most likely to spring first to experts' minds when discussing safety in cruising, highlighting a conceptual and terminological hurdle to overcome when opening a discussion on safety experiences.

As a first, statistics of past incidents can be used as so-far indicators of actual risk severity: Three key attributes form the basis for evaluating risks from an emergency-bound perspective: number of casualties, environmental impact, and financial losses. An extended listing includes qualifying for insurance, competitive advantage and protecting investments. (Marine Technology, 2011)

Few to no exhaustive statistics regarding accidents of leisure cruisers only were found however. An EMSA (European Maritime Safety Agency, 2010) report gives combined statistics for 126 ferries and 21 cruise ships: in 2007-2010 collisions (70 to 80 per year) and groundings (22 to 30 per year) were by far most common, with fires and explosions (11 to 30 per year) being still more frequent than sinking (6 in total), of which two were non-operational vessels. Lois, et al. (2004) cite fifteen serious leisure cruise ship accidents between 1992 and 2001; casualties, passenger or crew members, were reported only in two cases, with 100

dead marking the highest tragedy.

These numbers are relatively small, given that CLIA (Current Lines International Association, 2010) estimated 14.4 million passengers going on a cruise in 2010, continuing an average annual passenger growth rate of 7% for each of the preceding twenty years.

Statistics give little idea however, on how safety is actually build in (Figure A2). Discussions with cruise ship experts revealed that safety is conceptually so tightly bound to a fatalistic, large hazard outset (Figure A3) that it is almost impossible to discuss any other scenarios. This kind of mindset is understandable, since any emergency on sea can take catastrophic proportions. After all, a contemporary cruise ship is a multibillion dollar investment in the form of an oil fueled steel case navigating oceans while sheltering thousands of people. Actual safety is taken seriously. It is a sensitive topic.

As to regulation and supervision, industry-wide standards do exist: minimum requirements for design and operation are

collected under SOLAS (Safety of Life at Seas), the most important international treaty regarding merchant vessels. First instituted after the Titanic disaster in 1914, it has since been revised several times and elaborated on by a number of other codices. (IMO, 2011) Highest international authority for marine safety resides with IMO, International Marine Organization, founded in 1958 and operating under United Nations, and IACS, International Association of Classification Societies (Marine Technology, 2011). Nationally representative associations and insurance companies complete this network.

Carnival Corporation and Royal Caribbean are the two largest cruise corporations, each holding a diverse brand portfolio of cruise lines (Cruise Market Watch, 2013). While many corporate headquarters are US based ships are likely to be registered under divergent flags-of-convenience that determine laws applicable each ship in question (Wood, 2000). These flag-states, such as Bahama or Liberia, have lower taxation, lower minimum wages for staff and less stringent design requirements in certain areas.

However, classification societies, national authorities, and private port owners institute checks and certificate requirements applicable to these vessels as well. UN special agency ILO, International Labor Organization, engages in setting required standards for cruise staff working conditions. USCG, United States Coast Guard, runs controls to enforce that its criteria are followed in each vessel sailing under US flag or carrying US citizens on board. USPH, United States Public Health, issues public ratings regarding the quality of food hygiene. As it turns out, understanding US judicial systems and legal recognition of corporate responsibility reflects on understanding cruise ship safety debates. (Aarnio, 2012)

Even on a relative microscale, each cruise ship with its staff and on-land contacts forms a unit. Most cruise ships have seasonal routes in well-established market areas,

sailing e.g. in the Caribbean during winter months and relocating to the Mediterranean in summer (Ylirisku, 2012). More extensive renovations are undertaken every five years (*ibid*). Otherwise, the vessel remains operative in water. Navigation, weather forecasting and other monitoring systems play a significant role during operation. In-built human factors and staff training impact the reliability of such systems in practice.

Lois, et al. (2009) postulate that an overall change in ship safety risk evaluation culture is turning reactionary and fragmented efforts into comprehensive, in-built mapping procedures.

'Regulation 17', an addition to SOLAS, provides that "alternative designs and arrangements for fire safety" can be accepted as long as the proposal is well-grounded (IMO, 2001). In other words, cruise ship developers can come up with significant change requiring improvements as long as validity checks are run.

On the other hand, cruise ship building projects are simply too big for major changes to be developed and implemented each time. Until recently, lack of reliable, extensive simulation tools has made computed evaluation of new designs challenging: After all, cruise ships are complex systems where changes sub-parts such as cabins influence other parts as well as overall design (Ylirisku, 2012) - even as contemporary building cruise ships is organized by dividing units among several smaller, specialized suppliers.

Furthermore, investing in safety is expensive. Risks can be calculated to an extent, e.g. for how liable a room is to catch fire, while other forms of return of investment are more difficult to indicate: i.a. tourism researchers have found that while a negative image will swerve would-be patrons to other locations, a positive image does not bring more visitors (Sönmez and Graefe, 1998). From this perspective and depending on overall priorities it would make sense only to prevent bad publicity

and abide by minimum requirements.

### **...to perceived safety**

The only two areas where passenger safety is discussed in detail without linkages to ship damage are food hygiene and personal security. The confined spaces, thousands of people on board and possibly tropical conditions are favorable to epidemic spreading of contagious diseases. Magazine articles (see e.g. Rawe, 2006) and non-profit organizations (ICV, International Cruise Victims, 2011) give emotion sparking accounts of sexual assaults, passengers gone overboard and less than admirable corporate procedures in such cases. Academics have raised concerns about linkages between self-destructive behavior of holiday goers and actions of deprived, aggravated locals in cruise destinations (de Albuquerque and McElroy, 1999).

In fact, accounts of both stomach flu epidemics and personal security have made for such significant virtual, second life that would-be passengers are likely to encounter them in discussions while researching cruise options online - regardless actual statistics if available, or of the authenticity and vested interest of authors in either direction. In fact, US Senate passed a 'Cruise Vessel Security and Safety Act of 2010', requiring i.a. higher rails and portholes to be installed, as well as anti-viral medication and information-passing procedures to be accounted for, based on the following:

*"It is not known precisely how often crimes occur on cruise vessels or exactly how many people have disappeared during ocean voyages [...] Obtaining reliable crime-related cruise data from governmental sources can be difficult [...]" (US Congress, 2009, pp.1-2)*

The main point to be drawn to the discussion here is not about how to address hygiene or crime on board but to highlight an increasingly public debate about how

cruise companies deal with individuals - most notably their guests, but also with employees and other stakeholders. In this setting, social uproar is as much a potential hazard as chemical inflammation.

Individual stories are powerful not only because social media, blogs and guest review oriented travel sites provide a suitable medium for them to go viral; they are powerful because humans are psychologically triggered to give them more weight than statistical accounts. (Kahneman, 2011)

Another trouble with extreme cases is that they tend to receive undue attention; possibly blowing countermeasures out of proportion whereas gradually evolving, subtle signs of danger can go unaddressed. In such cases both actions and oversight can make matters worse for everybody involved, just as absolute safety and zero breaches are unattainable scenarios in the long run: Safety is multidimensional instead of on-off, secure-insecure. It is a trade-off with money, time, privacy, wants, and so on. (Schneier, 2008)

Even in this light, it makes sense to think of worst possible scenarios in order to test whether readied precautions are able to sustain acceptable levels of safety, however that is to be defined. The suggestion here is that the total impact of such measures needs to be acknowledged - as unpleasant or challenging as it might be in practice. As a reward, alternative ways of reaching the same standards can be looked for in order to provide more multifaceted, eloquent safety solutions.

Yet, to make matters more complicated safety evaluations can be highly situational as well as subjective: Just as sensitivity to heights tends to vary, fear of falling can be less acute sitting in an airplane flying ten kilometers high over an ocean than standing over a pool on a diving board five meters high.

Cultural conventions and experienced precedents also matter: Interpretation of

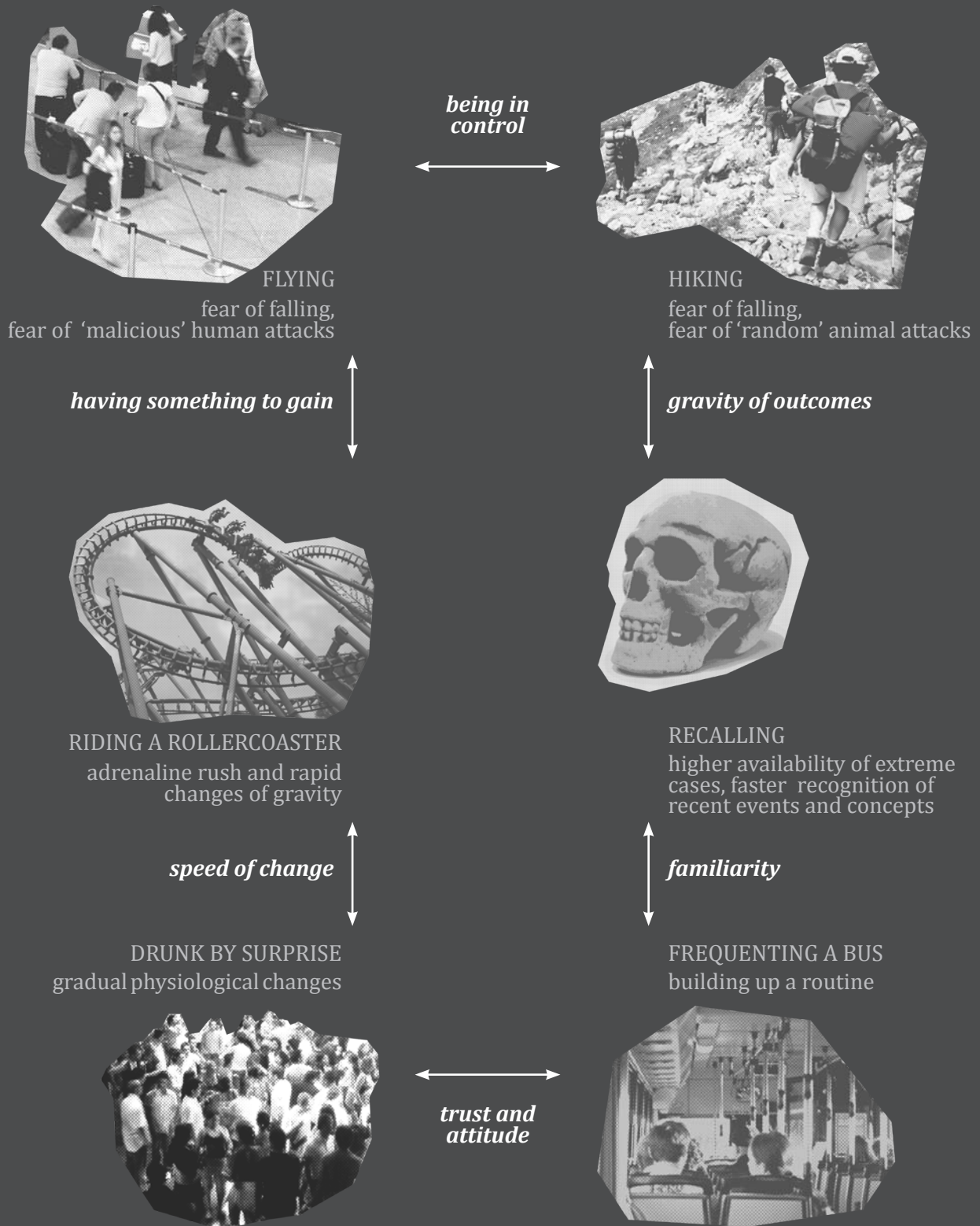


Figure A4: Six factors that have been found to impact subjective safety evaluations (adapted from Schneier, 2008; Kahneman, 2011; Csontos and Krallis, 2007). For each, two example situations with psychological or physical drivers that are likely to play a role are listed. Images edited, originals courtesy of sxc.hu.

e.g. gestures and colors tend to be locally dependent. Seat belts tended to be seen as nuisance when they were first introduced. What is considered safe can change.

As it turns out, design that is sensitive to perceived safety requires sensitiveness to human behavior: social drivers and individual sensitivities, capabilities and habits, unconscious and conscious processes. At the same time it seems clear that few to none of these can be designed. The upside is that environmental conditions can be designed: either to encourage certain actions (see e.g. Lockton, Harrison and Stanton 2000), or to enhance desirable impressions.

Figure A4 gives a short overview of factors that can be useful in relating perceived safety to taken action. Based on given examples, implications for design could take place along the following dimensions:

- acceptance of authoritarian intervention vs. relying on individual responsibility
- ridiculing vs. emphasizing the severity of possible consequences of decisions
- deliberate vs. automated actions
- noticing signs that contradict vs. confirm held assumptions
- being surprised in hindsight vs. having immediate feedback to react to
- prioritizing options based on the match they strike with individual preferences vs. social expectations

Still, the earlier argument of passenger insights being difficult to reach for many potential benefactors still stands. As such, two key hurdles need to be overcome in order to inform design: To create as well as gain access to beneficial forms of data, and to organize and make sense of it all.

## Locating Experiences

Whereas the main work of this thesis concentrates on the process of going from research interest to design insight, the ideas behind designing for experiences have not been addressed. Therefore this section serves to provide a brief outline of it by looking at ‘user experience’ as it has been studied across various domains of design.

First it seems necessary to note that a variety of cruise types are available with specified emphasis, accessing various areas of the globe. A cruise can last up to two to over fourteen days, with some passengers on board being on a cruise for a first time while others go on several cruises a year. A number of possible activities on board are offered, cabin visits are repeated between a diverse set of recreational pursuits. Different cruises are likely to attract different kinds of visitors who through their co-presence create a significant part of the ‘feel’ of a cruise.

Should a cruise experience be then

studied as an overall experience, or a set of individual experiences? Should a fantastic theater play, an inattentive waiter, or a walk along a non-descriptive corridor be given more, or equal weights? Why? In order to understand passenger experiences in the first place, a number of existing hypotheses and related terms on ‘experience’ need to be covered first.

### Outlining User Experience

‘Experience’ in leisure cruising seems to be frequently tied to a wow-factor rather than an equally possible, more theoretically informed term. However, there is no single definition but many. Overall, user experience is a

*“holistic, all-encompassing concept that includes the user, the product, and context of use” (Battarbee, 2004, p.24)*

For example, Keinonen and Jääskö discuss user experience in concept development, outlining five dimensions that need to be understood in order to work with user experience (Figure A5). Still, Battarbee (2004) notes there is an inherent fluidity to the concept of experience that product or people centered frameworks tend to hide or oversee; adopting an interaction centered approach, she identifies two theoretical subcamps to interaction oriented theories:

*“The experience-in-interaction view takes the individual and describes his or her experiencing in relation to time. There is the moment, what came before and what comes after[...] The perception-and-meaning view describes the kinds of changes that happen to how the moment is experienced.” (Battarbee, 2004, p.47).*

In turn, Forlizzi and Ford (2000) identify three ways to refer to ‘experience’:



Figure A5: People can see products - or services and interiors for that matter - through various lenses (figure adapted from Keinonen and Jääskö, 2004, p.89; Battarbee, 2004, p.44 on Jääskö, 2003)

- Experience, or experiencing, as a flow of autonomous, habitual and sensory stream directed by automated, ‘thoughtless’ processes,
- an experience, as a something “that has a beginning and an end” that calls for our attention, and
- experience as a story, introducing schematized meanings and a virtual or real social setting in which experiences are communicated to others.

(Forlizzi and Ford, 2000)

In other words, events such as opening a cabin door or ordering ice cream could feature on any of these levels - or as shifts of them. In Gilbert’s and Veloutsou’s (2006, pp.298-299) terms, expectations are adjusted: people adjust their expectations according to their experiences, drawing implications for ‘next time’ decisions.

Studying how service experiences can be framed could then also offer useful take on such shifts: E.g. Stickdorn and Schneider outline three levels on which service experiences are of design interest:

- A service moment or service touch-point in a general environment where services are delivered, which are explored by our senses. Such points of contact start already at a pre-service period, realized by the actual service and followed up by a post-service period.
- Each can be further divided into multistage, and multiple possible sequences called service paths. The pace of actions and accumulative impressions left with individual, different customers are of interest on this second level.
- As a third, organizational culture and goals are reflected in employee motivation, customer enthusiasm and company reputation. Furthermore, all services contain a number of hidden, backstage operations. Some of these can be add value for a customer if made visible. Others can remain

internal operations required for the smooth delivery of a service. (Stickdorn and Schneider, 2011, pp.35-45)

Two central aspects of experiences still remain to be covered: motivation, or need (see e.g. Beyer and Holtzblatt, 1998; Hassenzahl, 2004; Stickdorn and Schneider, 2011); and meaning (see e.g. Battarbee, 2004, pp.27-30).

To shortly display the importance of these, it seems reasonable to say that a modern passenger might want to sample certain destinations, just go 'somewhere', unwind from work, accomplish work, impress a spouse, party with passing acquaintances, establish a comfortable holiday routine, or go on an once-in-a-lifetime trip. Some of these aspirations might be clearly stated, others vague, some primary, others contributing. The apparent range of possibilities reflects in how varied ways a product or service can be experienced.

As to meaning, Mattelmäki lists six perspectives in which products can carry meaning: it can be a remembrance, or a design worn to beauty rather than rags, it can challenge, or be a companion, a symbol of aspiration or a means to an end (Mattelmäki, 2006, pp.24)

Battarbee (*ibid*, 30) notes that meaning is shaped by actively making sense of actions and impressions, as well as sharing these with others because of an inherent, social drive: experience can be studied as a interpersonal and communal as much as a subjective phenomenon.

It seems worth noting as well that many cruisers travel in groups – hence decisions, gossip, cues for action, etc. might lack an important ingredient if studied from the perspective of individuals only, or in one-on-one sessions. People not only 'experience things together', but engage in a dance of influencing and following others (Koskinen, et al., 2011, pp.113-116): tourism emphasizes anticipation, and daydreaming, for which images are formed by persuasive

stories told by relatives, friends, media and marketing (Urry, 2002). From the point of the latter two, meaning could be even taken studied through brand or destination image studies - as long as studied criteria are found to be of relevance to targeted patrons or would-be-passengers.

A short overview of cruise history shows how meaning can change even significantly when set as high as a societal level: Transatlantic cruises in the early 20th century served as a stepping stone to a new life overseas. Quartermaine notes that

*"traditionally, to 'go to sea' was both unpleasant and dangerous, a considerable and calculated risk taken only for such compelling reasons as fishing, trade, essential travel – or escape from poverty or persecution"* (Quartermaine, 2006, pp.25)

In contrast, the term 'leisure cruising' developed only later as a cruise turned to convey a sense of 'one repeatable holiday experience among numerous other options'. In this view, recreation and entertainment, care-free pleasure and accessible comfort are bought as well as expected; travel is for travel's sake, an escape of rather than plunge for livelihood (*ibid*, pp.25-43). Contrasting this description with the earlier one on personal motivation it seems clear that experiences do in fact extend within a dimension of subjective to communal, or cultural. On the other hand, there is no single, distinct practice being engaged in such as i.a. just visiting heritage sites, but most likely several that are intertwined (Urry, 2002, p.75-78).

A critical topic to be raised still is the role of retrospective. While memories impact people's decision making, they do not necessarily accurately describe the quality of in-moment experience: Kahneman and Riis illustrated that us as humans contain a 'remembering self' and an 'experiencing self'; one that lives in the now of a multidimensional, sensory stream of



being, and one that is “relatively stable and permanent”, conveying past experiences based on what is remembered, and not on what was actually experienced at that time. (Kahneman and Riis, 2002)

From the point of evaluating user experience this raises questions of method: A continuous measurement should point objectively whether more time was spent with neutral, bad, or good experiences, and to point what might have instigated them. Asking people, it might be necessary to note that answers tend to emphasize most intensive peaks as well as concluding points of experience (*ibid*).

It might not seem as terrible that mundane tasks are left out at first. However, in one of the interviews conducted on board of MSC Sinfonia a teenager stated that their family cabin was too cramped but all bigger cabins had already been booked. My own experiences of sharing a cabin with my fellow Triad members provided me some ideas of what this might mean in practice: engaging in constant, luckily polite, negotiations on the placing of personal belongings, as well as access to shower, toilet, mirrors, and plugs. Whereas the first statement could be taken to suggest changes in ticket booking and cabin type ratios, the latter provides ideas of how to design cabins or offer special supplies based on identified types of cabin guests. As can be seen, these two types of emphases - identifying intense moments and weaving through subtle influences - seem to enrich each other. Furthermore, it could be as rewarding to turn neutral or passable experiences into great ones as much as recovering dismal ones.

While brief, this review has aimed to indicate starting points for researching how organizations can facilitate experiences, and what items researchers might become interested in. Facilitate is a choice word in this case, as the ability to design e.g. emotions is debated (Norman, 2005; Hassenzahl, 2004; Battarbee, 2004, pp.56-61): Cruise companies can design ships

with care, select their customers, attract people with certain kinds of psychological needs, and service evidence, train staff, built up a consistent destination image, invest in upholding service quality in other ways. Both design and marketing are likely to be highly interested in research on how objects and environments can influence peoples' perceptions.

That said, following the presented debate, a more interesting question becomes how people perceive, experience, this world in the first place. In sociological terms, context does not define behavior: it is the passengers who create context (Silverman, 1993, p.8): ‘what people do, what they say and what they make’ (Sanders and Dandavate, 1999).

### **Considerations for practical steps**

Some implications for actually running research into perceived safety, as well as other aspect of cruise experiences can be formulated based on the previous section. Again, this listing does not aim to be an exhaustive but perhaps illustrative one.

Battarbee underlines the empathetic and emotional nature of interaction; making face-to-face meetings more convenient, if not essential, in comparison to remote sources such as surveys (Rhea, 2003, pp.148-149). Especially in the defining stages, the chance to observe actions in context as well as listen in makes the task easier for both informants and researchers (Battarbee, 2004, pp.56-65).

Describing, as much as evaluating experiences is not straightforward. Beyond several alternative and overlapping theories to choose from, various forms of passenger related data exist. For design purposes in the concept stage, demographic details might play a surprisingly small role:

*“Think of two customers. Both were born in 1948, male, raised in Great Britain, married, successful and wealthy. Furthermore, both of them have at least two children, like dogs*

## Experiences on board of MSC Sinfonia, 31 August - 7 September

**Passenger expectations** vary depending on experiences and attitudes towards cruising (Table A1). As a first time cruiser it is surprisingly difficult to anticipate what is to come: Corporate sites are read with a critical eye based on previous holiday experiences. Assumptions, wishes and prejudices also come to mind. Passenger given cruise reviews for the same trip can range from praising to appalled. Friends and other familiars who have been on a cruise act as a trusted source of information and impressions.

A key determinant for the feel of the cruise lies in one's **travel company and other passengers** when actually on board. On our cruise passengers were predominantly Italian, and Spanish families enjoying their summer holidays. **Frequent dining and variety of offered food** played a distinctly central role

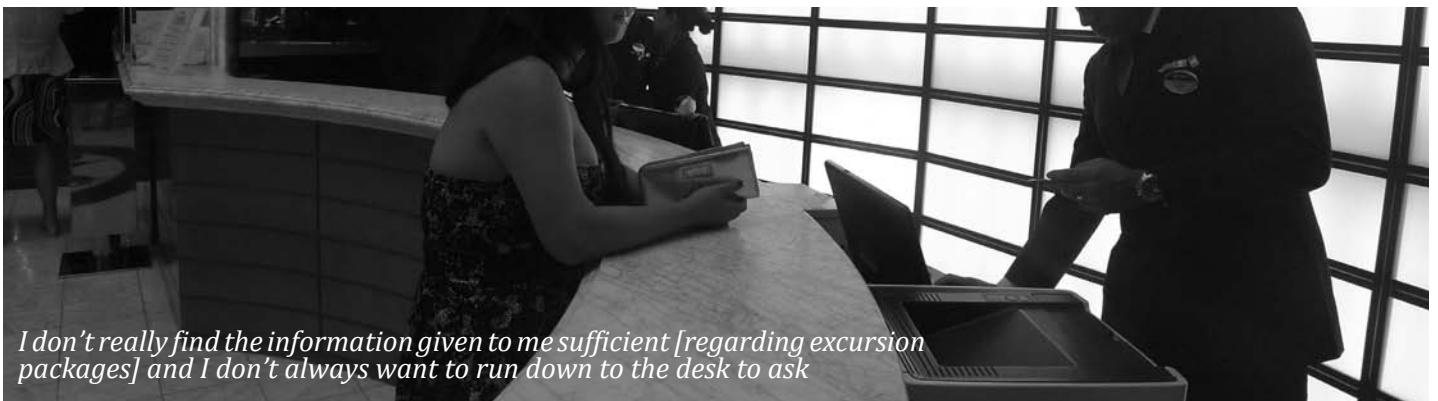
on board. We found **communication and the way it is administered** to be highly valued in this travel and holiday context. **Entertainment** is planned according to such seasonal changes: soon MSC Sinfonia would set to course to South Africa to welcome young party crowds and honeymooners. While MSC Sinfonia acts as a **floating hotel** visiting various destinations, other vessels acts as destinations in themselves. (Figure A6)

One would believe that people are most afraid of collisions or the ship sinking. Fire is cited as the most dangerous hazard by experts. However, passengers on board of cruise ships are far more often afflicted by **motion sickness, claustrophobia, or chronic conditions** such as heart issues. The most typical accident is a **cut, bite or strained limb caught on an excursion**, as stated by a medical nurse on board.

Table A1. What catches people's attention varies. Looking at potential cruisers in particular it seems likely that current marketing strategies reflect in expectations: experienced cruisers look at standard services that are comparable between ships in order to determine attractiveness.

<i>potential cruiser</i>	<i>cruiser</i>	<i>non- and past-cruiser</i>
<p><b>+ recreation and sports</b> wall climbing, miniature golf, ball facilities, running tracks</p> <p><b>+ fitness and health</b> spa, fitness center, beauty salon, swimming pool, hot tubs and whirlpools</p> <p><b>+ supplementary attributes</b> library, educational classes, internet cafe and computer rooms, business and conference center, laundry</p>	<p><b>+ entertainment</b> night clubs, social gatherings and parties, games, contests and tournaments, casino, bars and lounges, shows and performances</p> <p><b>+ crew</b> crew service, communication from cruise director</p> <p><b>+ core attributes</b> cabin, restaurants, food, room service</p>	<p><b>- health-related</b> recent outbreaks of diseases, being old, seasickness</p> <p><b>- safety</b> fear of terrorism, feeling unsafe, fear of ships or water</p> <p><b>- vacation type preference</b> over-emphasis on food and shopping, ships being overcrowded, lack of educational programs</p> <p><b>- changed life circumstances</b> caring for children, work obligations, lack of money, lack of travel company</p> <p><b>- economic reasons</b></p> <p><b>- previous experiences</b></p> <p><b>- lack of information</b></p>
<p><b>- prejudices</b> superficiality, crowds, overemphasis on food, being surrounded by the elderly, confinement and loss of control over vacation program</p>		

(+) key attracting, buying decision influencing attributes on board (Xie, Kerstetter and Mattila, 2012)  
(-) reasons for avoidance (Park and Petrick, 2009 on Yarnal, et al., 2005 and CLIA, 2004)



*I don't really find the information given to me sufficient [regarding excursion packages] and I don't always want to run down to the desk to ask*



*Several passengers said that they picked a package tour for Tunis whereas in other destinations, i.e. Ibiza or Marseilles, they preferred going on their own*



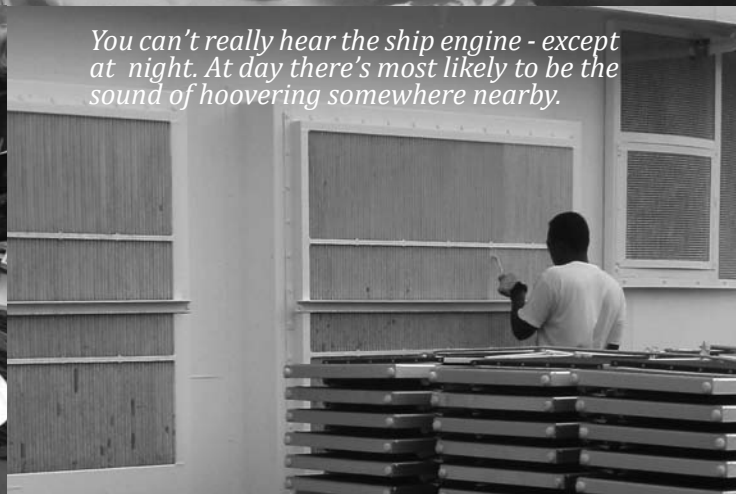
*An Asian family had picked sun lounges in the more quiet, picturesque ship rear and were napping with hats and jackets protecting skin against sunshine*



*I prefer to select food items myself, and I know how to, instead of picking a food package for my diabetes*



*This is my favorite place, this bar. We like to spend a lot of time here.*



*You can't really hear the ship engine - except at night. At day there's most likely to be the sound of hoovering somewhere nearby.*

Figure A6: All passenger interview quotes and observations show how subtle and everyday dealing with perceived safety can be; and how design, offerings and procedures affect it. For example, there was not a lack of information as such but contents and way of delivering that were found unsuitable. (see also Ahola, et al., 2012)

## Staff as Users and Gatekeepers

Passengers are not the only ones to design for when discussing design for experiences. After all, cruise staff, third party service providers such as booking sites and tour providers play a central part in the overall cruise experience.

By definition, employees have their professional assignments to fulfill just as they are part of rewarding systems. E.g. for customer serving personnel passenger ratings collected at the end of each cruise by feedback forms tend to determine salary, working hours, re-employment and promotions.

Overall, staff organization onboard is navy like: featuring high hierarchy, unequivocal task divisions and clear commanding lines. Each staff member has their assigned spot and next superior to report to. Dress code is very strict and there is an abundance of uniforms for each placement, ladder position and occasion; a very visual way of indicating roles and responsibilities - to other staff members as well as passengers.

The 701 crew members on MSC Sinfonia are divided into three big departments: hotel, deck and engineering. Hotel department is the biggest one as it includes housekeeping, reception, bars and restaurants. Security and safety are different functions. Those most

visible to customers, line staff members in the hotel department, tend to stand lower in hierarchy (Table A2). Weaving through and below public areas are fluorescent lit corridors and sections only for staff use.

On board of MSC Sinfonia tips are included as a daily fee. Dinner seating is fixed and each table has an assigned waiter, just like each corridor has an assigned concierge. These two staff members become familiar faces. However, in the case of questions customers are almost always asked to go to the reception where complaints and clarifications are handled centrally.

A customer relations manager goes through complaints daily in order to check whether they have been resolved. Fearful passengers are encouraged to find pleasant pastimes on board to reduce worrying. Emergency and general safety instructions are mediated through various media: signage, 24h television channels in various languages, and safety drills signaled by announcements read rapidly in a smiling voice each time new passengers have come on board, and a staff member lined up on each corridor and turn to direct drill participants from cabins to assigned muster stations based on lifevest markings.

Table A2. A mapping out of staff hierarchy and visual presence in public, passenger areas, as well as some indicated roles and responsibilities

	<i>infrequent to no visibility</i>	<i>high visibility</i>
<i>high standing</i>	<p><b>captain and deck crew</b> (e.g. officers)</p> <ul style="list-style-type: none"> <li>» authority on decisions</li> <li>» carrying final responsibility</li> <li>» representing the company and crew</li> </ul>	<p><b>hotel management</b> (e.g. head chef, customer relations)</p> <ul style="list-style-type: none"> <li>» overseeing and directing employees</li> <li>» reacting to centrally, on land processed feedback on previous cruises as they are sent back on board</li> <li>» hosting weddings and special occasions</li> </ul>
<i>low standing</i>	<p><b>engineering crew</b> (e.g. sailors)</p> <ul style="list-style-type: none"> <li>» outdoors maintenance only apparent reason to enter passenger areas</li> </ul>	<p><b>entertainment crew</b> (e.g. dancers, kid's program, photographers)</p> <ul style="list-style-type: none"> <li>» engaging passengers, hosting activities, providing souvenirs to buy</li> </ul> <p><b>hotel base crew</b> (e.g. waiters, cleaners)</p> <ul style="list-style-type: none"> <li>» finishing job tasks according to form, following immediate supervisors directions</li> </ul>

*and love the Alps. One of them could be Prince Charles and the other one Ozzy Osbourne” (Stickdorn and Schneider, 2011, p.35)*

Beyond selecting frameworks and sought data, participants and studied locations need to be screened as well (see e.g. Kuniavsky, 2003). Looking at cruising habits might be one way of doing this, as long as one becomes aware of the assumptions used in profiling: Percentages on repeat patronage and recommendation rates offer quantitative insight, but less in the way of reasons; repeat patronage might not even depend on experienced satisfaction only.

For example, non-repeat passengers' criteria for desertion was initially supposed to offer intriguing insights on critical safety experiences. No such persons were identified however. Still, a finding made on board was that people jump cruise lines even when they are 'satisfied' with the current journey. Interpretations offered were curiosity raised by seeing other ships in harbors, looking for the 'best fit', a drive to sample cruise ships, becoming a seasoned cruiser, sustaining novelty in holidays, being either too vaguely dissatisfied, or polite to complain to a researcher about particular preferences, and so on.

As for most services, having people constantly tell the best stories about cruising would be a gain for the involved businesses (Stickdorn and Schneider, 2011, p.35). Online sites such as Cruise Critic boast to offer more than 90 000 peer reviews with options to direct review contents according to interest (The Independent Traveler 2012). Following Kahneman's and Riis' logic, such reviews do not represent experiences as such, but

memories of them - especially given that wireless connections are a somewhat recent addition to cruise ships. The more time passes between a service encounter and its evaluation, the more likely responses are likely to be inferred with even unrelated events and impressions (Gilbert and Veloutsou, 2006). This is not to say that experiences set down in reviews are no less 'real' or influential because of this - it is simply recommended to retain a healthy amount of objectivity in listening in and acting upon such views (see Figure 7).

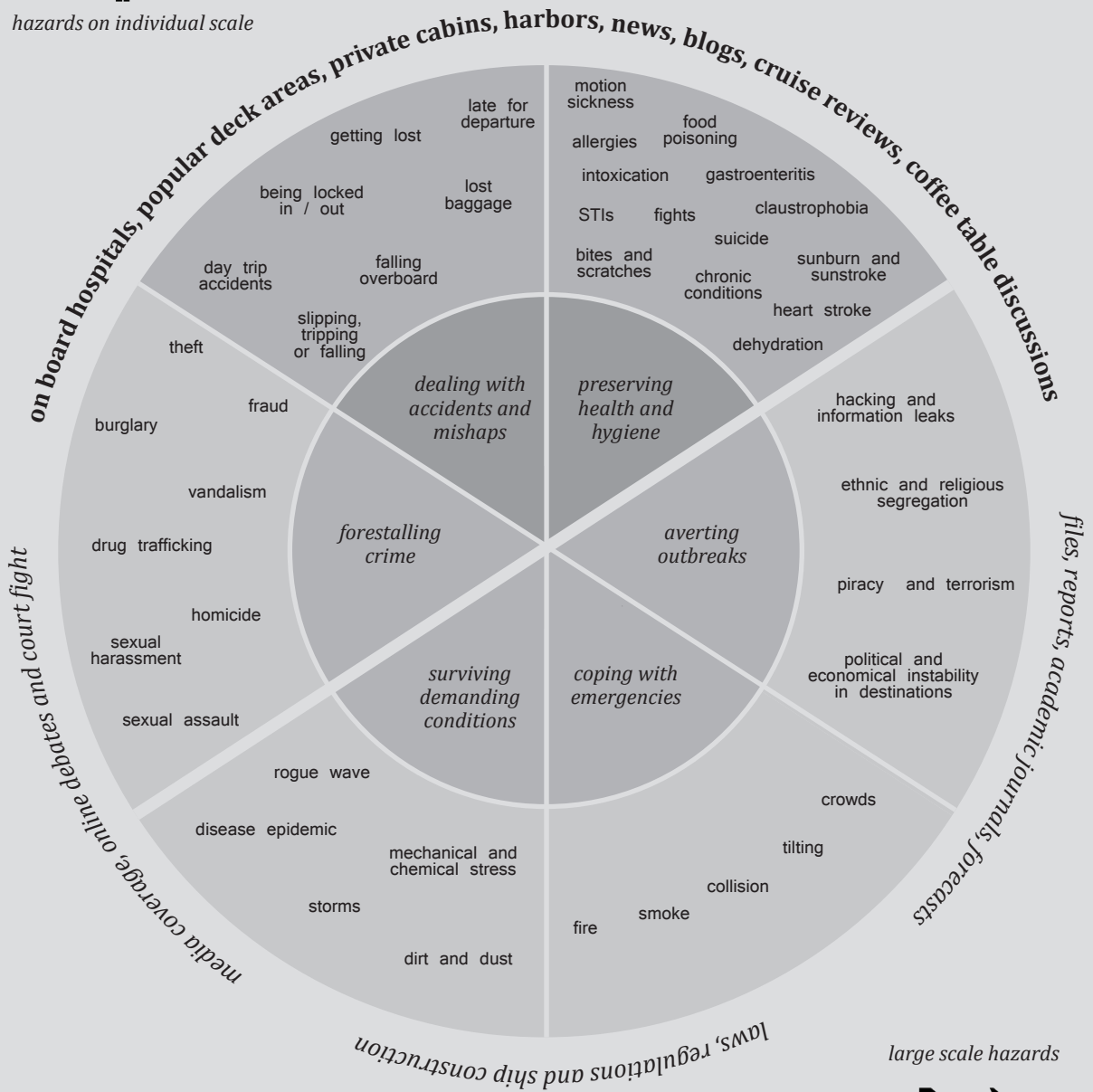
As to continuous tracking, passengers' own permission to observe by 'shadowing' might suffice (see e.g. Stickdorn and Schneider, 2011, pp.156-157). If equipment is available and practical, sampling of biometrical data or video might also help.

For experiences that take a long time to develop, or are infrequent and surprising, or too sensitive to be observed directly, other approaches might be necessary (see e.g. Mattelmäki, 2006 on design probes). I.a. fear can cause shame: anxiety can range from vague discomfort to full out panic. Something that caused anxiety before a trip can dissipate as soon as one steps on board, or be lulled down over the week.

Kuniavsky (2003, pp.393-394) proposes 'telescoping' as a way of checking how experience, the relationship between user and offering, develops over time: inviting informants from different stages to take part in the research. Again, there is a need to profile informants - or to let participants profile themselves first in a people oriented approach.



hazards on individual scale



large scale hazards

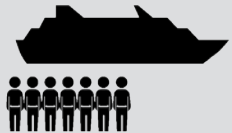


Figure A7. A take on how cruise ship safety and security could be shown in overview. Emergencies play only a part of the overall field of possibilities. Accidents and close calls tend to take on something of a second life by being described, and discussed; even court rooms need to address questions such as ‘reasonable expectations’.

## Conclusions and Recommendations

To summarize, two kinds of safety do exist: actual and perceived safety. Actual safety is based on objectively measured risks and impacts. Perceived safety builds upon subjective, and at times collective impressions: safety experiences are situational, regulated by personal fears, motivations and attitudes. While conceptually separate, perceived and actual safety tend to be intertwined and connected in practice.

That said, without further explanation it cannot be taken as granted what is meant when hearing somebody refer to an experience: They can be found almost anywhere, and there is no single definition to be assigned. Experience is not a fixed entity but it can change over time and is tied to i.a. cultural, subjective and contextual factors. There are also differences between immediate and reported experience to consider.

Safety experiences are contextual and negotiable. People tend to make intuitive safety evaluations by any means conveniently available. Convenience in this case is not only driven by situational, environmental factors but psychological, social, and physiological attributes. **In the case of leisure cruising, anxiety, doubt and fears have strong links to passenger comfort and trust: the ability to relax or seek thrills, to recommend the experience to others, as well as timely responses given in the case of personal emergencies.**

The global mobility of cruise ships should ensure that cruise ships are controlled far more often and by higher standards than most land based resorts. Marine legislation is a complex area even for experts to oversee, combining international as well as national degrees for ship registration, corporate responsibilities, port states, and multinational crew and passengers. Doubts raised by the current system deal much with the same questions as any other globally

operating industry is likely to face.

When a sufficient level of actual, overall safety has been reached, attention is turned to passengers' safety experiences. A driver and a challenge for contemporary cruise industry is identified in ensuring transparency and acceptability of actions with passengers and other interest groups having increasing sway over how cruising is to be discussed and perceived.

The idea of design for perceived safety is established because choices set early do reflect on daily goings and interactions on board. **If safety is seen as a trade-off on one hand, and a psychological condition on the other, the design space in-between could hold a variety of eloquent and efficient alternatives, as well as solutions that lack in either or both areas.** What works in one situation counting overall impact might not be suitable in another however. Furthermore, interventions need not only seek to correct problematic areas but to find new ways of catering superior holiday experiences - or whichever drive is identified as critical. A too narrow emphasis on precautionary steps to prevent hazards might even increase anxiety.

Because multiple organizations engage in the building of cruise ships and responsibilities tend to be clearly defined, the questions of 'Who is to design perceived safety' can arise. After all, the prevalent take on cruise ship safety emphasizes emergency readiness: in this view, responsibilities must be unequivocally assigned for. Yet, **it is suggested that perceived safety and user experiences act rather as a set of lenses, a way of thinking beyond ones own world of experiences - however the final 'design object', be it a service process, a communication plan, or an architectural layout, or a revenue model, or any system connecting these, becomes defined.**

After all, interior architects, engineers, human resources, marketing, designers,

### *3 x design brief*

*Goal: How might cruise ships and on board staff become more sensitized and capable to address customers' potentially underlying fears?*

Cruising generally feels safe, and people are often too busy to feel concerned. Fear is best described as fleeting moments of anxiety, or as subjective sub-personas whispering concerns into one's ear and directing behavior. Such emotions can be difficult to put into words, people struggle when describing them and often use roundabouts, especially in the presence of strangers. Feelings of fear are often laced with shame and expected social decrement. Once a concern grows into a dominant voice, passengers are likely to turn to, or have a travel partner seek any staff member that appears available to answer questions; regardless of whether said staff member is the actual position, or within the rights to act upon it.

*Goal: How might cabins provide people with means to fall asleep without anxiety?*

Once one has retired to the cabin for the night and the lights are shut, other senses become keener. In the silence bangs and creaking can be heard from within the vessel. Lying down slight vibrations and swaying affect the whole body, without a visual fixation point for balance. Various thought processes are initiated just before sleep. According to on board crew, claustrophobia and motion sickness are the most common afflictions amongst passengers. Cases of actual hysteria are most often reported at night. As few passengers travel alone, insomnia is likely to affect cabin companions whether they have the same symptoms or not.

*Goal: How might critical would-be passengers' prejudices about cruise ship safety be dissolved?*

Safety has high priority within the cruise industry, but it is also a sensitive topic to be discussed with passengers and non-cruisers alike. Cruise ship safety as a concept is hard to penetrate for a layman on their own: it is mainly discussed in engineering terms, obscured by a complex legislative environment and actualized in processes involving primarily industry players, their partners and officials. Each cruise ship is essentially a privately policed, gated community under corporate ownership, which forms barriers to open communication. Finally, any safety evaluations we make as humans are highly likely to be influenced by various subconscious biases. Immediate environment, media and memorable stories play a distinct, but not the only role here. Fears on both the industry and passengers side culminate in the sinking of a vessel but start on a much more everyday, even mundane appearing level. Understanding reality and being left with a positive imprint, trust, offer a much more desirable option to fear and doubts of subterfuge.



finance, managers, and others all take part in facilitating cruise experiences: activities cabin areas, in-door and out-door recreation areas as well as stairs and corridors connecting these, powered to cross oceans form a tangible, physical and social stage for experiences; just as the process of becoming interested in cruising, checking options, purchasing tickets, and coming back from a holiday are a part of it.

As it is likely that certain situations, conditions, signs, evidence, or forms of communication are more critical regarding perceived safety, it would make sense to

start out by identifying such key points of attention. The three design briefs (previous page) are offered as a results of such an investigation.

**Cruise operators have an obvious advantage when it comes to formulating and testing further contextual, passenger oriented insights. Yet ship yards, planning consultancies, and suppliers could gain competitive advantage in being able to proactively propose solutions that have a clear value proposal beyond technical and economical factors - regarding perceived safety or other areas of experience.**



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